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UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	ZUG 0001 US
	First Inventor	Szymczyk
	Title	Systems and methods for real time manipulation and interaction with multiple dynamic an
	Express Mail Label No.	FILED VIA EFS

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
1. ☐ Fee Transmittal Form. (PTO/SB/17 or equivalent) 2. ☒ Applicant claims small entity status. See 37 CFR 1.27. 3. ☒ Specification. [Total Pages ²³] Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP § 608.01(a)) 4. ☒ Drawing(s). (35 U.S.C. 113) [Total Sheets ³] 5. ☐ Inventor's Oath or Declaration. [Total Sheets] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☐ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 6. ☒ Application Data Sheet. *See Note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 7. ☐ CD-ROM or CD-R. in duplicate, large table or Computer Program (Appendix) ☐ Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission. (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. ☐ Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 9. ☐ Assignment Papers. (cover sheet & document(s)) Name of Assignee _____ 10. ☐ 37 CFR 3.73(c) Statement. ☐ Power of Attorney. (when there is an assignee) 11. ☐ English Translation Document. (if applicable) 12. ☐ Information Disclosure Statement. (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 13. ☐ Preliminary Amendment. 14. ☐ Return Receipt Postcard. (MPEP § 503) (Should be specifically itemized) 15. ☐ Certified Copy of Priority Document(s). (if foreign priority is claimed) 16. ☐ Nonpublication Request. Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. ☐ Other: _____

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

18. CORRESPONDENCE ADDRESS					
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Address					
City		State		Zip Code	
Country		Telephone		Email	
Signature		/David Xue/		Date	2013-02-27
Name (Print/Type)		David Xue		Registration No. (Attorney/Agent)	54554

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ZUG 0001
		Application Number	
Title of Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Matthew		Szymczyk		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
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Postal Code	90266	Country i	US		
Inventor 2					Remove
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	Alex		Goldberg		
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City	West Hills	State/Province	CA		
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Legal Name					
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	Hans		Forsman		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		ZUG 0001	
		Application Number			
Title of Invention		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space			
City	Venice	State/Province	CA	Country of Residence i	US
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Postal Code	90291	Country i	US		
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	Jack		Benoff		
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Inventor 5					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Aaron		von Hungen		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
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City	Culver City	State/Province	CA		
Postal Code	90239	Country i	US		
Inventor 6					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Blake		Callens		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Toluca Lake	State/Province	CA	Country of Residence i	US

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		ZUG 0001	
		Application Number			
Title of Invention		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space			
Mailing Address of Inventor:					
Address 1		10645 Valley Springs Lane, #10			
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City	Toluca Lake		State/Province	CA	
Postal Code	91602		Country	US	
Inventor 7					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Mark		Weisheit		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Hermosa Beach	State/Province	CA	Country of Residence	US
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Address 1		1100 Monterey Boulevard, #13			
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City	Hermosa Beach		State/Province	CA	
Postal Code	90254		Country	US	
Inventor 8					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Andrey		Tkachuk		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
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Address 1		25, Industrial'Naya Street			
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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add					

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☐ An Address is being provided for the correspondence information of this application.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ZUG 0001
		Application Number	
Title of Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
Customer Number	77845		
Email Address	patentsv@goodwinprocter.com	<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
Attorney Docket Number	ZUG 0001	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	

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☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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Prior Application Status		<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ZUG 0001
		Application Number	
Title of Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		

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Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ZUG 0001
		Application Number	
Title of Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		

Applicant 1					Remove
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>					
Clear					
☐ Assignee		☐ Legal Representative under 35 U.S.C. 117		☐ Joint Inventor	
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If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:					
Name of the Deceased or Legally Incapacitated Inventor : <input type="text"/>					
If the Applicant is an Organization check here. ☐					
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	ZUG 0001	
		Application Number		
Title of Invention	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space			
If the Assignee is an Organization check here. ☒				
Organization Name	Zugara, Inc.			
Mailing Address Information:				
Address 1	13101 Washington Boulevard			
Address 2	Suite 403			
City	Los Angeles	State/Province	CA	
Country i	US	Postal Code	90066	
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications				
Signature	/David Xue/		Date (YYYY-MM-DD)	2013-02-27
First Name	David	Last Name	Xue	Registration Number
				54554
Additional Signature may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION
WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN
AUGMENTED OR MULTI-DIMENSIONAL SPACE**

BACKGROUND

[0001] Augmented Reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements and objects are augmented by computer-generated sensory input such as sound, video, graphics or GPS data. Under AR, a view of reality is modified (possibly augmented) by a computer to enhance a user's current perception of reality. Augmentation is conventionally done in real-time and in semantic context with environmental elements and objects, such as sports scores on TV during a match. By overlaying artificial information about the environment and its objects onto the real world, advanced AR technologies makes the information about the surrounding real world of the user becomes interactive and digitally manipulatable.

[0002] Current AR systems or simply augmented systems are restricted to only allow for one single user/subject to interact with the objects or video streams in the augmented object experience. As a result, a user of the AR system does not have a way to share his/her augmented object, video stream and/or experience with additional users on the same, similar or different AR system in real-time. In the non-limiting example of virtual shopping, when a user interacts with a virtual or augmented reality shopping application, the user can only see the object or video stream that he/she is interacting with. If the user is trying on virtual clothes or accessories in a virtual fitting room, for example, only he/she can view the effects from his/her own interface module

or system. This creates a scenario where the user has to record video or take a photo of his/her AR experience in order to share such AR experience with others.

[0003] Additionally, current systems do not support simultaneously synchronizing an augmented video stream with the video streams from other users in communication.

For a non-limiting example, current video chat systems such as Skype, allow two users to connect basic video streams to see and chat with one another. These video chat systems, however, do not allow synchronization of augmented objects in the shared video streams that can be interacted with by other users.

[0004] The foregoing examples of the related art and limitations related therewith are intended to be illustrative and not exclusive. Other limitations of the related art will become apparent upon a reading of the specification and a study of the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 depicts an example of a system diagram to support real time synchronization of multiple augmented video streams in an AR environment.

[0006] FIG. 2 depicts another example of a system diagram to support real time synchronization of multiple augmented video streams in an AR environment.

[0007] FIG. 3 depicts an example of a flowchart of a process to support real time synchronization of multiple augmented video streams in an AR environment.

DETAILED DESCRIPTION OF EMBODIMENTS

[0008] The approach is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like references indicate similar elements. It should be noted that references to “an” or “one” or “some” embodiment(s)

in this disclosure are not necessarily to the same embodiment, and such references mean at least one.

[0009] A new approach is proposed that contemplates systems and methods to allow real time manipulation of objects within multiple dynamic and augmented video streams/feeds synchronized in an augmented reality (AR) or multi-dimensional space. Under such an approach, a participant/user of a first AR system would be able to connect with participants/users of a second same, similar or different AR system and to share their initial and/or augmented video streams with those users to enhance the AR experience from one participant to many. Through real time synchronization of augmented video streams in the AR systems, the users of both the first and the second AR system can see, share, manipulate, and interact with the augmented content/objects either in his/her own augmented video streams or in the augmented video streams of another user. Here, the initial and/or augmented video streams from the participants are synchronized in real time, not only in time but also in three-dimensional space/coordinates (X, Y, Z).

[0010] By not only connecting but also simultaneously synchronizing the augmented video streams among multiple users, the proposed approach provides an interactive augmented reality video chat or conference platform that enables multiple users to connect via video chat and to interact with virtual objects that the users are viewing in the synchronized augmented video streams. Furthermore, the proposed approach would improve the video chat experience by synchronizing and continually updating the augmented video streams and the augmented content/objects in the streams for all users in real time.

[0011] Compared to current systems that do not synchronize augmented objects in an augmented video stream or simultaneously synchronizing the augmented video stream with the initial video stream from the users, the proposed approach allows for the synchronization of the augmented video stream to allow the users to continually see and interact with augmented objects in the synchronized augmented video streams across multiple AR systems or platforms.

[0012] In the case of virtual shopping, the proposed approach would allow the initial/first user to connect his/her augmented video stream with other users so that all users could see what (virtual) clothes other people are trying on. These users would also be able to interact with augmented objects in their own augmented video streams or the augmented video stream of another user. As a non-limiting example, if a user is shopping on an e-commerce website, a sales associate could see the items the shopper is trying on and suggest other items to the user by applying these new items/objects to the online shopper's augmented video stream.

[0013] FIG. 1 depicts an example of a system diagram 100 to support real time synchronization of multiple augmented video streams in an AR environment. Although the diagrams depict components as functionally separate, such depiction is merely for illustrative purposes. It will be apparent that the components portrayed in this figure can be arbitrarily combined or divided into separate software, firmware and/or hardware components. Furthermore, it will also be apparent that such components, regardless of how they are combined or divided, can execute on the same host or multiple hosts, and wherein the multiple hosts can be connected by one or more networks.

[0014] In the example of FIG. 1, the system 100 includes at least a data input device 102, an augmentation module 104, and a multiple streams sync module 106 associated with each of the multiple AR video chatting participants as well as a video conference manager 108, and a transport system 110. As used herein, the term device, module, manager or system each refers to software, firmware, processor, hardware, or other component that is used to effectuate a purpose. Each of the device, module, manager or system will typically include software instructions that are stored in non-volatile memory (also referred to as secondary memory). When the software instructions are executed, at least a subset of the software instructions is loaded into memory (also referred to as primary memory) by a processor. The processor then executes the software instructions in memory. The processor may be a shared processor, a dedicated processor, or a combination of shared or dedicated processors. A typical program will include calls to hardware components (such as I/O devices), which typically requires the execution of drivers. The drivers may or may not be considered part of the engine, but the distinction is not critical. In some embodiments, the device, module, manager or system could be chip or processor-based, removing the need for software instructions.

[0015] In the example of FIG. 1, each of the device, module, manager or system can run on one or more hosting devices (hosts). Here, a host can be a computing device, a communication device, a storage device, or any electronic device capable of running a software component and having internet or network connections. For non-limiting examples, a computing device can be but is not limited to a laptop PC, a desktop PC, a tablet PC, MAC, an iPod, an iPhone, an iPad, Google's Android device, Google's

Glasses, PC powered eyewear, a PDA, or a server machine. A storage device can be but is not limited to a hard disk drive, a flash memory drive, or any portable storage device. A communication device can be but is not limited to a mobile phone.

[0016] In the example of FIG. 1, each of the device, module, manager or system has a communication interface (not shown), which is a software component that enables the engines to communicate with each other following certain communication protocols, such as TCP/IP protocol, over one or more communication networks (not shown). Here, the communication networks can be but are not limited to, internet, intranet, wide area network (WAN), local area network (LAN), wireless network, Bluetooth, WiFi, and mobile communication network. The physical connections of the network and the communication protocols are well known to those of skill in the art.

[0017] In the example of FIG. 1, each AR video chatting participant can be any person/user associated with any type of computing/hosting device, including but is not limited to one of those listed above that enables each AR video chatting participant to participate in a video chat or conference with other participants via either a Web based app or a native app running on the computing/hosting device. The computing/hosting device is also capable of supporting data input device 102 associated with each AR video chatting participant, wherein each data input device 102 can be but is not limited to one or more of imaging device, audio input device (e.g., microphone), camera, depth sensing device (e.g., depth sensing camera), sensor, laser-based equipment, wave emitter, receiver, other any other type of device capable of accepting audio, video, multimedia or text data input from the AR video chatting participant associated with the device.

[0018] In the example of FIG. 1, each augmentation module 104 synchronizes each AR video chatting participant's initial video stream originated by an application running on the hosting device of the participant via data input device 102 with augmented objects and/or streams requested by the participant to create an augmented video stream in real time. The augmentation module could either reside at each participant's location, or reside on a remote server. In some embodiments, augmentation module 104 generates the augmented video stream by synchronizing the augmented objects with the initial video stream based on relative (X, Y, Z) coordinates and time (T) of the objects. In some embodiments, augmentation module 104 may retrieve the augmented objects from augmented asset database 105. As used herein, augmented asset database 105 can be at the same location as the hosting device running augmentation module 104 or at a different location in the "cloud" that is accessible by all AR video chatting participants of the video chat or conference.

[0019] In some embodiments, augmentation module 104 may update coordinates for the positions of the retrieved augmented objects in real time according to changing tracking data and timing within each session of video chat or conference in order to reduce latency of the augmented video stream. Once the augmented video stream is generated, augmentation module 104 allow the participant to manipulate the augmented objects in the augmented video stream and to share the augmented video stream with other participants in the video chat/conference.

[0020] In the example of FIG. 1, each multiple streams sync module 106 associated with the participant synchronizes the augmented video stream of the participant with the initial or augmented video streams from other participants of the video chat or

conference in both time (T) and in three-dimensional coordinates (X, Y, Z) to generate a synchronized augmented video stream. Specifically, when the participant of an AR system connects with another participant of the same, similar or different AR system during a video chat or conference session, multiple streams sync module 106 will determine the X,Y,Z, and T coordinates of the objects in the augmented video stream of the participant. As the connection occurs, multiple streams sync module 106 multiplexes the augmented video stream of the participant with the initial or augmented video stream from the other participant and allows real time extraction of the augmented object(s) from the multiplexed video stream, manipulates the extracted object(s), and synchronize them back into the synchronized augmented video stream according to new X,Y,Z,T coordinates dynamically modified in real time. Once synchronized, the X,Y,Z and T coordinates of the object in the 3D or multi-dimensional space of the synchronized augmented video streams are shared/displayed by the multiple streams sync module 106 to each of the participants, who will be able to see, interact with, and manipulate the objects according to the interaction and manipulation of the X,Y,Z and T coordinates of the objects in real time.

[0021] In some embodiments, multiple streams sync module 106 multiplexes the augmented objects and video streams from different participants into the new synchronized augmented video stream via active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates. In some embodiments, multiple streams sync module 106 may synchronize the augmented video streams from the participants in such a way as to reduce latency of the synchronized augmented video streams shared among the participants. The multiple

streams sync module 106 may also broadcast the multiplexed augmented video streams to all participants of the video chat or conference.

[0022] In some embodiments, multiple streams sync module 106 allows display and extraction of one or more virtual/augmented objects from the synchronized augmented video stream, which could then in turn be manipulated by the participants. Specifically, multiple streams sync module 106 accepts a combination of one or more hand gestures, motions, and touches of a participant through a video-based computer interface of data input device 102, wherein such hand gestures and motions are used to perform one or more of: creating or controlling the objects in the synchronized augmented video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the synchronized augmented video stream. Here, the various commands selected and executed using intuitive hand gestures and motions include but are not limited to creating a new virtual/augmented object, deleting, moving, changing, and resizing an existing virtual/augmented object in the synchronized augmented video stream. In some embodiments, multiple streams sync module 106 limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements, and allows the control and manipulation of the virtual/augmented object only by a participant, not by another object in the synchronized augmented video stream.

[0023] In some embodiments, multiple streams sync module 106 may use one or more voice commands independently or in conjunction with the hand gestures and motions to interact with and control the virtual/augmented object within the augmented system and synchronized stream. In some embodiments, multiple streams sync

module 106 may utilize pupil tracking to control and manipulate the virtual/augmented object via a participant's eyes.

[0024] In some embodiments, multiple streams sync module 106 works across multiple platforms or hosting devices so that an augmented video stream initiated by a participant from a smartphone platform can be synchronized and shared with another participant using a different platform such as a Web application, an Interactive Television application, an in-store Kiosk application etc..

[0025] In the example of FIG. 1, video conference manager 108 creates a chat room or conference session for the video chat or conference, invites multiple AR video chatting participants to join the video chat or conference, and maintains the conference session during the video chat or conference. Video conference manager 108 may also monitor, organize, and store information relevant to AR video chatting participants and/or the locations of the augmented assets (e.g., virtual or digital objects) used during the session. Additionally, video conference manager 108 may also perform device detection to select the proper video/audio protocol compatible with the hosting device of each of the participants.

[0026] In the example of FIG. 1, transport system 110 encodes and distributes the synchronized, augmented, and/or initial video streams among the multiple AR video chatting participants. The transport system 110 supports multiple audio/video communication platforms and encoding/decoding formats in order to simplify the process of delivering the augmented video streams. It is capable of streaming augmented video stream from one participant once and deliver it to the hosting devices (e.g., PCs, mobile devices, tablets, and IPTVs) associated with all other participants to

the video chat or conference simultaneously with the augmented video stream encoded in proper format compatible with the corresponding hosting devices.

[0027] In some embodiments, the transport system 110 can utilize any existing audio/video conferencing platform (such as Skype or others) and/or applications over any type of networks (e.g., internet, private networks, corporate networks, etc.) to support the distribution of the synchronized augmented video streams without any limitation on the number of participants in the video chat/conference, the number or type of augmented objects controlled or accessed by the participants to the video chat/conference, the locations of the augmented objects, or the types of initial or augmented video streams, which for non-limiting examples, can include holographic or any types of visual presentation streams.

[0028] FIG. 2 depicts another example of a system diagram 200 to support real time synchronization of multiple augmented video streams in an AR environment, which in addition to the components depicted in FIG. 1, further includes media server 112. In the example of FIG. 2, media server 112 is a device working with video conference manager 108 and transport system 110 to distribute and store the initial, augmented, and/or synchronized video streams from the multiple AR video chatting participants. As used herein, media server 112 refers either to a dedicated computer appliance or to specialized application software, video conferencing (or just a video) on demand.

[0029] FIG. 3 depicts an example of a flowchart 300 of a process to support real time synchronization of multiple augmented video streams in an AR environment. Although this figure depicts functional steps in a particular order for purposes of illustration, the process is not limited to any particular order or arrangement of steps. One skilled in the

relevant art will appreciate that the various steps portrayed in this figure could be omitted, rearranged, combined and/or adapted in various ways.

In the example of FIG. 3, the flowchart 300 starts at block 302 where an initial video stream from a participant of a video chat or conference is accepted. The flowchart 300 continues to block 304 where an augmented video stream having one or more visual or digital objects requested by the participant is generated by synchronizing the one or more objects with the initial video stream from the participant. The flowchart 300 continues to block 306 where the augmented video stream from the participant is synchronized with initial and/or augmented video streams from other participants of the video chat or conference in both time (T) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented video stream. The flowchart 300 continues to block 308 where the synchronized augmented video stream is shared with and displayed to each of the participants. The flowchart 300 ends at block 310 where each of the participants is enabled to interact with and manipulate the one or more objects in the synchronized augmented video stream in real-time.

Use cases

[0030] The systems and methods for real time synchronization of multiple augmented video streams discussed above have many potential applications and any industry that utilizes 2D or 3D models (e.g., holographic or displayed based video/imagery models) could benefit from our system. Since the augmented video stream from one participant is simultaneously synchronized with the video streams from other users and subsequently shared with them, any object that resides in the multi-dimensional space (3D for example) of the synchronized video stream could be interacted with and manipulated in real-time.

[0031] For the non-limiting example of a virtual fitting or dressing room, a user would be able to share items he/she is virtually trying on with other users in real-time. In addition, due to synchronization of the augmented video streams among multiple participants, each of the users/participants would be able to manipulate the objects in the synchronized, augmented video stream to recommend other virtual garments or matching garments to other participants by manipulating the corresponding augmented object in the augmented video stream.

[0032] In another non-limiting example, the systems and methods for real time synchronization of multiple augmented video streams discussed above can enable two persons to play an interactive game together. If the first person is in a hotel on business and the second person is at home, the first person could start up the system to initiate the game. As the augmented object is displayed and synchronized simultaneously into both persons' video streams/feeds, the first person could then move the positioning of the object (e.g., a toy house). Since both of their video streams have been synchronized with the augmented content (object), both persons would see the coordinates of the augmented object changing on their respective displays and either of them could manipulate the coordinates of the augmented object.

[0033] In another non-limiting example, the systems and methods for real time synchronization of multiple augmented video streams discussed above can enable a doctor to perform a remote diagnosis with a patient. The patient could contact the doctor through the augmented system and simultaneously, synchronize their augmented video streams. The doctor could then review an MRI with the patient and interact with the augmented object in the augmented video streams. Both the doctor

and patient would be able to view the augmented object as its coordinates are adjusted and displayed in real-time.

[0034] In another non-limiting example, the systems and methods for real time synchronization of multiple augmented video streams discussed above can enable a teacher to give an interactive presentation to his/her students remotely. As the teacher and student interface with the AR system, the teacher's augmented video stream is simultaneously synchronized with the students' augmented video streams. The teacher could then interact with an object, e.g., a 3D DNA model, and as the teacher instructs on the DNA model, the students could in their own augmented video streams manipulate the coordinates of the DNA model thereby creating real-time interaction with the teacher's augmented object in the synchronized augmented video streams.

[0035] One embodiment may be implemented using a conventional general purpose or a specialized digital computer or microprocessor(s) programmed according to the teachings of the present disclosure, as will be apparent to those skilled in the computer art. Appropriate software coding can readily be prepared by skilled programmers based on the teachings of the present disclosure, as will be apparent to those skilled in the software art. The invention may also be implemented by the preparation of integrated circuits or by interconnecting an appropriate network of conventional component circuits, as will be readily apparent to those skilled in the art.

[0036] One embodiment includes a computer program product which is a machine readable medium (media) having instructions stored thereon/in which can be used to program one or more hosts to perform any of the features presented herein. The machine readable medium can include, but is not limited to, one or more types of disks

including floppy disks, optical discs, DVD, CD-ROMs, micro drive, and magneto-optical disks, ROMs, RAMs, EPROMs, EEPROMs, DRAMs, VRAMs, flash memory devices, magnetic or optical cards, nanosystems (including molecular memory ICs), or any type of media or device suitable for storing instructions and/or data. Stored on any one of the computer readable medium (media), the present invention includes software for controlling both the hardware of the general purpose/specialized computer or microprocessor, and for enabling the computer or microprocessor to interact with a human viewer or other mechanism utilizing the results of the present invention. Such software may include, but is not limited to, device drivers, operating systems, execution environments/containers, and applications.

[0037] The foregoing description of various embodiments of the claimed subject matter has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the claimed subject matter to the precise forms disclosed. Many modifications and variations will be apparent to the practitioner skilled in the art. Particularly, while the concept "component" is used in the embodiments of the systems and methods described above, it will be evident that such concept can be interchangeably used with equivalent concepts such as, class, method, type, interface, module, object model, and other suitable concepts. Embodiments were chosen and described in order to best describe the principles of the invention and its practical application, thereby enabling others skilled in the relevant art to understand the claimed subject matter, the various embodiments and with various modifications that are suited to the particular use contemplated.

CLAIMS

1. A system, comprising:
 - a data input device, which in operation, accepts an initial video stream from a participant of a video chat or conference;
 - an augmentation module, which in operation, generates an augmented video stream having one or more visual or digital objects requested by the participant by synchronizing the one or more objects with the initial video stream from the participant in real time;
 - a multiple stream sync module, which in operation,
 - synchronizes the augmented video stream from the participant with initial and/or augmented video stream from another participant of the video chat or conference in both time (T) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented video stream;
 - shares and displays the synchronized augmented video stream to each of the participants of the video chat or conference; and
 - enables each of the participants to extract and manipulate the one or more objects in the synchronized augmented video stream in real-time.
2. The system of claim 1, wherein:
 - the participants of the video chat or conference are associated with one Augmented Reality (AR) system.
3. The system of claim 1, wherein:
 - the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.
4. The system of claim 1, wherein:
 - the data input device is one of an image device, an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.
5. The system of claim 1, wherein:

the augmentation module resides either at each participant's location or on a remote server.

6. The system of claim 1, wherein:

the augmentation module generates the augmented video stream by synchronizing the objects with the initial video stream based on relative (X, Y, Z) coordinates and time (T) of the objects.

7. The system of claim 1, wherein:

the augmentation module retrieves the objects from an augmented asset database located at a location in the cloud that is accessible by all participants of the video chat or conference.

8. The system of claim 1, wherein:

the augmentation module updates coordinates of the objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the augmented video stream.

9. The system of claim 1, wherein:

the multiple stream sync module multiplexes the augmented video stream of the participant with the initial and/or augmented video stream from the other participant and allows real time extraction of the augmented objects from the multiplexed video stream, manipulates the extracted objects, and synchronizes them back into the synchronized augmented video stream according to new X,Y,Z,T coordinates dynamically modified in real time.

10. The system of claim 9, wherein:

the multiple stream sync module multiplexes the objects and the video streams from different participants into the synchronized augmented video stream via active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates.

11. The system of claim 1, wherein:
the multiple stream sync module synchronizes the augmented video streams from the participants in such a way as to reduce latency of the synchronized augmented video streams shared among the participants.
12. The system of claim 1, wherein:
the multiple stream sync module broadcasts the synchronized augmented video streams to all participants of the video chat or conference.
13. The system of claim 1, wherein:
the multiple stream sync module accepts one or more hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, wherein such hand gestures and motions are used to perform one or more of: creating or controlling the objects in the synchronized augmented video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the synchronized augmented video stream.
14. The system of claim 13, wherein:
the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the synchronized augmented video stream.
15. The system of claim 13, wherein:
the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.
16. The system of claim 1, wherein:
the multiple stream sync module uses voice commands to interact with and control the objects within the synchronized augmented stream.
17. The system of claim 1, wherein:
the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes.

18. The system of claim 1, wherein:
the multiple stream sync module allows the control and manipulation of the object only by the participant.
19. The system of claim 1, wherein:
the multiple stream sync module works across multiple platforms so that the augmented video stream initiated by the participant from one platform is synchronized and shared with another participant using a different platform.
20. The system of claim 1, further comprising:
a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.
21. The system of claim 20, wherein:
the video conference manager monitors, organizes, and stores information relevant to participants and/or the locations of the objects used during the session.
22. The system of claim 20, wherein:
the video conference manager performs device detection to select the proper video/audio protocol compatible with hosting device of each of the participants.
23. The system of claim 1, further comprising:
a transport system, which in operation, encodes and distributes the video streams among the participants.
24. The system of claim 23, wherein:
the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of initial or augmented video streams.

25. The system of claim 1, further comprising:
a media server, which in operation, distributes and stores the initial, augmented, and/or synchronized video streams from the participants.
26. A method, comprising:
accepting an initial video stream from a participant of a video chat or conference;
generating an augmented video stream having one or more visual or digital objects requested by the participant by synchronizing the one or more objects with the initial video stream from the participant;
synchronizing the augmented video stream from the participant with initial and/or augmented video stream from another participant of the video chat or conference in both time (T) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented video stream;
sharing and displaying the synchronized augmented video stream to each of the participants of the video chat or conference; and
enabling each of the participants to extract and manipulate the one or more objects in the synchronized augmented video stream in real-time.
27. The method of claim 26, further comprising:
generating the augmented video stream by synchronizing the objects with the initial video stream based on relative (X, Y, Z) coordinates and time (T) of the objects.
28. The method of claim 26, further comprising:
retrieving the objects from an augmented asset database located at a location in the cloud that is accessible by all participants of the video chat or conference.
29. The method of claim 26, further comprising:
updating coordinates of the objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the augmented video stream.

30. The method of claim 26, further comprising:
multiplexing the augmented video stream of the participant with the initial and/or augmented video stream from the other participant and allows real time extraction of the augmented objects from the multiplexed video stream, manipulates the extracted objects, and synchronizes them back into the synchronized augmented video stream according to new X,Y,Z,T coordinates dynamically modified in real time.
31. The method of claim 30, further comprising:
multiplexing the objects and the video streams from different participants into the synchronized augmented video stream via active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates.
32. The method of claim 26, further comprising:
synchronizing the augmented video streams from the participants in such a way as to reduce latency of the synchronized augmented video streams shared among the participants.
33. The method of claim 26, further comprising:
broadcasting the synchronized augmented video streams to all participants of the video chat or conference.
34. The method of claim 26, further comprising:
accepting one or more hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, wherein such hand gestures and motions are used to perform one or more of: creating or controlling the objects in the synchronized augmented video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the synchronized augmented video stream.
35. The method of claim 34, further comprising:
limiting the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements. The method of claim 26, further comprising:

using one or more voice commands to interact with and control the objects within the synchronized augmented stream.

36. The method of claim 26, further comprising:
utilizing pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes.
37. The method of claim 26, further comprising:
allowing the control and manipulation of the object only by the participant.
38. The method of claim 26, further comprising:
synchronizing the video streams across multiple platforms so that the augmented video stream initiated by the participant from one platform is shared with another participant using a different platform.
39. The method of claim 26, further comprising:
creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.
40. The method of claim 40, further comprising:
monitoring, organizing, and storing information relevant to participants and/or the locations of the objects used during the session.
41. The method of claim 26, further comprising:
performing device detection to select the proper video/audio protocol compatible with hosting device of each of the participants.
42. The method of claim 26, further comprising:
encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of initial or augmented video streams.

ABSTRACT

A new approach is proposed that contemplates systems and methods to allow real time manipulation of objects within multiple dynamic and augmented video streams/feeds synchronized in an augmented reality (AR) or multi-dimensional space. Under such an approach, a participant/user of a first AR system would be able to connect with participants/users of a second same, similar or different AR system and to share their initial and/or augmented video streams with those users to enhance the AR experience from one participant to many. Through real time synchronization of augmented video streams in the AR systems, the users of both the first and the second AR system can see, share, manipulate and interact with the augmented content/objects either in his/her own augmented video streams or in the augmented video streams of another user.

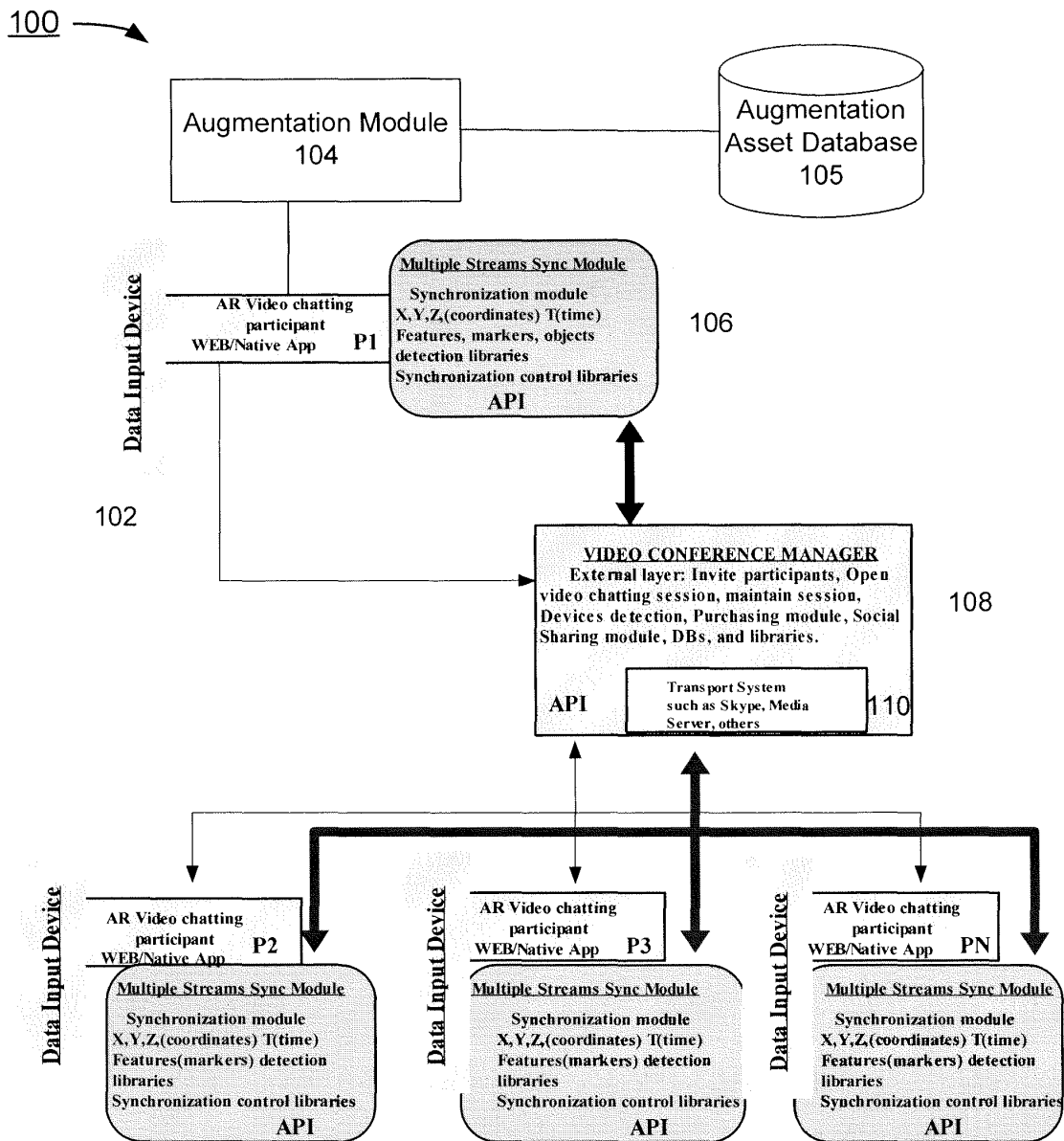


FIG. 1

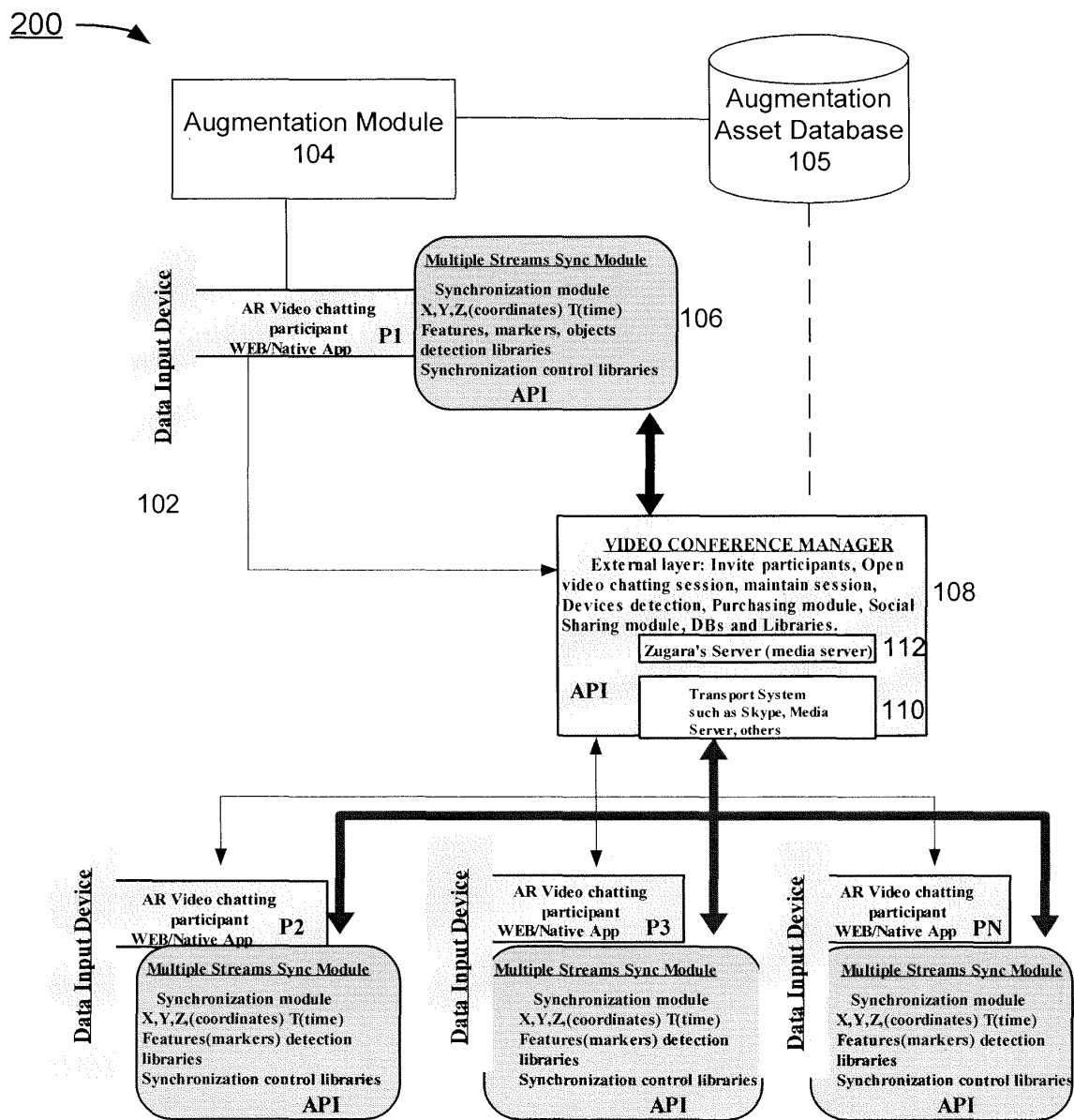


FIG. 2

300 →

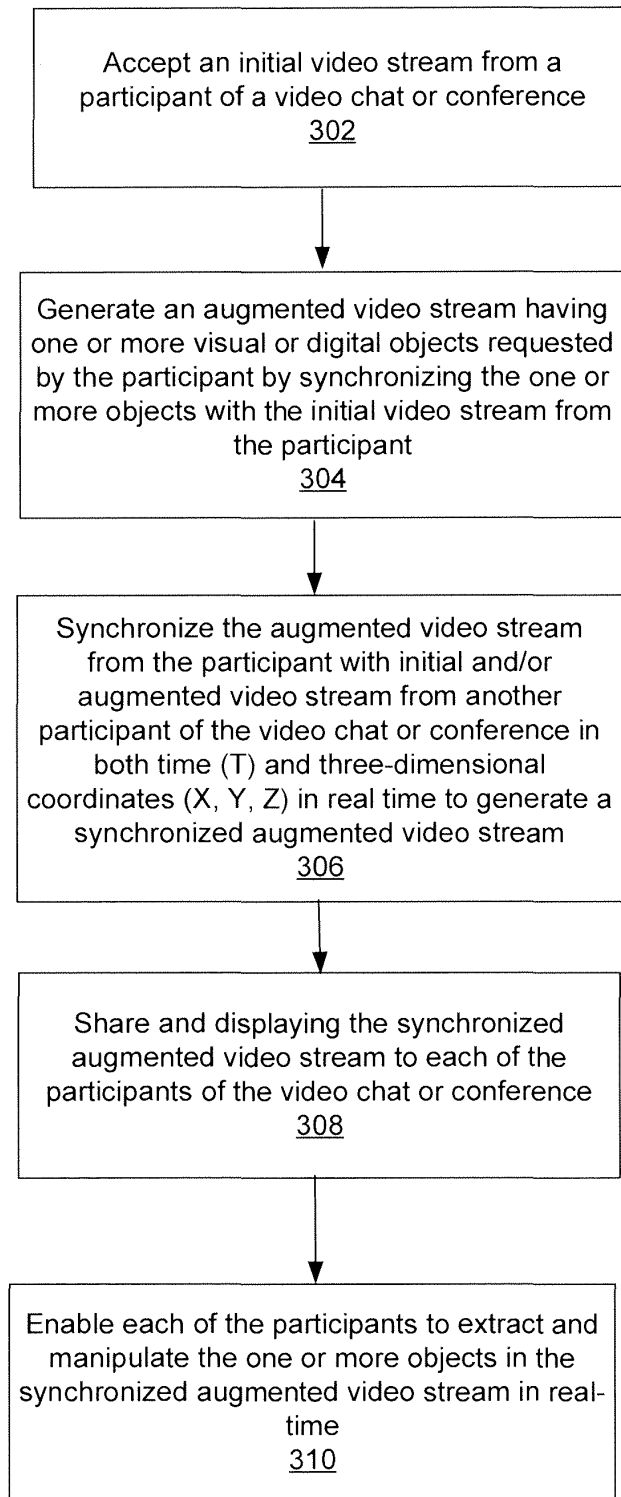


FIG. 3

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		David T. Xue/Sidney Manibusan		
Attorney Docket Number:		ZUG 0001		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	98	98
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Pages:				
Claims:				
Claims in excess of 20	2202	22	31	682
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1215

Electronic Acknowledgement Receipt	
EFS ID:	15063495
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	David T. Xue/Sidney Manibusan
Filer Authorized By:	David T. Xue
Attorney Docket Number:	ZUG 0001
Receipt Date:	27-FEB-2013
Filing Date:	
Time Stamp:	12:56:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1215
RAM confirmation Number	13109
Deposit Account	504634
Authorized User	XUE, DAVID
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p>	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	ZUG0001TRNS2-27-13.pdf	138188	no	2
			65b7f4c7b6a94bb4a9cdf4c6e677ac8f0d9b151e		
Warnings:					
Information:					
2	Application Data Sheet	ZUG0001ADS2-27-13.pdf	1433547	no	8
			ba946034488519d3d367a9428044b1db5b aaa564		
Warnings:					
Information:					
3		ZUG0001APP.pdf	286605	yes	26
			f3a11ebc61f23050b6b7edfc1759a7e91995 2622		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	15	
	Claims		16	22	
	Abstract		23	23	
	Drawings-only black and white line drawings		24	26	
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	36571	no	2
			51b7646e43832c0472fe842c864597b9ea e9779		
Warnings:					
Information:					
Total Files Size (in bytes):			1894911		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt	
EFS ID:	15063495
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
03/21/2013 SSOK11 00000006 504634 13778430 01 FC:2051 65.00 DA Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	David T. Xue/Sidney Manibusan
Filer Authorized By:	David T. Xue
Attorney Docket Number:	ZUG 0001
Receipt Date:	27-FEB-2013
Filing Date:	
Time Stamp:	12:56:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1215
RAM confirmation Number	13109
Deposit Account	504634
Authorized User	XUE, DAVID
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/778,430	02/27/2013	Matthew Szymczyk	ZUG 0001

CONFIRMATION NO. 9672

77845

Goodwin Procter LLP

Attn: Patent Administrator

135 Commonwealth Drive

Menlo Park, CA 94025-1105

NOTICE



Date Mailed: 03/25/2013

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):

All

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s)

Due, PTOL-85, is mailed.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/778,430			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A	70		N/A			
SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A	300		N/A			
EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A	360		N/A			
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	42 minus 20 =	*	22	x 40 =	880	OR			
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	2 minus 3 =	*		x 210 =	0.00				
APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00					
MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>				0.00					
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL	1610		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=		
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=		
	Application Size Fee <small>(37 CFR 1.16(s))</small>								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>								
TOTAL ADD'L FEE							TOTAL ADD'L FEE		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=		
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=		
	Application Size Fee <small>(37 CFR 1.16(s))</small>								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>								
TOTAL ADD'L FEE							TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/778,430	02/27/2013	2691	1280	ZUG 0001	42	2

CONFIRMATION NO. 9672

77845

Goodwin Procter LLP

Attn: Patent Administrator

135 Commonwealth Drive

Menlo Park, CA 94025-1105

FILING RECEIPT



OC000000060003467

Date Mailed: 03/25/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Matthew Szymczyk, Manhattan Beach, CA;
Alex Goldberg, West Hills, CA;
Hans Forsman, Venice, CA;
Jack Benoff, Manhattan Beach, CA;
Aaron von Hungen, Culver City, CA;
Blake Callens, Toluca Lake, CA;
Mark Weisheit, Hermosa Beach, CA;
Andrey Tkachuk, Simferopol, UKRAINE;

Applicant(s)

Matthew Szymczyk, Manhattan Beach, CA;
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Aaron von Hungen, Culver City, CA;
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Mark Weisheit, Hermosa Beach, CA;
Andrey Tkachuk, Simferopol, UKRAINE;

Assignment For Published Patent Application

Zugara, Inc., Los Angeles, CA

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 03/21/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/778,430**

Projected Publication Date: 08/28/2014

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

Preliminary Class

345

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign

page 2 of 4

patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/778,430	02/27/2013	Matthew Szymczyk	ZUG 0001

CONFIRMATION NO. 9672

PUBLICATION NOTICE



OC000000070446115

77845

Goodwin Procter LLP
Attn: Patent Administrator
135 Commonwealth Drive
Menlo Park, CA 94025-1105

Title: Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

Publication No. US-2014-0240444-A1

Publication Date: 08/28/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG 0001	9672

77845 7590 04/14/2015
Goodwin Procter LLP
Attn: Patent Administrator
135 Commonwealth Drive
Menlo Park, CA 94025-1105

EXAMINER
BLAIR, KILE O

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
04/14/2015	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PatentSV@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com

Office Action Summary	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.	
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-42 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-42 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 2/27/13 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) ☐ Other: ____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 35 and 40 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 35 is more than one sentence and is unclear. See MPEP § 608.01(m).

Claim 40 depends on itself and is unclear.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12, 18-33, and 37-42 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Leahy (US 6219045).

Regarding claim 1, Leahy teaches a system, comprising:

a data input device, which in operation, accepts an initial video stream from a participant of a video chat or conference (digital video camera input to chat processor, Leahy, col. 4, lines 59-65);

an augmentation module, which in operation, generates an augmented video stream having one or more visual or digital objects requested by the participant (Leahy, col. 7, lines 24-33) by synchronizing the one or more objects with the initial video stream from the participant in real time (Leahy, col. 8, lines 51-53);

a multiple stream sync module (Leahy, claim 5(e)), which in operation, synchronizes the augmented video stream from the participant with initial and/or augmented video stream from

Art Unit: 2651

another participant of the video chat or conference in both time (T) (Leahy, col. 8, lines 51-53) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented video stream (Leahy, col. 12, lines 31-46);

shares and displays the synchronized augmented video stream to each of the participants (Leahy, col. 1, lines 36-43) of the video chat or conference (Leahy, col. 2, lines 55-60); and enables each of the participants to extract and manipulate the one or more objects (Leahy, col. 7, lines 24-33) in the synchronized augmented video stream in real-time (Leahy, col. 12, lines 31-46).

Regarding claim 2, Leahy teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system (Leahy, col. 1, lines 37-41).

Regarding claim 3, Leahy teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems (Leahy, col. 1, lines 37-41).

Regarding claim 4, Leahy teaches the system of claim 1, wherein: the data input device is one of an image device (Leahy, col. 4, lines 59-65), an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

Regarding claim 5, Leahy teaches the system of claim 1, wherein: the augmentation module resides either at each participant's location or on a remote server (Leahy, col. 7, lines 39-52).

Regarding claim 6, Leahy teaches the system of claim 1, wherein: the augmentation module generates the augmented video stream by synchronizing the objects with the initial video stream based on relative (X, Y, Z) coordinates (Leahy, col. 12, lines 31-46) and time (T) of the objects (Leahy, col. 8, lines 51-53).

Regarding claim 7, Leahy teaches the system of claim 1, wherein: the augmentation module retrieves the objects from an augmented asset database located at a location in the cloud that is accessible by all participants of the video chat or conference (Leahy, col 15, lines 4-11).

Regarding claim 8, Leahy teaches the system of claim 1, wherein:

the augmentation module updates coordinates of the objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the augmented video stream (updating avatar information to all clients, Leahy, col 15, lines 9-15).

Regarding claim 9, Leahy teaches the system of claim 1, wherein: the multiple stream sync module multiplexes the augmented video stream of the participant with the initial and/or augmented video stream from the other participant and allows real time extraction of the augmented objects from the multiplexed video stream, manipulates the extracted objects (col. 7, lines 24-33), and synchronizes them back into the synchronized augmented video stream according to new X,Y,Z,T coordinates dynamically modified in real time (Leahy, col. 8, lines 51-53; col. 12, lines 31-46).

Regarding claim 10, Leahy teaches the system of claim 9, wherein: the multiple stream sync module multiplexes the objects and the video streams from different participants into the synchronized augmented video stream via active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates (Leahy, col. 5, lines 56-63).

Regarding claim 11, Leahy teaches the system of claim 1, wherein:

the multiple stream sync module synchronizes the augmented video streams from the participants in such a way as to reduce latency of the synchronized augmented video streams shared among the participants (Leahy, claim 5(e)).

Regarding claim 12, Leahy teaches the system of claim 1, wherein: the multiple stream sync module broadcasts the synchronized augmented video streams to all participants of the video chat or conference (Leahy, col. 1, lines 51-60).

Regarding claim 18, Leahy teaches the system of claim 1, wherein: the multiple stream sync module allows the control and manipulation of the object only by the participant (Leahy, col. 15, line 29).

Regarding claim 19, Leahy teaches the system of claim 1, wherein:

the multiple stream sync module works across multiple platforms so that the augmented video stream initiated by the participant from one platform is synchronized and shared with another participant using a different platform (Leahy, col. 3, lines 52-67; col. 9, lines 3-7).

Regarding claim 20, Leahy teaches the system of claim 1, further comprising:

a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference (Leahy, col. 15, lines 19-22).

Regarding claim 21, Leahy teaches the system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to participants and/or the locations of the objects used during the session (col. 8, line 63- col. 9, line 7).

Regarding claim 22, Leahy teaches the system of claim 20, wherein:

the video conference manager performs device detection to select the proper video/audio protocol compatible with hosting device of each of the participants (Leahy, col. 8, lines 51-52).

Regarding claim 23, Leahy teaches the system of claim 1, further comprising:

a transport system, which in operation, encodes and distributes the video streams among the participants (Leahy, col. 6, lines 49-52; col. 8, lines 40-44).

Regarding claim 24, Leahy teaches the system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of initial or augmented video streams (Leahy, col. 6, lines 49-52).

Regarding claim 25, Leahy teaches the system of claim 1, further comprising: a media server, which in operation, distributes and stores the initial, augmented, and/or synchronized video streams from the participants (Leahy, col. 7, lines 12-24).

Claim 26 is substantially similar to claim 1 and is rejected for the same reasons.

Claim 27 is substantially similar to claim 6 and is rejected for the same reasons.

Claim 28 is substantially similar to claim 7 and is rejected for the same reasons.

Claim 29 is substantially similar to claim 8 and is rejected for the same reasons.

Claim 30 is substantially similar to claim 9 and is rejected for the same reasons.

Claim 31 is substantially similar to claim 10 and is rejected for the same reasons.

Claim 32 is substantially similar to claim 11 and is rejected for the same reasons.

Claim 33 is substantially similar to claim 12 and is rejected for the same reasons.

Claim 37 is substantially similar to claim 18 and is rejected for the same reasons.

Claim 38 is substantially similar to claim 19 and is rejected for the same reasons.

Claim 39 is substantially similar to claim 20 and is rejected for the same reasons.

Claim 40 is substantially similar to claim 21 and is rejected for the same reasons.

Claim 41 is substantially similar to claim 22 and is rejected for the same reasons.

Claim 42 is substantially similar to claim 24 and is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-17 and 34-36 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Leahy in view of Nilsson (Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye

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Gaze as an Interaction Tool in an Augmented Reality System.

PsychNology Journal, 7(2), 175 - 196).

Regarding claim 13, Leahy teaches the system of claim 1.

Although Leahy does not explicitly teach the feature wherein: the multiple stream sync module accepts one or more hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, wherein such hand gestures and motions are used to perform one or more of: creating or controlling the objects in the synchronized augmented video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the synchronized augmented video stream, Nilsson teaches that augmented reality systems may use gestures to interact with the system (Nilsson, pg. 176).

It would have been obvious to one of ordinary skill in the art to use gestures in the augmented reality system of Leahy since doing so is the use of a known technique to improve a similar device in the same way.

Regarding claim 14, Leahy in view of Nilsson teaches the system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the synchronized augmented video

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stream (using a marker on the user's finger to place a virtual 3D object, Nilsson, pg. 180).

Regarding claim 15, Leahy in view of Nilsson teaches the system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger (finger tracking with marker, Nilsson, pg. 180, fig. 3), second finger, and arm movements.

Regarding claim 16, Leahy teaches the system of claim 1.

Although Leahy does not explicitly teach the feature wherein: the multiple stream sync module uses voice commands to interact with and control the objects within the synchronized augmented stream, Nilsson teaches that augmented reality systems may use speech interfaces to interact with the system (Nilsson, pg. 176).

It would have been obvious to one of ordinary skill in the art to use speech interfaces in the augmented reality system of Leahy since doing so is the use of a known technique to improve a similar device in the same way.

Regarding claim 17, Leahy teaches the system of claim 1.

Although Leahy does not explicitly teach the feature the system of claim 1, wherein: the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's

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eyes, Nilsson teaches that augmented reality systems may use gaze tracking to interact with the system (Nilsson, pg. 178).

It would have been obvious to one of ordinary skill in the art to use gaze tracking in the augmented reality system of Leahy since doing so is the use of a known technique to improve a similar device in the same way.

Claim 34 is substantially similar to claim 13 and is rejected for the same reasons.

Claim 35 is substantially similar to claim 15 and is rejected for the same reasons.

Claim 36 is substantially similar to claim 17 and is rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kile Blair/
Examiner, Art Unit 2651

/DUC NGUYEN/
Supervisory Patent Examiner, Art Unit 2651

Notice of References Cited	Application/Control No. 13/778,430		Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.	
	Examiner Kile Blair		Art Unit 2651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,219,045 B1	04-2001	Leahy et al.	715/757
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System. PsychNology Journal, 7(2), 175 - 196
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 13778430	Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.
	Examiner KILE BLAIR	Art Unit 2651

CPC- SEARCHED		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"13778430" and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/04/06 11:33
S2	3808	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/04/06 11:41
S3	11	S2 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/04/06 11:42
S4	17098	augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/04/06 11:43
S5	60	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/04/06 12:14
S6	18	"37745142".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2015/04/06 12:31

EAST Search History (Interference)

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135 Commonwealth Drive
Menlo Park, CA 94025-1105



**Courtesy Reminder for
Application Serial No: 13/778,430**

Attorney Docket No: ZUG 0001

Customer Number: 77845

Date of Electronic Notification: 04/14/2015

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

PSousa-Atwood@goodwinprocter.com

glenn.williams@goodwinprocter.com

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Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL TIME
MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND
SYNCHRONIZED VIDEO STREAMS IN AN
AUGMENTED OR MULTI-DIMENSIONAL
SPACE

Examiner: K. O. Blair

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

In response to the Office Action dated April 14, 2015, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 13 of this paper.

ACTIVE/82571151.2

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently amended) A system, comprising:
 - a data input device, which in operation, ~~accepts an initial~~ provides a real-world video stream comprising video of a real-world environment including a ~~from a participant~~ [[of]] in a video chat or conference;
 - ~~an augmentation module, which in operation, generates an augmented video stream having one or more visual or digital objects requested by the participant by synchronizing the one or more objects with the initial video stream from the participant in real time;~~
 - a multiple stream sync module, which in operation: [[,]]
 - receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and
 - synchronizes multiplexes the augmented video stream received from the other participant with initial the real-world video stream of the participant and/or augmented video stream from another participant of the video chat or conference in both time (T) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant; and
 - shares and displayscauses a display device associated with the participant to display the synchronized augmented multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects, to each of the participants of the video chat or conference; and
 - enables each of the participants to extract and manipulate the one or more objects in the synchronized augmented video stream in real time.
2. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system.

3. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.
4. (Currently amended) The system of claim 1, wherein: the data input device is [[one]] selected from a group consisting of an image device, an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.
5. (Currently amended) The system of claim [[1]] 43, wherein: the augmentation module resides either at ~~each participant's~~ a location of the participant or on a remote server.
6. (Currently amended) The system of claim [[1]] 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the ~~initial~~ real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
7. (Currently amended) The system of claim [[1]] 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset database ~~located at a location in the cloud that is accessible~~ [[by]] to all participants ~~[[of]] in~~ the video chat or conference.
8. (Currently amended) The system of claim [[1]] 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
9. (Canceled)
10. (Currently amended) The system of claim [[9]] 1, wherein: the multiple stream sync module, in operation, multiplexes ~~the objects and the~~ video streams from ~~different two or more~~ participants into ~~the synchronized augmented~~ a multiplexed video stream via active control on

synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates.

11. (Currently amended) The system of claim 1, wherein: the multiple stream sync module synchronizes ~~[[the]]~~ augmented video streams from ~~[[the]]~~ two or more participants in such a way as to reduce latency of ~~the synchronized augmented~~ multiplexed video streams shared among the two or more participants.

12. (Currently amended) The system of claim 1, wherein: the multiple stream sync module broadcasts the ~~synchronized augmented video streams~~ multiplexed video stream to all participants ~~[[of]]~~ in the video chat or conference.

13. (Currently amended) The system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, and wherein ~~such hand gestures and motions~~ the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the ~~synchronized augmented~~ multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the ~~synchronized augmented~~ multiplexed video stream.

14. (Currently amended) The system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the ~~synchronized augmented~~ multiplexed video stream.

15. (Original) The system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

16. (Currently amended) The system of claim 1, wherein: the multiple stream sync module ~~uses voice commands to interact with and control~~ interacts with and controls the one or more virtual objects within the ~~synchronized augmented~~ multiplexed video stream in response to voice commands.

17. (Currently amended) The system of claim 1, wherein: the multiple stream sync module ~~utilizes pupil tracking to control and manipulate~~ controls and manipulates the one or more virtual objects within the ~~synchronized augmented~~ multiplexed video stream ~~[[via]]~~ by using pupil tracking to track movement of the participant's eyes.

18. (Currently amended) The system of claim 1, wherein: the multiple stream sync module allows the control and manipulation of the one or more virtual ~~object~~ objects only by the other participant.

19. (Currently amended) The system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream ~~initiated by~~ provided by the other participant from one platform is synchronized and shared with ~~another~~ the participant using a different platform.

20. (Original) The system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.

21. (Currently amended) The system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

22. (Currently amended) The system of claim 20, wherein: the video conference manager performs device detection to select ~~the proper~~ video/audio ~~protocol~~ protocols compatible with respective hosting ~~device~~ devices of each of the participants.

23. (Original) The system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants.

24. (Currently amended) The system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of ~~initial~~ real-world or augmented video streams.

25. (Currently amended) The system of claim 1, further comprising: a media server, which in operation, distributes and stores the ~~initial~~ real-world, augmented, and/or ~~synchronized~~ multiplexed video streams from the participants.

26. (Currently amended) A method, comprising:

~~accepting an initial~~ providing a real-world video stream comprising video of a real-world environment including a ~~from a~~ participant ~~[[of]]~~ in a video chat or conference;

receiving, from another participant in the video chat or conference, generating an augmented video stream having comprising augmentation data representing one or more visual or digital virtual objects requested by the participant by synchronizing the one or more objects with the initial video stream from the participant;

synchronizing multiplexing the augmented video stream received from the other participant with the real-world video stream of the participant initial and/or augmented video stream from another participant of the video chat or conference in both time (T) and three-dimensional coordinates (X, Y, Z) in real time to generate a synchronized augmented multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant; and

sharing and displaying causing a display device associated with the participant to display the synchronized augmented multiplexed video stream comprising the video of the real-world

environment and the one or more virtual objects, to each of the participants of the video chat or conference; and

enabling each of the participants to extract and manipulate the one or more objects in the synchronized augmented video stream in real time.

27. (Currently amended) The method of claim [[26]] 50, further comprising: wherein generating the augmented video stream by synchronizing the second augmentation data representing the one or more second virtual objects are synchronized with the initial real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.

28. (Currently amended) The method of claim [[26]] 49, further comprising: retrieving the one or more second virtual objects from an augmented asset database located at a location in the cloud that is accessible [[by]] to all participants [[of]] in the video chat or conference.

29. (Currently amended) The method of claim [[26]] 50, further comprising: updating coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.

30. (Canceled)

31. (Currently amended) The method of claim [[30]] 26, further comprising: wherein the multiplexing of the objects and the augmented video streams stream and the real-world video stream from different participants into to generate the synchronized augmented multiplexed video stream is performed based on [[via]] active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates.

32. (Currently amended) The method of claim 26, further comprising: wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream comprises synchronizing the augmented and real-world video streams

~~from the participants~~ in such a way as to reduce latency of the ~~synchronized augmented~~
multiplexed video streams stream, ~~shared among the participants~~.

33. (Currently amended) The method of claim 26, further comprising: broadcasting the
~~synchronized augmented~~ multiplexed video streams stream to all participants ~~[[of]]~~ in the video
chat or conference.

34. (Currently amended) The method of claim 26, further comprising:
accepting one or more inputs selected from the group consisting of hand gestures,
motions, and touches of the participant through a video-based computer interface; ~~and of the~~
~~data input device, wherein such hand gestures and motions~~
using the one or more inputs are used to perform one or more acts selected from the
group consisting of: creating or controlling the one or more virtual objects in the ~~synchronized~~
~~augmented~~ multiplexed video stream, selecting various commands from an object submenu, and
drawing three dimensional curves, surfaces, and/or ribbons in the ~~synchronized augmented~~
multiplexed video stream.

35. (Currently amended) The method of claim 34, further comprising: limiting the
controlling hand gestures of the participant to his/her first finger, second finger, and arm
movements. ~~The method of claim 26, further comprising: using one or more voice commands to~~
~~interact with and control the objects within the synchronized augmented stream.~~

36. (Currently amended) The method of claim 26, further comprising: controlling and
manipulating utilizing pupil tracking to control and manipulate the one or more virtual objects
within the ~~synchronized augmented~~ multiplexed video stream ~~[[via]]~~ by using pupil tracking to
track movement of the participant's eyes.

37. (Currently amended) The method of claim 26, further comprising: allowing the control
and manipulation of the one or more virtual ~~object~~ objects only by the other participant.

38. (Currently amended) The method of claim 26, further comprising: synchronizing the augmented and real-world video streams across multiple platforms so that the augmented video stream ~~initiated~~ provided by the other participant from one platform is shared with ~~another~~ the participant using a different platform.

39. (Original) The method of claim 26, further comprising: creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.

40. (Currently amended) The method of claim ~~[[40]]~~ 39, further comprising: monitoring, organizing, and storing information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

41. (Currently amended) The method of claim 26, further comprising: performing device detection to select ~~the proper~~ video/audio ~~protocol~~ protocols compatible with respective hosting ~~device~~ devices of each of the participants.

42. (Currently amended) The method of claim 26, further comprising: encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of ~~initial~~ real-world or augmented video streams.

43. (New) The system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

44. (New) The system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

45. (New) The system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant.

46. (New) The system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

47. (New) The system of claim 1, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

extracts the one or more virtual objects from the multiplexed video stream;

manipulates the extracted one or more virtual objects in response to input from the participant; and

multiplexes a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream.

48. (New) The system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

49. (New) The method of claim 26, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the method further comprises generating a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

50. (New) The method of claim 49, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

51. (New) The method of claim 50, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

receiving, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexing the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sending the second multiplexed video stream to the other participant.

52. (New) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises synchronizing the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

53. (New) The method of claim 26, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

extracting the one or more virtual objects from the first multiplexed video stream;

manipulating the extracted one or more virtual objects in response to input from the participant; and

multiplexing a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream.

54. (New) The method of claim 26, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

55. (New) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

56. (New) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

57. (New) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

58. (New) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

REMARKS

Status of the Claims

Claims 1-42 were originally presented for examination in this application. In a first Office Action dated April 14, 2015:

- claims 35 and 40 were rejected under 35 U.S.C. § 112, second paragraph, as purportedly being indefinite;
- claims 1-12, 18-33, and 37-43 were rejected under 35 U.S.C. § 102 as purportedly being anticipated by U.S. 6,219,045 (“Leahy”); and
- claims 13-17 and 34-36 were rejected under 35 U.S.C. § 103 as purportedly being obvious over Leahy in view of Nilsson et al., Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System, Psychology Journal, 7(2), 175-196 (“Nilsson”).

In response, Applicant has amended claims 1, 4-8, 10-14, 16-19, 21-22, 24-29, 31-38, and 40-42, added new claims 43-58, and canceled claims 9 and 30 without prejudice or disclaimer. Support for these amendments may be found throughout the application and claims as originally submitted. For example, support for these amendments is found at least in paragraphs [0001] – [0002], [0009] – [0010], [0012], [0014], [0018] – [0022], and [0030] – [0034] of the application as originally filed. No new matter has been added.

Claim Rejections – 35 U.S.C. § 112

The Office Action rejected claims 35 and 40 under 35 U.S.C. § 112, second paragraph, as purportedly being indefinite. In particular, the Office Action (p. 2) pointed out that claim 35 included more than one sentence, and claim 40 was dependent on itself. Applicant has amended claims 35 and 40 to address the Examiner’s concerns. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112 is respectfully requested.

Claim Rejections – 35 U.S.C. §§ 102 and 103

The Office Action rejected independent claims 1 and 26 under 35 U.S.C. § 102 as purportedly being anticipated by Leahy. Applicant respectfully traverses the rejections of claims 1 and 26 as applied to the claims as amended. Leahy does not anticipate either of the

independent claims because Leahy does not teach each and every limitation of either of the independent claims.

Discussion of Leahy

Leahy describes an architecture for a three-dimensional graphical, multi-user, interactive virtual world system (Abstract). In Leahy's system, "each user executes a client process to view a virtual world from the perspective of that user," and the virtual world shows avatars representing the users (Abstract). A view of Leahy's virtual world system is shown in FIG. 1, reproduced below. Leahy's architecture is said to be suitable for use in a virtual world chat system in which "users at client machines visually and aurally interact with other users at other client machines" within the virtual world (col. 1, lines 36-43; col. 2, lines 55-60).

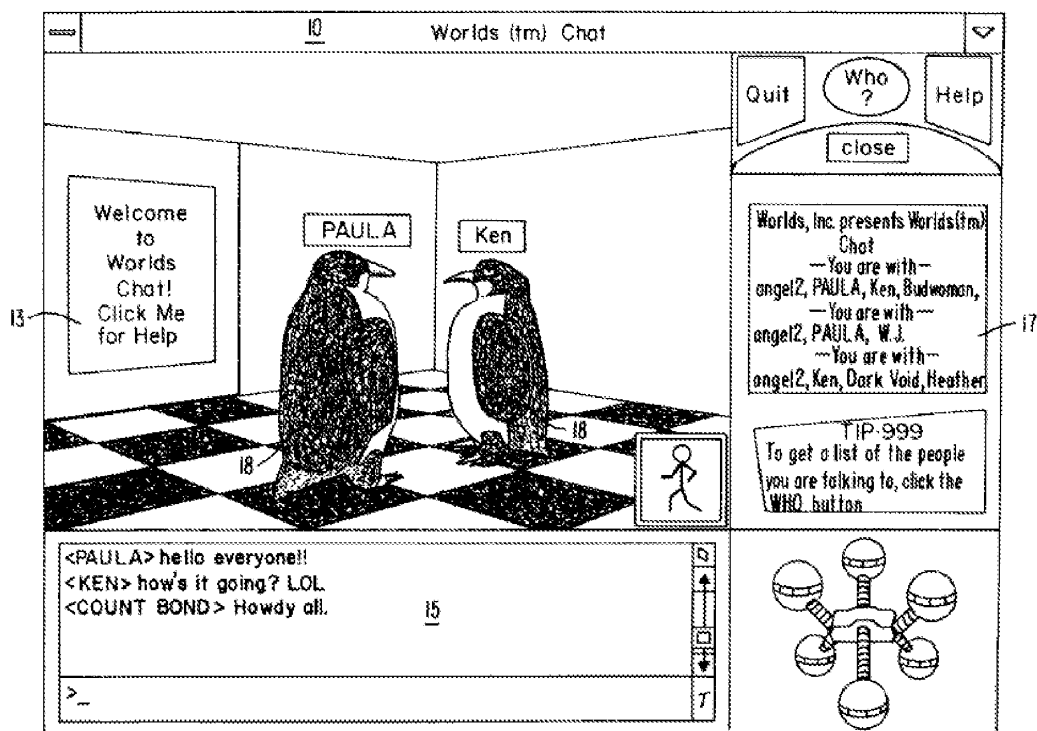


FIG. 1.

In Leahy's system, "[e]ach user is free to move his or her avatar around in the virtual world" (col. 3, lines 24-25). Leahy further states that "each client machine sends its current

location, or changes in its current location, to the server and receives updated position information of the other clients,” so that “each user sees the correct location of each of the other avatars” (col. 3, lines 25-30). For example, when a user directs his or her avatar to walk through a virtual door in the virtual world, the user’s client sends a packet of data to a server to indicate that the avatar is entering a different room and to specify the X, Y, and Z positions (and orientation) of the avatar in that room (col. 12, lines 31-46). The system is said to synchronously disseminate from a server to each of the clients a packet of information updating a list of avatars displayable for that particular client (claim 5(e)).

Leahy’s system includes a “chat processor” (FIG. 4, #106). According to Leahy, the chat processor “receives messages which contain conversation (text and/or audio) or other data received from other users and sends out conversation or other data directed to other users” (col. 4, lines 59-62). The conversation is said to be provided to the chat processor by input devices, “which might include a keyboard, microphones, digital video cameras, and the like” (col. 4, lines 62-65). “If the received conversation is audio, chat processor 106 routes it to an audio output device 118 If the received conversation is textual, it is routed to a rendering engine 120 where the text is integrated into a graphical display 122. Alternatively, the text might be displayed in a region of display 122 distinct from a graphically rendered region.” (Col. 5, lines 6-15.)

Leahy’s virtual world includes objects, such as the wall, floor, ceiling, and clickable object 13 shown in FIG. 1 (col. 3, lines 7-10). “The typical object is inactive, in that its only effect is being viewed. Some objects cause an action to occur when the user clicks on the object, while some objects just take an action when their activating condition occurs. An example of the former is the clickable objects [sic] 13 shown in FIG. 1 which brings up a help screen. An example of the latter is the escalator object. When a user’s avatar enters the escalator’s zone of control, the avatar’s location is changed by the escalator object automatically (like a real escalator).” (Col. 7, lines 24-33.)

Independent Claim 1 and the Claims Depending Therefrom

As amended, independent claim 1 is directed to a system, comprising:

a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference;

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant; and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects. (Emphasis added.)

Leahy does not teach at least the above-emphasized limitation of claim 1. As discussed above, Leahy describes a virtual world chat system (Abstract; FIG. 1; col. 1, lines 36-43; col. 2, lines 55-60). Leahy's system includes a chat processor, which receives "conversation data" from input devices which might include a digital video camera (col. 4, lines 59-65). However, Leahy does not teach that any video stream obtained from any digital video camera is ever multiplexed with any other video stream. Thus, Leahy cannot (and does not) teach a multiple stream sync module, which in operation "multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant," as recited in claim 1.

Accordingly, Leahy does not teach at least the above-emphasized limitations of claim 1. Claim 1 therefore patentably distinguishes over the Leahy and is in condition for allowance. Claims 2-8, 10-25, 43-48, and 55-56 depend from claim 1 and are allowable for at least the same reasons. Allowance of claims 1-8, 10-25, 43-48, and 55-56 is respectfully requested.

Independent Claim 26 and the Claims Depending Therefrom

As amended, independent claim 26 is directed to a method, comprising:

providing a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects;

multiplexing the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant; and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects. (Emphasis added.)

For reasons that should be apparent from the discussion above, Leahy does not teach at least “multiplexing the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant,” as recited in claim 26. Claim 26 therefore patentably distinguishes over Leahy and is in condition for allowance. Claims 27-29, 31-42, 49-54, and 57-58 depend from claim 26 and are allowable for at least the same reasons. Allowance of claims 26-29, 31-42, 49-54, and 57-58 is respectfully requested.

CONCLUSION

Applicant respectfully requests that the Examiner reconsider the application, and submits that, in light of the foregoing remarks, the pending claims are in condition for allowance. If there is any further requirement to put the application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative. Applicant's representative would welcome the opportunity to work with the Examiner.

A petition for a one-month extension of time and the corresponding fee are submitted herewith. Also submitted is the fee for additional claims. No other fees or extensions are believed to be necessary for entry and consideration of this paper. The Director, however, is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith to our Deposit Account No. 07-1700, with reference to Docket No. ZUG-001.

Dated: August 14, 2015

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/
Joel E. Lehrer

Registration No.: 56,401
GOODWIN PROCTER LLP
Exchange Place
Boston, Massachusetts 02109
(617) 570-1057
Attorney for Applicant

Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL TIME
MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND
SYNCHRONIZED VIDEO STREAMS IN AN
AUGMENTED OR MULTI-DIMENSIONAL
SPACE

Examiner: K. O. Blair

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT (IDS)

Pursuant to 37 C.F.R. § 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

This Information Disclosure Statement is filed more than three months after the U.S. filing date, and after the mailing date of the first Office Action on the merits, but before the mailing date of any of a Final Office Action, a Notice of Allowance (37 C.F.R. § 1.97(c)) or an action that otherwise closes prosecution in the application.

In accordance with 37 C.F.R. § 1.98(a)(2)(ii), Applicant has not submitted copies of U.S. patents and U.S. patent applications. Applicant submits herewith a copy of the non-patent literature in accordance with 37 C.F.R. § 1.98(a)(2).

ACTIVE/83279399.1

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. § 1.56(a) exists. In accordance with 37 C.F.R. § 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that any patent, publication or other information referred to therein is “prior art” for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98 and the Examiner is respectfully requested to consider the listed references.

Please charge our Credit Card in the amount of \$90.00 covering the fee set forth in 37 CFR 1.17(p). The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 07-1700, under Order No. ZUG-001.

Dated: August 14, 2015

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/

Joel E. Lehrer

Registration No.: 56,401

GOODWIN PROCTER LLP

Exchange Place

Boston, Massachusetts 02109

(617) 570-1057

Attorney for Applicant

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	13/778,430-Conf. #9672
				Filing Date	February 27, 2013
				First Named Inventor	Matthew Szymczyk
				Art Unit	2651
				Examiner Name	K. O. Blair
Sheet	2	of	2	Attorney Docket Number	ZUG-001

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	Zugara, (February 4, 2010) "ZugSTAR - Streaming Augmented Reality", Retrieved from YouTube.com on July 30, 2015 and available at https://www.youtube.com/watch?v=eSFICHkZgkA , (2 pages).	

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) ZUG-001			
Application Number 13/778,430-Conf. #9672		Filed February 27, 2013			
For SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE					
Art Unit 2651		Examiner K. O. Blair			
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):					
		<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>	
☒	One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ 100.00
☐	Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$
☐	Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$
☐	Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$
☐	Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$
☐ Applicant asserts small entity status. See 37 CFR 1.27.					
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.					
☐ A check in the amount of the fee is enclosed.					
☒ Payment by credit card.					
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.					
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 07-1700 .					
☒ Payment made via EFS-Web.					
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.					
I am the					
☐ applicant.					
☒ attorney or agent of record. Registration number 56,401 .					
☐ attorney or agent acting under 37 CFR 1.34. Registration number .					
_____ /Joel E. Lehrer/ Signature			_____ August 14, 2015 Date		
_____ Joel E. Lehrer Typed or printed name			_____ (617) 570-1057 Telephone Number		
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.					
☐ * Total of 1 forms are submitted.					

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Joel E. Lehrer/Deanna Bridges		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	14	40	560
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Submission- Information Disclosure Stmt	2806	1	90	90
Total in USD (\$)				750

Electronic Acknowledgement Receipt	
EFS ID:	23211252
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Joel E. Lehrer/Deanna Bridges
Filer Authorized By:	Joel E. Lehrer
Attorney Docket Number:	ZUG-001
Receipt Date:	14-AUG-2015
Filing Date:	27-FEB-2013
Time Stamp:	14:54:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$750
RAM confirmation Number	10235
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		ZUG-001_Amendment_Response.pdf	245016 6c15e28621d25ae2b5a293cd75e07f622a64396f	yes	18
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	12	
	Applicant Arguments/Remarks Made in an Amendment		13	18	
Warnings:					
Information:					
2	Transmittal Letter	ZUG-001_IDS.pdf	32891 e73e5dde3d59491d391ee06289e278259f10417e	no	2
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	ZUG-001_IDS_SB08.pdf	44057 e287a9f8aeb98cc27c76d3ddd57d35191756956a	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Non Patent Literature	C1.pdf	836902 7d37084b3c179667f85174a7615f584c7ad0e82	no	2
Warnings:					
Information:					
5	Extension of Time	ZUG-001_EOT.pdf	26920 bb11e9f9811578d668851b9e6e005d0050603f60	no	1
Warnings:					
Information:					

6	Fee Worksheet (SB06)	fee-info.pdf	33930 6bda0de423fecb0f9bfb803a65ef9f7020633f752	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				1219716	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/778,430		Filing Date 02/27/2013		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	08/14/2015	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 56	Minus	** 42	= 14	X \$40 =		560	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		560	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

77845	7590	12/11/2015
Goodwin Procter LLP Attn: Patent Administrator 135 Commonwealth Drive Menlo Park, CA 94025-1105		

EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
12/11/2015	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PatentSV@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com

Office Action Summary	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.	
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 8/14/15.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-8, 10-29 and 31-58 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☒ Claim(s) 1-8, 10-29 and 31-58 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

4) ☐ Other: _____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-8, 10-16, 19-29, 31, 35, and 38-58 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Junuzovic (US 20120320158).

Regarding claim 1, Junuzovic teaches a system, comprising:
a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment (the hand of a user 508 at the first location surface 510 can be seen writing in a notebook 512 at the first location, [0059],

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fig. 5) including a participant in a video chat or conference (manner similar to establishing a video call, [0047]);

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects (for example, see projected markings 514 on the first location surface which were actually created by the remote location on the right side of fig. 5, [0059]), and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant (technique provides N-way sharing of a surface using video compositing, [0003]); and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects (projector, [0003]).

Regarding claim 2, Junuzovic teaches the system of claim 1, wherein: the participants of the video chat or conference are

associated with one Augmented Reality (AR) system (same hardware, [0024], fig. 5).

Regarding claim 3, Junuzovic teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems (similar hardware, [0024], fig. 5).

Regarding claim 4, Junuzovic teaches the system of claim 1, wherein: the data input device is selected from a group consisting of an image device ([0025]), an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

Regarding claim 6, Junuzovic teaches the system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the initial real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects (location, [0107]).

Regarding claim 7, Junuzovic teaches the system of claim 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset database located at a location in the cloud that is accessible to all participants in the video chat or conference (page through slides, [0066]).

Regarding claim 8, Junuzovic teaches the system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream ([0075]).

Regarding claim 10, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from different two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates (composition of only foregrounds, [0070])).

Regarding claim 11, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants (shared projected area, [0081])).

Regarding claim 12, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module broadcasts

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multiplexed video stream to all participants in the video chat or conference (sends video of each user's surface, [0069]).

Regarding claim 13, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of

hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device ([0031]), and

wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream (to control the system or objects on the surface , [0031]), selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

Regarding claim 14, Junuzovic teaches the system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing (to control the system or objects on the surface , [0031]), and resizing an existing object in the multiplexed video stream.

Regarding claim 15, Junuzovic teaches the system of claim 13, wherein: the multiple stream sync module limits

the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements ([0098]).

Regarding claim 16, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands ([0031], [0105]).

Regarding claim 19, Junuzovic teaches the system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform (similar hardware, [0024], fig. 5).

Regarding claim 20, Junuzovic teaches the system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference ([0047]).

Regarding claim 21, Junuzovic teaches the system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session ([0075]).

Regarding claim 22, Junzovic teaches the system of claim 20, wherein: the video conference manager performs device detection (initialization process for collaborating includes establishing communications between the local and remote locations using this module 144a, [0034]) to select video/audio protocols compatible with respective hosting devices of each of the participants (during establishment of the collaborative session, communications and user parameters are established in a manner similar to establishing a video call, [0047]).

Regarding claim 23, Junuzovic teaches the system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants (inherent to enable the sharing of surfaces as disclosed, [0069]).

Regarding claim 24, Junuzovic teaches the system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference (or more other remote locations, [0035]), the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

Regarding claim 25, Junuzovic teaches the system of claim 1, further comprising: a media server, which in operation,

distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants ([0035]).

Regarding claim 43, Junuzovic teaches the system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects ([0069]).

Regarding claim 44, Junuzovic teaches the system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time (inherent for the system disclosed, [0069]).

Regarding claim 45, Junuzovic teaches the system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module ([0059]), in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant ([0069]).

Regarding claim 46, Junuzovic teaches the system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z) (foregrounds, [0070]).

Regarding claim 47, Junuzovic teaches the system of claim 1, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

extracts the one or more virtual objects from the multiplexed video stream;

manipulates the extracted one or more virtual objects in response to input from the participant (annotation, [0045]));
and

multiplexes a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream ([0069]).

Regarding claim 48, Junuzovic teaches the system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant ([0069]).

Regarding claim 55, Junuzovic teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment ([0069]).

Regarding claim 56, Junuzovic teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more

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virtual objects into the video of the real-world environment
(presentation saved with circle, [0066]).

Claim 26 is substantially similar to claim 1 and is
rejected for the same reasons.

Claim 27 is substantially similar to claim 6 and is
rejected for the same reasons.

Claim 28 is substantially similar to claim 7 and is
rejected for the same reasons.

Claim 29 is substantially similar to claim 8 and is
rejected for the same reasons.

Claim 31 is substantially similar to claim 10 and is
rejected for the same reasons.

Claim 32 is substantially similar to claim 11 and is
rejected for the same reasons.

Claim 33 is substantially similar to claim 12 and is
rejected for the same reasons.

Claim 34 is substantially similar to claim 13 and is
rejected for the same reasons.

Claim 35 is substantially similar to claim 15 and is
rejected for the same reasons.

Claim 38 is substantially similar to claim 19 and is
rejected for the same reasons.

Claim 39 is substantially similar to claim 20 and is rejected for the same reasons.

Claim 40 is substantially similar to claim 21 and is rejected for the same reasons.

Claim 41 is substantially similar to claim 22 and is rejected for the same reasons.

Claim 42 is substantially similar to claim 24 and is rejected for the same reasons.

Claim 49 is substantially similar to claim 43 and is rejected for the same reasons.

Claim 50 is substantially similar to claim 44 and is rejected for the same reasons.

Claim 51 is substantially similar to claim 45 and is rejected for the same reasons.

Claim 52 is substantially similar to claim 46 and is rejected for the same reasons.

Claim 53 is substantially similar to claim 47 and is rejected for the same reasons.

Claim 54 is substantially similar to claim 48 and is rejected for the same reasons.

Claim 57 is substantially similar to claim 55 and is rejected for the same reasons.

Claim 58 is substantially similar to claim 56 and is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 18, and 37 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Junuzovic.

Claim 5 represents locating a module locally or remotely in a network.

Claim 18 represents broadcasting video to extra users who may merely watch the video and not interact with the objects.

Although the subject matter of claims 5 and 18 is not explicitly disclosed by Junuzovic, each represents an obvious design choice which would have been readily apparent to one of ordinary skill in the art in light of the disclosed system of Junuzovic.

Claim 37 is substantially similar to claim 18 and is rejected for the same reasons.

Claim 17 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable Junuzovic in view of Nilsson (Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System. PsychNology Journal, 7(2), 175 - 196, PTO-892 4/14/15).

Regarding claim 17, Leahy teaches the system of claim 1.

Although Junuzovic does not explicitly teach the feature wherein: the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes, Nilsson teaches that augmented reality systems may use gaze tracking to interact with the system (Nilsson, pg. 178).

It would have been obvious to one of ordinary skill in the art to use gaze tracking in the augmented reality system of Junzovic since doing so is the use of a known technique to improve a similar device in the same way.

Response to Arguments

Applicant's arguments with respect to claim 1-8, 10-29, and 31-58 have been considered but are moot in view of the grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Kile Blair/

Examiner, Art Unit 2651

/DUC NGUYEN/

Supervisory Patent Examiner, Art Unit 2651

Notice of References Cited	Application/Control No. 13/778,430		Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.	
	Examiner Kile Blair		Art Unit 2651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2012/0320158 A1	12-2012	Junuzovic; Sasa	G06F3/017	348/46
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 13778430	Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.
	Examiner KILE BLAIR	Art Unit 2651

CPC- SEARCHED		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S7	4264	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 00:12
S8	11	S7 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 00:12
S9	72	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 00:12
S10	82	S8 S9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 00:12
S11	2	"13778430" and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd) <"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 00:12
S12	69	remote near20 music\$4 near4 collaborat\$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 15:41
S13	0	remote near20 music\$4 near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 17:07
S14	29	remote near20 music\$4 near4 collaborat\$5 and object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 17:08
S15	17	remote near20 music\$4 near4 collaborat\$5 and object and video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/13 17:08

EAST Search History

S16	0	(13/660911).APP.	USPAT; USOCR	OR	ON	2015/11/28 21:15
S17	19	remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/30 01:03
S18	0	(13/160094).APP.	USPAT; USOCR	OR	ON	2015/11/30 01:14
S19	3	("20110040539" "20120313969" "8275590").PN.	US-PGPUB; USPAT	OR	ON	2015/11/30 08:09
S20	4274	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/30 08:12
S21	11	S20 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/30 08:12
S22	74	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/30 08:12
S23	84	S21 S22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/11/30 08:12

EAST Search History (Interference)

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PTO/SB/08b (07-09)

Approved for use through 07/31/2012. OMB 0651-0031

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Application Number	13/778,430-Conf. #9672
				Filing Date	February 27, 2013
				First Named Inventor	Matthew Szymczyk
				Art Unit	2651
				Examiner Name	K. O. Blair
Sheet	2	of	2	Attorney Docket Number	ZUG-001

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	Zugara, (February 4, 2010) "ZugSTAR - Streaming Augmented Reality", Retrieved from YouTube.com on July 30, 2015 and available at https://www.youtube.com/watch?v=eSFICHkZgkA , (2 pages).	

Examiner Signature	/KILE BLAIR/	Date Considered	11/30/2015
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /KB/

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Menlo Park, CA 94025-1105



**Courtesy Reminder for
Application Serial No: 13/778,430**

Attorney Docket No: ZUG-001

Customer Number: 77845

Date of Electronic Notification: 12/11/2015

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Goodwin Procter LLP
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135 Commonwealth Drive
Menlo Park, CA 94025-1105



**Courtesy Reminder for
Application Serial No: 13/778,430**

Attorney Docket No: ZUG-001

Customer Number: 77845

Date of Electronic Notification: 12/11/2015

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

PSousa-Atwood@goodwinprocter.com

glenn.williams@goodwinprocter.com

PatentSV@goodwinprocter.com

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

77845	7590	02/22/2016
Goodwin Procter LLP Attn: Patent Administrator 135 Commonwealth Drive Menlo Park, CA 94025-1105		

EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
02/22/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PatentSV@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant argued that a difference between the claimed invention and the prior art is that the projected objects in Junuzovic aren't moveable at the remote user's. Applicant argued that Junuzovic doesn't transmit the video with the objects still being objects; rather, they are integrated into the video and then transmitted as simply image content of the video and not distinct video objects that can individually be manipulated. The examiner noted that the Youtube video referred to in the attached agenda is a 102(b) (pre-AIA) or 102(a)(1) with no 102(b) exception (AIA) prior art. Applicant said that the disclosure of the application had details not disclosed in the video. The examiner noted that it seemed that the disclosure is more oriented towards the capabilities of the concept as shown in the video and not particularly descriptive in terms of how the invention would be implemented. The examiner acknowledged applicant's argument that Junuzovic merely transmits video of each user's surface without objects; however, upon further consideration, Junuzovic discloses separating the background (i.e. digital video objects) from the foreground (i.e. the video stream from a user) and it clearly seems that Junzovic teaches objects which correspond to the video stream, but that are synchronized in each user's video streams and are able to be manipulated separately from the specific user's surface or video stream (Junuzovic, [0070], [0096], [0107]). See especially [0107] wherein a physical toy car can be placed next to a train track and a digital object is created based on the real toy car which causes the virtual train to whistle at the synthesized virtual car at a virtual train crossing (all virtual items being objects, not just video images). Therefore, the manipulation of the physical toy car causes the inherently extracted toy car digital object to have its coordinates adjusted correspondingly. Additionally, the examiner notes 0:12-0:17 in the video where one user selects a DNA model and then that DNA model is manipulated as an object by the other user. Also, at 1:15 to 1:24, the mother manipulates the relative position of the toy roof and house then the child manipulates the toy roof and the house wherein the video leaves the impression that the toy roof and house are objects associated with the video stream that can be separately manipulated (i.e. extracted from the multiplexed video stream).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : M. Szymczyk Art Unit : 2651
Serial No. : 13/778,430 Examiner : K.O. Blair
Filed : February 27, 2013 Conf. No. : 9672
Title : Systems and Methods for Real Time Manipulation and Interaction with
Multiple Dynamic and Synchronized Video Streams in an Augmented or
Multi-Dimensional Space

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PROPOSED INTERVIEW AGENDA

Applicant thanks Examiner Blair for agreeing to conduct a telephonic interview with Applicant's undersigned representative (Joel E. Lehrer) and Applicant's legal representative (Samuel S. Stone) on February 12, 2016 at 2:00 PM EST. Applicant's representatives will call the Examiner at the scheduled time.

During the interview, Applicant's representatives plan to present an exhibit to illustrate some applications of techniques described in the present application. The exhibit can be viewed by the Examiner at <https://www.youtube.com/watch?v=eSFiCHkZgkA>.

Without acceding to the rejections, proposed amendments to claim 1 are listed below for purposes of discussion. Applicant's representatives would appreciate discussing how claim 1, with the proposed amendments, distinguishes over Junuzovic. In particular, Applicant's representatives would appreciate discussing whether the Examiner believes that the cited art teaches or suggests "a multiple stream sync module, which ... extracts at least one of the virtual objects from the multiplexed video stream" and "based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream", as recited in the proposed version of claim 1 below.

Proposed Amendments to Claim 1 (For Purposes of Discussion Only)

1. A system, comprising:
a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference; and
a multiple stream sync module, which in operation:
receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and
multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant, [[:]]
extracts at least one of the virtual objects from the multiplexed video stream,
based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream, and
causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects.

Respectfully submitted,

Date: February 11, 2016

/Joel E. Lehrer/
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Attorney for Applicant

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal Address to: Mail Stop RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number	13/778,430-Conf. #9672
	Filing Date	February 27, 2013
	First Named Inventor	Matthew Szymczyk
	Art Unit	2651
	Examiner Name	K. O. Blair
	Attorney Docket Number	ZUG-001

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO on page 2.)

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
- a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☒ Amendment/Reply
- ii. ☐ Affidavit(s)/ Declaration(s)
- iii. ☐ Information Disclosure Statement (IDS)
- iv. ☐ Other _____
2. **Miscellaneous**
- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____
3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
- a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 50-4634.
- i. ☒ RCE fee required under 37 CFR 1.17(e)
- ii. ☒ Extension of time fee (37 CFR 1.136 and 1.17)
- iii. ☐ Other _____
- b. ☐ Check in the amount of \$ _____ enclosed
- c. ☒ Payment by credit card.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED**

Signature	/Joel E. Lehrer/	Date	June 13, 2016
Name (Print/Type)	Joel E. Lehrer	Registration No.	56,401

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)		Date	

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) ZUG-001			
Application Number 13/778,430-Conf. #9672		Filed February 27, 2013			
For SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE					
Art Unit 2651		Examiner K. O. Blair			
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):					
		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____
☐	Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____
☒	Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ 700.00
☐	Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____
☐	Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____
☒ Applicant asserts small entity status. See 37 CFR 1.27.					
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.					
☐ A check in the amount of the fee is enclosed.					
☒ Payment by credit card.					
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.					
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-4634</u> .					
☒ Payment made via EFS-Web.					
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.					
I am the					
☐ applicant.					
☐ attorney or agent of record. Registration number _____.					
☒ attorney or agent acting under 37 CFR 1.34. Registration number <u>56,401</u> .					
_____ Signature			_____ Date		
_____ Typed or printed name			_____ Telephone Number		
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.					

☐ * Total of 1 forms are submitted.

Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:
Matthew Szymczyk

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: Systems and Methods For Real Time
Manipulation and Interaction with Multiple
Dynamic and Synchronized Video Streams in an
Augmented or Multi-Dimensional Space

Examiner: K. O. Blair

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**AMENDMENT AND RESPONSE FILED WITH
REQUEST FOR CONTINUED EXAMINATION (RCE)**

In response to the Office Action dated December 11, 2015, in connection with the patent application identified above, the following Amendment and Response is respectfully submitted, along with a Request for Continued Examination (RCE) and a request for a three-month extension of time. The Commissioner is hereby authorized to charge RCE fees and extension of time fees to the credit card identified in this filing, and no additional fees are believed to be required. If any such fees are due, however, the Commissioner is hereby also authorized to charge such fees to our Deposit Account No. 50-4634, with reference to Order No. ZUG-001.

Please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 12 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A system, comprising:
a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference; and
a multiple stream sync module, which in operation:
receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and
multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant, [[.]]
extracts at least one of the virtual objects from the multiplexed video stream,
based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream, and
causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects.
2. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system.
3. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.
4. (Previously presented) The system of claim 1, wherein: the data input device is selected from a group consisting of an image device, an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

5. (Previously presented) The system of claim 43, wherein: the augmentation module resides either at a location of the participant or on a remote server.
6. (Previously presented) The system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
7. (Previously presented) The system of claim 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset database accessible to all participants in the video chat or conference.
8. (Previously presented) The system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
9. (Canceled)
10. (Previously presented) The system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates.
11. (Previously presented) The system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants.
12. (Previously presented) The system of claim 1, wherein: the multiple stream sync module broadcasts the multiplexed video stream to all participants in the video chat or conference.

13. (Previously presented) The system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, and wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

14. (Currently amended) The system of claim 13, wherein: the various commands selected and executed using the ~~intuitive~~ hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the multiplexed video stream.

15. (Original) The system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

16. (Previously presented) The system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands.

17. (Previously presented) The system of claim 1, wherein: the multiple stream sync module controls and manipulates the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

18. (Previously presented) The system of claim 1, wherein: the multiple stream sync module allows the control and manipulation of the one or more virtual objects only by the other participant.

19. (Previously presented) The system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other

participant from one platform is synchronized and shared with the participant using a different platform.

20. (Original) The system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.

21. (Previously presented) The system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

22. (Previously presented) The system of claim 20, wherein: the video conference manager performs device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

23. (Original) The system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants.

24. (Previously presented) The system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

25. (Previously presented) The system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants.

26. (Currently amended) A method, comprising:
- providing a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference;
 - receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects;
 - multiplexing the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant;
 - extracting at least one of the virtual objects from the multiplexed video stream,
 - based on an action of the participant, changing coordinates of the extracted virtual object within the multiplexed video stream; and
 - causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects.
27. (Previously presented) The method of claim 50, wherein the second augmentation data representing the one or more second virtual objects are synchronized with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
28. (Previously presented) The method of claim 49, further comprising: retrieving the one or more second virtual objects from an augmented asset database accessible to all participants in the video chat or conference.
29. (Previously presented) The method of claim 50, further comprising: updating coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
30. (Canceled)

31. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream is performed based on active control on synchronization of HB (human behavior) of the participants in addition to X,Y,Z, and T coordinates.
32. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream comprises synchronizing the augmented and real-world video streams in such a way as to reduce latency of the multiplexed video stream.
33. (Previously presented) The method of claim 26, further comprising: broadcasting the multiplexed video stream to all participants in the video chat or conference.
34. (Previously presented) The method of claim 26, further comprising:
accepting one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface; and
using the one or more inputs to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.
35. (Previously presented) The method of claim 34, further comprising: limiting the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.
36. (Previously presented) The method of claim 26, further comprising: controlling and manipulating the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

37. (Previously presented) The method of claim 26, further comprising: allowing the control and manipulation of the one or more virtual objects only by the other participant.

38. (Previously presented) The method of claim 26, further comprising: synchronizing the augmented and real-world video streams across multiple platforms so that the augmented video stream provided by the other participant from one platform is shared with the participant using a different platform.

39. (Original) The method of claim 26, further comprising: creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.

40. (Previously presented) The method of claim 39, further comprising: monitoring, organizing, and storing information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

41. (Previously presented) The method of claim 26, further comprising: performing device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

42. (Previously presented) The method of claim 26, further comprising: encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

43. (Previously presented) The system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a

second augmented video stream comprising second augmentation data representing one or more second virtual objects.

44. (Previously presented) The system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

45. (Previously presented) The system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant.

46. (Previously presented) The system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

47. (Canceled)

48. (Previously presented) The system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

49. (Previously presented) The method of claim 26, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the method further comprises generating a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

50. (Previously presented) The method of claim 49, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

51. (Previously presented) The method of claim 50, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

receiving, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexing the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sending the second multiplexed video stream to the other participant.

52. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises synchronizing the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

53. (Canceled)

54. (Previously presented) The method of claim 26, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

55. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

56. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

57. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

58. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

REMARKS

Administrative Overview

Prior to the Office Action of December 11, 2015, claims 1-8, 10-29, and 31-58 were pending. In the Office Action:

- the independent claims (i.e., claims 1 and 26) were rejected under 35 U.S.C. § 102 as purportedly being anticipated by U.S. Pub. No. 2012/0320158 (“Junuzovic”); and
- each of the dependent claims was rejected under 35 U.S.C. § 102 as purportedly being anticipated by Junuzovic or rejected under 35 U.S.C. § 103 as purportedly being obvious over Junuzovic alone or in view of S. Nilsson et al., Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System, PsychNology Journal, 7(2), 175-196 (2009) (“Nilsson”).

In the present Amendment, claims 1, 14, and 26 are amended, and claims 47 and 53 are canceled without prejudice or disclaimer. Support for the claim amendments can be found, for example, in paragraphs [0022] and [0030] – [0034] of the originally-filed specification. No new matter is added.

Interview Summary

Applicant thanks Examiner Blair for conducting a telephone interview on February 12, 2016. The participants included Examiner Blair, Applicant’s undersigned representative (Joel E. Lehrer), and Applicant’s legal representative (Samuel S. Stone). The interview was held pursuant to an Interview Agenda that was emailed to the Examiner on February 11, 2016. Copies of the email message and the Interview Agenda are submitted herewith.

During the interview, the Examiner and Applicant’s representatives discussed the exhibit identified in the Interview Agenda (i.e., the video available at <https://www.youtube.com/watch?v=eSFiCHkZgkA>), which illustrates some scenarios in which the subject matter of the present application may be beneficially applied. In addition, Applicant’s representatives proposed the same amendments to claim 1 that are presented herein, and pointed out distinctions between the proposed version of claim 1 and the cited reference (Junuzovic). In particular, Applicant’s representatives pointed out that Junuzovic does not

describe a module which extracts a virtual object from a multiplexed video stream and, based on an action of a participant, changes coordinates of the extracted virtual object within the multiplexed video stream. No agreement was reached.

The discussion during the interview focused on amendments to the independent claims presented herein and arguments presented herein. Accordingly, this paper is intended to constitute a proper recodation of the interview in accordance with MPEP § 713.04, and also to provide a full response to the Office Action of December 11, 2015.

Overview of Some Embodiments

The present application describes, among other things, some embodiments of augmented reality (AR) systems and techniques that facilitate sharing of interactive, synchronized, augmented video streams over a network, such that multiple users can interact with augmented objects in their own video streams or in the video streams of other users.¹ In some embodiments, an input device (e.g., video camera) of an AR system captures a real-world video stream of a user.² The AR system can also receive, from another user, an augmented video stream containing virtual objects,³ and can multiplex the two video streams together to generate a multiplexed video stream showing video of the first user and the virtual objects.⁴ The first user can then extract a virtual object provided by the other user from the multiplexed video stream and change the position of the virtual object within the multiplexed video stream.⁵ Thus, the AR system can enable a user to change the position of a virtual object provided by another user in a multiplexed video stream shared by the users.

For example, the AR system “can enable two persons to play an interactive game together. If the first person is in a hotel on business and the second person is at home, the first person could start up the system to initiate the game. As the augmented object is displayed and synchronized simultaneously into both persons’ video streams/feeds, the first person could then move the positioning of the object (e.g., a toy house). Since both of their video streams have

¹ Specification, paragraphs [0009] and [0010].

² Specification, paragraphs [0017] and [0018].

³ Specification, paragraphs [0018] and [0019].

⁴ Specification, paragraphs [0020]-[0022].

⁵ Specification, paragraphs [0020] and [0022].

been synchronized with the augmented content (object), both persons would see the coordinates of the augmented object changing on their respective displays **and either of them could manipulate the coordinates of the augmented object.**⁶

The foregoing discussion of some embodiments is provided merely to assist the Examiner in appreciating various aspects of the subject matter described in the present application. However, not all of the description provided above necessarily applies to each of the independent claims pending in the application. Therefore, the Examiner is requested to not rely upon the foregoing summary in interpreting any of the claims or in determining whether they patentably distinguish over the prior art of record, but rather is requested to rely only upon the language of the claims themselves and the arguments specifically related thereto provided below.

Claim Rejections Under 35 U.S.C. § 102

In the Office Action of December 11, 2015, each of the independent claims was rejected under 35 U.S.C. § 102 as purportedly being anticipated by Junuzovic. Each of the dependent claims was rejected under 35 U.S.C. § 102 as purportedly being anticipated by Junuzovic or rejected under 35 U.S.C. § 103 as purportedly being obvious over Junuzovic alone or in view of Nilsson. These rejections are respectfully traversed as applied to the claims, as amended.

I. Junuzovic

Junuzovic describes an “interactive and shared surface technique” that is said to support “two-way collaborations, multi-way collaborations, and single-user interactions with both physical and digital objects using both physical and digital interactions.”⁷ In the system of Junuzovic, a user’s projector projects video onto a surface 104 (e.g., a whiteboard, a table top, or a wall), and a video camera captures video of the surface and objects on or above the surface.⁸ The captured video is separated into a background portion (e.g., the surface 104 and video projected onto the surface 104) and a foreground portion (physical objects or real ink on or above

⁶ Specification, paragraph [0032] (emphasis added).

⁷ Junuzovic, paragraph [0019].

⁸ Junuzovic, paragraphs [0023]-[0027].

the surface).⁹ The foreground portion of the video is sent to other users and projected onto those users' surfaces.¹⁰ Likewise, the foreground portions of the other users' videos are received and projected onto the surface 104 of the first user.¹¹ The separation of the video into foreground and background portions is performed to avoid a scenario in which one user's video occludes another user's video.¹²

According to Junuzovic, a user can use "physical ... and hover gestures to manipulate (a) physical objects placed on or above the local surface, (b) digital objects shown on the local surface; and (c) objects in the video of the remote surface."¹³ For example, in a single-user scenario, the system "can project an electronic presentation and a user can page through the slides, make annotations on the slides of the presentation ... in real or digital ink," etc.¹⁴ Junuzovic also describes an example of a two-way collaboration scenario, in which "the local user can see and interact physically with a physical document on the remote user's surface (e.g., draw on it using real ink, point to it with hands, gesture to it with hands, etc.)," and "on the remote surface, the remote user can see a video of these interactions and perform physical interactions therewith as well."¹⁵ In addition, Junuzovic describes an example of a document-sharing scenario in which "[w]hen digital objects are being shared, users can continue to perform physical interactions on them such as pointing and drawing with real ink," and "can perform digital interactions with the surface."¹⁶ "For instance, a user can flick through an electronic presentation by making flicking gestures on the surface."¹⁷

In addition, the system is said "to support interaction between physical and digital objects."¹⁸ For example, the system can "allow children to place a physical toy train track on the surface and then see virtual toy trains moving around the track. If a physical toy car is placed next to the train track, then whenever the train goes by the car, the train whistles."¹⁹

⁹ See Junuzovic, paragraphs [0025], [0034], [0050]-[0052], [0070], and [0086-0089].

¹⁰ Junuzovic, paragraph [0025].

¹¹ Junuzovic, paragraph [0027].

¹² Junuzovic, paragraphs [0070] and [0096].

¹³ Junuzovic, paragraph [0005].

¹⁴ Junuzovic, paragraph [0064]-[0066].

¹⁵ Junuzovic, paragraph [0067]-[0069] (emphasis added).

¹⁶ Junuzovic, paragraph [0097].

¹⁷ Junuzovic, paragraph [0098].

¹⁸ Junuzovic, paragraph [0107].

¹⁹ Junuzovic, paragraph [0107].

II. Independent Claim 1 and the Claims Depending Therefrom

As amended, claim 1 recites a system comprising:

a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference; and

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, **an augmented video stream comprising** augmentation data representing **one or more virtual objects**, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant,

extracts at least one of the virtual objects from the multiplexed video stream,
based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream, and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects. (Emphasis added.)

Junuzovic does not teach or suggest at least a module which “extracts at least one of the virtual objects from the multiplexed video stream” and “based on an action of the participant, **changes coordinates of the extracted virtual object within the multiplexed video stream,**” as recited in claim 1 (emphasis added). Some distinctions between the examples and scenarios described by Junuzovic and the above-quoted portions of claim 1 are described below.

As discussed above, Junuzovic describes separating a captured video into a background portion (e.g., the surface 104 and video projected onto the surface 104) and a foreground portion (physical objects or real ink on or above the surface), and transmitting the foreground portion of the video to other users for projection onto those users’ surfaces.²⁰ Even assuming (without conceding) that Junuzovic’s description of separating a captured video into a background portion and a foreground portion could be understood to teach or suggest extracting a virtual object from a multiplexed video stream, the separation of video into foreground and background portions does not teach or suggest a module which “based on an action of the participant, changes

²⁰ See Junuzovic, paragraphs [0025], [0034], [0050]-[0052], [0070], and [0086-0089].

coordinates of the extracted virtual object within the multiplexed video stream,” as recited in claim 1.

Junuzovic also describes a scenario in which a single user physically interacts with a physical document (e.g., draws on the document).²¹ In this scenario, no video stream comprising virtual objects is received from another participant, and therefore no such virtual objects are extracted from a multiplexed video stream or have their coordinates changed within a multiplexed video stream. Thus, the cited portion of Junuzovic does not teach or suggest at least the subject matter of the above-emphasized portions of claim 1.

Junuzovic also describes an example of a two-way collaboration scenario, in which “the local user can see and interact physically with a physical document on the remote user's surface (e.g., draw on it using real ink, point to it with hands, gesture to it with hands, etc.),” and “on the remote surface, the remote user can see a video of these interactions and perform physical interactions therewith as well.”²² Physically interacting with a video projection of a document by drawing on the projected document using real ink, pointing to the projected document, or gesturing to the project document, as described by Junuzovic, does not involve changing the coordinates of the document and therefore does not teach or suggest a module which “extracts at least one of the virtual objects from the multiplexed video stream” and “based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream,” as recited in claim 1.

Junuzovic also describes an example of a document-sharing scenario in which “[w]hen digital objects are being shared, users can continue to perform physical interactions on them such as pointing and drawing with real ink,” and “can perform digital interactions with the surface.”²³ “For instance, a user can flick through an electronic presentation by making flicking gestures on the surface.”²⁴ As understood, Junuzovic’s description of flicking through an electronic presentation refers to the use of conventional gesture recognition techniques to control which page or slide of an electronic document is displayed by a projector. However, flicking through pages an electronic presentation, as described by Junuzovic, does not involve extracting a virtual

²¹ Junuzovic, paragraph [0064]-[0066].

²² Junuzovic, paragraph [0067]-[0069] (emphasis added).

²³ Junuzovic, paragraph [0097].

²⁴ Junuzovic, paragraph [0098].

object from a video stream or changing the coordinates of such an extracted virtual object. Thus, Junuzovic's description of flicking through an electronic presentation does not teach or suggest a module which "extracts at least one of the virtual objects from the multiplexed video stream" and "based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream," as recited in claim 1.

Finally, Junuzovic's system is said "to support interaction between physical and digital objects," such that a child can place a physical toy train track on the surface and then see a virtual toy train moving around the track and whistling whenever the train passes a physical toy car placed next to the train tracks.²⁵ In this scenario, no video stream comprising virtual objects is received from another participant, and therefore no such virtual objects are extracted from a multiplexed video stream or have their coordinates changed within a multiplexed video stream. Thus, the cited portion of Junuzovic does not teach or suggest at least the subject matter of the above-emphasized portions of claim 1.

For at least the foregoing reasons, Junuzovic does not teach or suggest at least the subject matter of the above-emphasized limitations of claim 1. Claim 1 therefore patentably distinguishes over Junuzovic. Withdrawal of the rejection of claim 1 is respectfully requested. Claims 2-8, 10-25, 43-46, 48, 55, and 56 depend from claim 1 and are allowable for at least the same reasons.

III. Independent Claim 26 and the Claims Depending Therefrom

As amended, independent claim 26 is directed to a method, comprising:

providing a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects;

multiplexing the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant;

extracting at least one of the virtual objects from the multiplexed video stream,

²⁵ Junuzovic, paragraph [0107].

based on an action of the participant, changing coordinates of the extracted virtual object within the multiplexed video stream; and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects. (Emphasis added.)

For reasons that should be apparent from the discussion above, Junuzovic does not teach or suggest at least the subject matter of the above-emphasized portions of claim 26. Claim 26 therefore patentably distinguishes over Junuzovic. Withdrawal of the rejection of claim 26 is respectfully requested. Claims 27-29, 31-42, 49-52, 54, 57, and 58 depend from claim 26 and are allowable for at least the same reasons.

CONCLUSION

In view of the above amendments, the pending application is believed to be in condition for allowance. If, in the Examiner's opinion, further communication would expedite the favorable prosecution of the present application, the undersigned would welcome the opportunity to discuss any outstanding issues and to work with the Examiner toward placing the application in condition for allowance.

Dated: June 13, 2016

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/
Joel E. Lehrer

Registration No.: 56,401
GOODWIN PROCTER LLP
Exchange Place
Boston, Massachusetts 02109
(617) 570-1057

Stone, Samuel S.

From: Stone, Samuel S.
Sent: Thursday, February 11, 2016 3:18 PM
To: 'kile.blair@uspto.gov'
Cc: Lehrer, Joel E
Subject: Proposed Interview Agenda for U.S. App. No. 13/778,430
Attachments: ZUG-001 - Proposed Interview Agenda.docx

Dear Examiner Blair,

Thank you for your courtesy in granting a telephone interview on Friday, February 12, at 2pm EST, in Application Serial No. 13/778,430. A proposed agenda for the interview is attached.

Regards,
Sam

Sent by Samuel S. Stone on behalf of:

Joel E. Lehrer
Goodwin Procter LLP
Exchange Place
53 State St.
Boston, MA 02109
T: 617-570-1057
jlehrer@goodwinprocter.com

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : M. Szymczyk Art Unit : 2651
Serial No. : 13/778,430 Examiner : K.O. Blair
Filed : February 27, 2013 Conf. No. : 9672
Title : Systems and Methods for Real Time Manipulation and Interaction with
Multiple Dynamic and Synchronized Video Streams in an Augmented or
Multi-Dimensional Space

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PROPOSED INTERVIEW AGENDA

Applicant thanks Examiner Blair for agreeing to conduct a telephonic interview with Applicant's undersigned representative (Joel E. Lehrer) and Applicant's legal representative (Samuel S. Stone) on February 12, 2016 at 2:00 PM EST. Applicant's representatives will call the Examiner at the scheduled time.

During the interview, Applicant's representatives plan to present an exhibit to illustrate some applications of techniques described in the present application. The exhibit can be viewed by the Examiner at <https://www.youtube.com/watch?v=eSFikHkZekA>.

Without acceding to the rejections, proposed amendments to claim 1 are listed below for purposes of discussion. Applicant's representatives would appreciate discussing how claim 1, with the proposed amendments, distinguishes over Junuzovic. In particular, Applicant's representatives would appreciate discussing whether the Examiner believes that the cited art teaches or suggests "a multiple stream sync module, which ... extracts at least one of the virtual objects from the multiplexed video stream" and "based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream", as recited in the proposed version of claim 1 below.

Proposed Amendments to Claim 1 (For Purposes of Discussion Only)

1. A system, comprising:
a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment including a participant in a video chat or conference; and
a multiple stream sync module, which in operation:
receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and
multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant, [[;]]
extracts at least one of the virtual objects from the multiplexed video stream,
based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream, and
causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects.

Respectfully submitted,

Date: February 11, 2016

/Joel E. Lehrer/

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Attorney for Applicant

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Joel E. Lehrer/Deanna Bridges		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
Total in USD (\$)				1300

Electronic Acknowledgement Receipt	
EFS ID:	26048855
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Joel E. Lehrer/Samuel Stone
Filer Authorized By:	Joel E. Lehrer
Attorney Docket Number:	ZUG-001
Receipt Date:	13-JUN-2016
Filing Date:	27-FEB-2013
Time Stamp:	21:02:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1300
RAM confirmation Number	6996
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	ZUG-001_RCE.pdf	83213	no	1
			b7a95c8c77b8b49a170628ad718b0a7d93171480		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Extension of Time	ZUG-001_EOT.pdf	78128	no	1
			14c6639fa5dd67a2295477e411895fa9777d2053		
Warnings:					
Information:					
3		ZUG-001_Amendment_Response.pdf	138773	yes	20
			6c0a7e93bcc9e5fae52c3233ba29fb95c4569384		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment Submitted/Entered with Filing of CPA/RCE		1	1	
	Claims		2	11	
	Applicant Arguments/Remarks Made in an Amendment		12	20	
Warnings:					
Information:					
4	Examination support document	ZUG-001_InterviewAgenda.pdf	1079442	no	3
			5ba7fe33357e53e8b33880bd3cf60c5797ffb09e		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32433	no	2
			4b22ededec449b86c96816c69d66f7c8bf032c40		
Warnings:					
Information:					
Total Files Size (in bytes):			1411989		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/778,430		Filing Date 02/27/2013		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	06/13/2016	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 54	Minus	** 56	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						LIE /MARQUITA JONES/			

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

77845	7590	09/26/2016
Goodwin Procter LLP Attn: Patent Administrator 135 Commonwealth Drive Menlo Park, CA 94025-1105		

EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
09/26/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PatentSV@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com

Office Action Summary	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.	
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 6/13/16.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-8, 10-29 and 31-58 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-8, 10-29 and 31-58 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-4, 6-8, 10-16, 19-29, 31, 35, and 38-58 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Junuzovic (US 20120320158) in view of Zugara (ZugSTAR - Streaming Augmented Reality, Zugara, YouTube Uploaded on Feb 4, 2010, <https://www.youtube.com/watch?v=eSFiCHkZgkA>, selected frames attached spanning portion of the video from 1:11-1:25, not all frames in that period are shown, 20 pages.)

Regarding claim 1, Junuzovic teaches a system, comprising:
a data input device, which in operation, provides a real-world video stream comprising video of a real-world environment (the hand of a user 508 at the first location surface 510 can be seen writing in a notebook 512 at the first location, [0059],

fig. 5) including a participant in a video chat or conference (manner similar to establishing a video call, [0047]);

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects (for example, see projected markings 514 on the first location surface which were actually created by the remote location on the right side of fig. 5, [0059]), and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the participant in real time to generate a multiplexed video stream comprising the real-world video stream of the participant and the one or more virtual objects represented by the augmentation data received from the other participant (technique provides N-way sharing of a surface using video compositing, [0003]); and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects (projector, [0003]).

However, Junuzovic does not explicitly teach the feature wherein the multiple stream sync module extracts at least one of

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the virtual objects from the multiplexed video stream, based on an action of the participant, changes coordinates of the extracted virtual object within the multiplexed video stream, and causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world environment and the one or more virtual objects.

Zugara teaches the mother moving the roof of the house to her left (Zugara, pp. 4-10). The child is then presented with the roof of the house where the mother had moved it such that the coordinates in the virtual space were changes (Zugara, pg. 11). Also, it is clear from the frames that the roof is an object in both of the different video streams of the mother and child. Subsequently, the child moves the roof back onto the house (Zugara, pp. 12-17).

It would have been obvious to one of ordinary skill in the art to implement the object extraction and coordinate changes of Zugara in the system of Junuzovic since doing so is the use of known technique to improve a similar device in the same way.

Regarding claim 2, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system (same hardware, [0024], fig. 5).

Regarding claim 3, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems (similar hardware, [0024], fig. 5).

Regarding claim 4, Junuzovic and Zugara teaches the system of claim 1, wherein: the data input device is selected from a group consisting of an image device ([0025]), an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

Claim 5 represents locating a module locally or remotely in a network.

Claim 18 represents broadcasting video to extra users who may merely watch the video and not interact with the objects.

Although the subject matter of claims 5 and 18 is not explicitly disclosed by Junuzovic, each represents an obvious design choice which would have been readily apparent to one of ordinary skill in the art in light of the disclosed system of Junuzovic.

Regarding claim 6, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the initial real-world video stream

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based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects (location, [0107]).

Regarding claim 7, Junuzovic and Zugara teaches the system of claim 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset database located at a location in the cloud that is accessible to all participants in the video chat or conference (page through slides, [0066]).

Regarding claim 8, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream ([0075]).

Regarding claim 10, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from different two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates (composition of only foregrounds, [0070])).

Regarding claim 11, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants (shared projected area, [0081]).

Regarding claim 12, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module broadcasts multiplexed video stream to all participants in the video chat or conference (sends video of each user's surface, [0069]).

Regarding claim 13, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of

hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device ([0031]), and

wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream (to control the system or objects on the surface , [0031]), selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

Regarding claim 14, Junuzovic and Zugara teaches the system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing (to control the system or objects on the surface , [0031]), and resizing an existing object in the multiplexed video stream.

Regarding claim 15, Junuzovic and Zugara teaches the system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements ([0098]).

Regarding claim 16, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands ([0031], [0105]).

Regarding claim 19, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform (similar hardware, [0024], fig. 5).

Regarding claim 20, Junuzovic and Zugara teaches the system of claim 1, further comprising: a video conference manager,

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which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference ([0047]).

Regarding claim 21, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session ([0075]).

Regarding claim 22, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager performs device detection (initialization process for collaborating includes establishing communications between the local and remote locations using this module 144a, [0034]) to select video/audio protocols compatible with respective hosting devices of each of the participants (during establishment of the collaborative session, communications and user parameters are established in a manner similar to establishing a video call, [0047]).

Regarding claim 23, Junuzovic and Zugara teaches the system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among

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the participants (inherent to enable the sharing of surfaces as disclosed, [0069]).

Regarding claim 24, Junuzovic and Zugara teaches the system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference (or more other remote locations, [0035]), the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

Regarding claim 25, Junuzovic and Zugara teaches the system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants ([0035]).

Regarding claim 43, Junuzovic and Zugara teaches the system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects ([0069]).

Regarding claim 44, Junuzovic and Zugara teaches the system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time (inherent for the system disclosed, [0069]).

Regarding claim 45, Junuzovic and Zugara teaches the system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module ([0059]), in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant ([0069]).

Regarding claim 46, Junuzovic and Zugara teaches the system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z) (foregrounds, [0070]).

Regarding claim 47, Junuzovic and Zugara teaches the system of claim 1, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

extracts the one or more virtual objects from the multiplexed video stream;

manipulates the extracted one or more virtual objects in response to input from the participant (annotation, [0045]));
and

multiplexes a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream ([0069]).

Regarding claim 48, Junuzovic and Zugara teaches the system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream

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comprising video of a real-world environment including the other participant ([0069]).

Regarding claim 55, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment ([0069]).

Regarding claim 56, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment (presentation saved with circle, [0066]).

Claim 26 is substantially similar to claim 1 and is rejected for the same reasons.

Claim 27 is substantially similar to claim 6 and is rejected for the same reasons.

Claim 28 is substantially similar to claim 7 and is rejected for the same reasons.

Claim 29 is substantially similar to claim 8 and is rejected for the same reasons.

Claim 31 is substantially similar to claim 10 and is rejected for the same reasons.

Claim 32 is substantially similar to claim 11 and is rejected for the same reasons.

Claim 33 is substantially similar to claim 12 and is rejected for the same reasons.

Claim 34 is substantially similar to claim 13 and is rejected for the same reasons.

Claim 35 is substantially similar to claim 15 and is rejected for the same reasons.

Claim 37 is substantially similar to claim 18 and is rejected for the same reasons.

Claim 38 is substantially similar to claim 19 and is rejected for the same reasons.

Claim 39 is substantially similar to claim 20 and is rejected for the same reasons.

Claim 40 is substantially similar to claim 21 and is rejected for the same reasons.

Claim 41 is substantially similar to claim 22 and is rejected for the same reasons.

Claim 42 is substantially similar to claim 24 and is rejected for the same reasons.

Claim 49 is substantially similar to claim 43 and is rejected for the same reasons.

Claim 50 is substantially similar to claim 44 and is rejected for the same reasons.

Claim 51 is substantially similar to claim 45 and is rejected for the same reasons.

Claim 52 is substantially similar to claim 46 and is rejected for the same reasons.

Claim 53 is substantially similar to claim 47 and is rejected for the same reasons.

Claim 54 is substantially similar to claim 48 and is rejected for the same reasons.

Claim 57 is substantially similar to claim 55 and is rejected for the same reasons.

Claim 58 is substantially similar to claim 56 and is rejected for the same reasons.

Claim 17 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable Junuzovic, Zugara, and Nilsson (Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System. PsychNology Journal, 7(2), 175 - 196, PTO-892 4/14/15).

Regarding claim 17, Leahy teaches the system of claim 1.

Although Junuzovic and Zugara does not explicitly teach the feature wherein: the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes, Nilsson teaches that augmented reality systems may use gaze tracking to interact with the system (Nilsson, pg. 178).

It would have been obvious to one of ordinary skill in the art to use gaze tracking in the augmented reality system of Junzovic and Zugara since doing so is the use of a known technique to improve a similar device in the same way.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the

Art Unit: 2651

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kile Blair/
Examiner, Art Unit 2651

/DUC NGUYEN/
Supervisory Patent Examiner, Art Unit 2651

Notice of References Cited	Application/Control No. 13/778,430		Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.	
	Examiner Kile Blair		Art Unit 2651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A	US-				
	B	US-				
	C	US-				
	D	US-				
	E	US-				
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	I	US-				
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	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	ZugSTAR - Streaming Augmented Reality, Zugara, YouTube Uploaded on Feb 4, 2010, https://www.youtube.com/watch?v=eSFiCHkZgkA , selected frames attached spanning portion of the video from 1:11-1:25, not all frames in that period are shown, 20 pages.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20160918

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S24	68273	(G06F3/017 G06F3/0425 G06F3/0426 G06F3/0428 H04N7/14 H04N7/142 H04N7/155 H04N7/157 G06Q10/101 H04L12/1813)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 16:21
S25	58610	(G06F3/017 G06F3/0425 G06F3/0426 G06F3/0428 H04N7/14 H04N7/142 H04N7/155 H04N7/157 G06Q10/101 H04L12/1813) and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd) <"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 16:22
S26	18	remote near20 music\$4 near4 collaborat\$5 and object and video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S27	21	remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S28	4688	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S29	12	S28 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S30	102	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S31	113	S29 S30	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 23:46
S32	152	S26 S27 S31	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2016/09/18 23:46

EAST Search History

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EAST Search History (Interference)

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Search Notes 	Application/Control No. 13778430	Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.
	Examiner KILE BLAIR	Art Unit 2651

CPC- SEARCHED		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above	9/18/16	KB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above text	9/18/16	KB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: Systems and methods for real time
manipulation and interaction with multiple
dynamic and synchronized video streams in an
augmented or multi-dimensional space

Examiner: Blair, K. O.

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.111

In response to the Office action of September 26, 2016, Applicant respectfully submits this Amendment and Response. Please amend the above-identified application, without prejudice, as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 12 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A system, comprising:
 - a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and
 - a multiple stream sync module, which in operation:
 - receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects~~[[,]]~~ retrieved from a virtual object database, and
 - multiplexes the augmented video stream received from the other participant with the real-world video stream of the ~~participant~~ real-world 3D environment in real time to generate a multiplexed video stream comprising the ~~real-world video stream~~ of the ~~participant~~ real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,
 - extracts at least one of the 3D virtual objects from the multiplexed video stream,
 - based on an action of the participant, ~~changes-translates~~ coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and
 - causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.
2. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system.
3. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.

4. (Currently amended) The system of claim 1, ~~wherein: the data input device is selected from a group consisting of an image device, wherein the data input device further comprises an~~ audio device, a depth sensing camera, a laser-based equipment, a wave emitter and/or transmitter.
5. (Previously presented) The system of claim 43, wherein: the augmentation module resides either at a location of the participant or on a remote server.
6. (Previously presented) The system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
7. (Currently amended) The system of claim 43, wherein: ~~the augmentation module retrieves the one or more second virtual objects from an augmented asset~~ the virtual object database is accessible to all participants in the video chat or conference.
8. (Previously presented) The system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
9. (Canceled)
10. (Previously presented) The system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X, Y, Z, and T coordinates.

11. (Previously presented) The system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants.

12. (Previously presented) The system of claim 1, wherein: the multiple stream sync module broadcasts the multiplexed video stream to all participants in the video chat or conference.

13. (Previously presented) The system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, and wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

14. (Previously presented) The system of claim 13, wherein: the various commands selected and executed using the hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the multiplexed video stream.

15. (Original) The system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

16. (Previously presented) The system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands.

17. (Previously presented) The system of claim 1, wherein: the multiple stream sync module controls and manipulates the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

18. (Canceled)

19. (Previously presented) The system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform.

20. (Original) The system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.

21. (Previously presented) The system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

22. (Previously presented) The system of claim 20, wherein: the video conference manager performs device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

23. (Original) The system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants.

24. (Previously presented) The system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

25. (Previously presented) The system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants.

26. (Currently amended) A method, comprising:

providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database;

multiplexing the augmented video stream received from the other participant with the real-world video stream of the ~~participant~~ real-world 3D environment in real time to generate a multiplexed video stream comprising the ~~real-world video stream of the participant~~ real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;

extracting at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, ~~changing-translating~~ coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment; and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.

27. (Previously presented) The method of claim 50, wherein the second augmentation data representing the one or more second virtual objects are synchronized with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.

28. (Currently amended) The method of claim 49, ~~further comprising: retrieving the one or more second virtual objects from an augmented asset~~ wherein the virtual object database is accessible to all participants in the video chat or conference.

29. (Previously presented) The method of claim 50, further comprising: updating coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.

30. (Canceled)

31. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream is performed based on active control on synchronization of HB (human behavior) of the participants in addition to X, Y, Z, and T coordinates.

32. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream comprises synchronizing the augmented and real-world video streams in such a way as to reduce latency of the multiplexed video stream.

33. (Previously presented) The method of claim 26, further comprising: broadcasting the multiplexed video stream to all participants in the video chat or conference.

34. (Previously presented) The method of claim 26, further comprising:
accepting one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface; and
using the one or more inputs to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

35. (Previously presented) The method of claim 34, further comprising: limiting the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

36. (Previously presented) The method of claim 26, further comprising: controlling and manipulating the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

37. (Canceled)

38. (Previously presented) The method of claim 26, further comprising: synchronizing the augmented and real-world video streams across multiple platforms so that the augmented video stream provided by the other participant from one platform is shared with the participant using a different platform.

39. (Original) The method of claim 26, further comprising: creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.

40. (Previously presented) The method of claim 39, further comprising: monitoring, organizing, and storing information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

41. (Previously presented) The method of claim 26, further comprising: performing device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

42. (Previously presented) The method of claim 26, further comprising: encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects

controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

43. (Previously presented) The system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

44. (Previously presented) The system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

45. (Previously presented) The system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant.

46. (Previously presented) The system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

47. (Canceled)

48. (Previously presented) The system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

49. (Previously presented) The method of claim 26, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the method further comprises generating a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

50. (Previously presented) The method of claim 49, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

51. (Previously presented) The method of claim 50, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

receiving, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexing the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sending the second multiplexed video stream to the other participant.

52. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises synchronizing the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

53. (Canceled)

54. (Previously presented) The method of claim 26, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

55. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

56. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

57. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

58. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

59. (New) The system of claim 1, wherein the one or more 3D virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera.

REMARKS

Administrative Overview

Prior to this Amendment and Response, claims 1-8, 10-29, 31-46, 48-52, and 54-58 were pending. In the Office action of September 26, 2016:

- claims 1-8, 10-16, 18-29, 31-35, and 37-58 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over U.S. Patent Pub. No. 2012/0320158 (“Junuzovic”) in view of a video available at <https://www.youtube.com/watch?v=eSFiCHkZgkA> (“the Zugara video”); and
- claims 17 and 36 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over Junuzovic, the Zugara video, and S. Nilsson et al., Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System, Psychology Journal, 7(2), 175-196 (2009) (“Nilsson”).

In the present Amendment, claims 1, 4, 7, 26, 28 are amended, claims 18 and 37 are canceled without prejudice or disclaimer, and new claim 59 is added. Support for these amendments can be found throughout the originally filed application. For example, support for the amendments to independent claims 1 and 26 and for new claim 59 can be found in the specification at least in paragraphs 1, 9, 17, 18, 20, 27, 30, 31, and 34, and in FIGS. 1 and 2. The remaining claims are amended for clarity and to conform with the amendments to the claims from which they depend. No new matter is added.

Interview Summary

The Applicant and the undersigned thank Examiner Blair for his time and courtesy during the telephonic interview that took place on February 15, 2017. The participants were Applicant’s representatives (Joel Lehrer, Samuel Stone, and Anne Vilsoet) and Examiner Blair. During the interview, the discussion focused on the amendments and arguments presented herein. Regarding the rejections under pre-AIA 35 U.S.C. § 103(a), the Examiner indicated that the amended claims would be considered based on the art of record, and that further search and consideration of the amended claims would be performed. Accordingly, this paper is intended to constitute a proper recordation of the interview in accordance with M.P.E.P. § 713.04, and also to provide a full response to the Office action of September 26, 2016.

Claim Rejections Under 35 U.S.C. § 103

I. Independent Claim 1 and the Claims Depending Therefrom

Independent claim 1 is rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over Junuzovic in view of the Zugara video. Without acceding to the rejection, claim 1 has been amended and reconsideration is respectfully requested. Even assuming (without conceding) that Junuzovic and the Zugara video could have properly been combined, no combination of the cited references would teach or suggest all the limitations of amended independent claim 1.

As amended, independent claim 1 recites a system comprising:

a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,

extracts at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, **translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment,** and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space. (Emphasis added.)

The Office action alleges that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Junuzovic to implement extracting a virtual object from a multiplexed video stream and changing coordinates of the extracted object within the multiplexed video stream as recited in previously-pending claim 1. Without acceding to the rejections, Applicant respectfully submits that it would not have been obvious to modify the system of Junuzovic to obtain a modified system which, in operation, extracts a virtual object

from a multiplexed video stream and **“translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment”** as recited in amended claim 1 (emphasis added), for at least the reasons discussed below.

Junuzovic appears to describe a system that allows remote users to share and collaboratively annotate physical documents or whiteboards.¹ The system is said to make a surface and objects on or above the surface “interactive and shared.”² According to Junuzovic, the system records video of physical or digital objects visible on or above a specified portion of a flat surface,³ uses a baseline representation of the surface to separate the video into a background portion and a foreground portion,⁴ and sends the foreground video to remote systems which project the foreground video onto corresponding surfaces of other users.⁵ Alternatively, for collaboration between multiple users, the extracted foreground videos of each user are superimposed and then projected onto each user’s surface.⁶ In addition, the portion of the surface that is “interactive and shared” is defined by the user using “touch events” or “special IR markers” during a calibration process.⁷ After the calibration process is completed, the system ignores portions of the foreground video outside the user-defined area on the surface.⁸

The Office action acknowledges that Junuzovic does not teach or suggest extracting a virtual object from a video stream and changing coordinates of the extracted virtual object within the video stream, as recited in previously-pending claim 1. Nevertheless, the Office action argues the Zugara video shows extracting a virtual object from a video stream and changing coordinates of the extracted virtual object within the video stream, and further argues that it would have been obvious to implement the object extraction and coordinate changes of the Zugara video in the system of Junuzovic.

¹ Junuzovic, paragraphs 1, 69, and 70.

² Junuzovic, paragraph 3.

³ Junuzovic, paragraphs 23-26 and 81-89.

⁴ Junuzovic, paragraphs 34, 35, 48-51, and 54.

⁵ Junuzovic, FIG. 5 and paragraphs 52, 55, 59, and 66-70.

⁶ Junuzovic, paragraph 56.

⁷ Junuzovic, paragraphs 81-89.

⁸ Junuzovic, paragraph 84.

However, as described above, the space in Junuzovic's system that is "interactive and shared" is a two-dimensional, user-defined portion of a physical surface,⁹ not a multi-dimensional space with at least three dimensions defined by the video of a real-world 3D environment. Thus, even assuming that it would have been obvious to modify Junuzovic's system to extract a virtual object from a video stream and change the coordinates of the extracted virtual object (as alleged in the Office action), the space within which the modified system of Junuzovic would permit an extracted virtual object's coordinates to change would have been limited to a two-dimensional, user-defined portion of a physical surface, which precludes translation of coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space.

Thus, the cited references do not teach or suggest a system which, in operation, "translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment" as recited in amended independent claim 1, at least because it would not have been obvious to modify Junuzovic to implement the above-quoted portion of claim 1.

Applicant respectfully submits that claim 1 is allowable for at least the foregoing reason. Claims 2-8, 10-17, 19-25, 43-46, 48, 55, 56, and 59 depend from claim 1 and are allowable for at least the same reason.

II. Independent Claim 26 and the Claims Depending Therefrom

Independent claim 26 is rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over Junuzovic in view of Zugara. Without acceding to the rejection, claim 26 has been amended and reconsideration is respectfully requested.

As amended, independent claim 26 recites a method comprising:

providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing **one or more 3D virtual objects retrieved from a virtual object database**;

⁹ Junuzovic, paragraphs 81-89.

multiplexing the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;

extracting at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, **translating coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment;** and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space. (Emphasis added.)

For reasons that should be apparent from the discussion above, Junuzovic and the Zugara video do not teach or suggest at least the above-emphasized portion of claim 26. Accordingly, Applicant respectfully submits that claim 26 is allowable. Claims 27-29, 31-36, 38-42, 49-52, 54, 57, and 58 depend from claim 26 and are allowable for at least the same reasons.

III. Dependent Claim 59

As discussed above, Applicant submits that dependent claim 59 is allowable for at least the same reasons as claim 1. Additionally or alternatively, Applicant respectfully submits that dependent claim 59 is allowable for at least one independent reason. Even assuming (without conceding) that it would have been obvious to one of ordinary skill in the art to modify Junuzovic based on the Zugara video in the manner proposed in the Office action, Junuzovic as modified does not teach or suggest “wherein the one or more 3D virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera” as recited in new dependent claim 59.

The Office action (p. 3) cites the projected markings 514 shown in Junuzovic’s FIG. 5 as corresponding to the “virtual object” recited in previously-pending claim 1. According to Junuzovic, the projected markings 514 are projected onto the surface 510 of a first user at a first location, and these markings 514 correspond to markings written on the surface 520 of a second

user at a second location.¹⁰ The surface 520 and the markings thereon are visible to the image sensors of the camera of the second user's system, which captures the markings and sends the corresponding data to the first user's system.¹¹ The first user's system then projects the markings 514 onto the first user's surface 510, where the projected markings are visible to the image sensors of the camera of the first user's system.¹²

Thus, the modified system of Junuzovic does not teach or suggest "wherein the one or more 3D virtual objects are **simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera**" as recited in new dependent claim 59 (emphasis added), at least because the markings in the modified system of Junuzovic are visible to the image sensors of each user's video camera. Applicant respectfully submits that claim 59 is allowable for at least this additional reason.

¹⁰ Junuzovic, FIG. 5 and paragraph 59.

¹¹ Junuzovic, paragraphs 81-89.

¹² Junuzovic, FIG. 5 and paragraphs 59 and 81-89.

CONCLUSION

By responding in the foregoing remarks only to particular positions taken by the Examiner, Applicant does not acquiesce with other positions that have not been explicitly addressed. In addition, Applicant's arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, Applicant's decision to amend or cancel any claim should not be understood as implying that Applicant agrees with any positions taken by the Examiner with respect to that claim or other claims.

In view of the above amendments, Applicant believes the pending application is in condition for allowance. If the Examiner believes that a telephone conversation with Applicant's attorney would expedite allowance of this application or would be helpful in resolving any other outstanding issue, the Examiner is cordially invited to call the undersigned at the telephone number below.

A petition for a three-month extension of time and the corresponding fees are submitted herewith. No other fees or extensions are believed to be necessary for entry and consideration of this paper. However, should any additional extension of time or fees be required for consideration of this paper, the Commissioner is hereby authorized to consider this paper a petition for such extension of time and to charge such fees to Deposit Account No. 07-1700, under Ref. No. ZUG-001.

Dated: March 27, 2017

Respectfully submitted,

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ACTIVE/89457710

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Joel E. Lehrer/Caren Chaneco		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
Total in USD (\$)				700

Electronic Acknowledgement Receipt	
EFS ID:	28734841
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Joel E. Lehrer/Caren Chaneco
Filer Authorized By:	Joel E. Lehrer
Attorney Docket Number:	ZUG-001
Receipt Date:	27-MAR-2017
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Time Stamp:	16:34:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$700
RAM confirmation Number	032817INTEFSW16351100
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	ZUG-001_EOT.pdf	78187	no	1
			89bfb58a9446e7f5ba8b081dc32415727d76a171		
Warnings:					
Information:					
2		ZUG-001_RSP.pdf	133475	yes	18
			039fb9dfa05f7e8ea766fb03005745bb799bccc2		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	11	
	Applicant Arguments/Remarks Made in an Amendment		12	18	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30421	no	2
			15dd55592bff1d871b58cff87e6476da7a27f1b1		
Warnings:					
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) ZUG-001																																		
Application Number 13/778,430-Conf. #9672	Filed February 27, 2013																																			
For SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE																																				
Art Unit 2651	Examiner K. O. Blair																																			
<p>This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.</p> <p>The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):</p> <table style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th style="text-align: center;">Fee</th><th style="text-align: center;">Small Entity Fee</th><th style="text-align: center;">Micro Entity Fee</th><th></th></tr></thead><tbody><tr><td>☐ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$200</td><td style="text-align: center;">\$100</td><td style="text-align: center;">\$50</td><td>\$ _____</td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$600</td><td style="text-align: center;">\$300</td><td style="text-align: center;">\$150</td><td>\$ _____</td></tr><tr><td>☒ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,400</td><td style="text-align: center;">\$700</td><td style="text-align: center;">\$350</td><td>\$ <u>700.00</u></td></tr><tr><td>☐ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,200</td><td style="text-align: center;">\$1,100</td><td style="text-align: center;">\$550</td><td>\$ _____</td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$3,000</td><td style="text-align: center;">\$1,500</td><td style="text-align: center;">\$750</td><td>\$ _____</td></tr></tbody></table> <p>☒ Applicant asserts small entity status. See 37 CFR 1.27.</p> <p>☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.</p> <p>☐ A check in the amount of the fee is enclosed.</p> <p>☒ Payment by credit card. Form PTO-2038 is attached.</p> <p>☐ The Director has already been authorized to charge fees in this application to a Deposit Account.</p> <p>☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>07-1700</u>.</p> <p>☒ Payment made via EFS-Web.</p> <p>WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</p> <p>I am the</p> <p>☐ applicant.</p> <p>☐ attorney or agent of record. Registration number _____.</p> <p>☒ attorney or agent acting under 37 CFR 1.34. Registration number <u>56,401</u>.</p> <table style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; text-align: center;"><u>/Joel E. Lehrer/</u> Signature</td><td style="width: 50%; text-align: center;"><u>March 27, 2017</u> Date</td></tr><tr><td style="text-align: center;"><u>Joel E. Lehrer</u> Typed or printed name</td><td style="text-align: center;"><u>(617) 570-1057</u> Telephone Number</td></tr></table> <p>NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.</p>				Fee	Small Entity Fee	Micro Entity Fee		☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ <u>700.00</u>	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____	<u>/Joel E. Lehrer/</u> Signature	<u>March 27, 2017</u> Date	<u>Joel E. Lehrer</u> Typed or printed name	<u>(617) 570-1057</u> Telephone Number
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☐ * Total of <u>1</u> forms are submitted.																																				

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/778,430		Filing Date 02/27/2013		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	03/27/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 53	Minus	** 56	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						LIE PAUL STANBACK			

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

77845	7590	06/15/2017
Goodwin Procter LLP		
Attn: Patent Administrator		
135 Commonwealth Drive		
Menlo Park, CA 94025-1105		

EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
06/15/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PatentSV@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com

Office Action Summary	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.	
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 3/27/17.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☐ Claim(s) 1-8,10-17,19-29,31-36,38-46,48-52 and 54-59 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-8,10-17,19-29,31-36,38-46,48-52 and 54-59 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) ☐ Other: ____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Requirement for Information under 37 C.F.R. § 1.105

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

First, the examiner points out “We Are Organized Chaos”¹ which appears to be an account published on November 4, 2009 of a presentation at conference in Warsaw, Poland which must have occurred on or before November 4, 2009. There was a remote user located in Los Angeles (i.e. the United States) using the presented system as part of the presentation. We Are Organized Chaos appears to suggest that the presentation was an actual demonstration of the ZugSTAR system which is apparently dramatized in the Zugara YouTube video.

In response to this requirement, please provide answers to each of the following interrogatories eliciting factual information:

1) Was there any public use or sale offer in the United States of the claimed subject matter before February 27, 2012?

2) Did the presentation in Poland described in “We Are Organized Chaos” incorporate a substantial amount the claimed subject matter? And if not which parts were missing? (Applicant can select to address only independent claims 1 and/or 26 for this question)

¹ <https://web.archive.org/web/20121026135728/http://weareorganizedchaos.com/index.php/2009/11/04/zugaras-zugstar-video-conferencing-augmented-reality-a-shared-ar-experience/>

3) Was any similar presentation, public use, sale, or offer of sale of a system incorporating the claimed subject matter made in the United States (or in outer space to be considered as “in the United States” under 35 U.S.C. 105) prior to February 27, 2012?

4) In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim(s) 1 and 26 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by the Zugara (ZugSTAR - Streaming Augmented Reality, Zugara, YouTube **Uploaded on Feb 4, 2010, <https://www.youtube.com/watch?v=eSFICHkZgkA>, PTO-892 9/26/16).**

Regarding claim 1, Zugara teaches a system, comprising: a data input device comprising a video camera (“screen-in-screen” indicates video input, 0:16), which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference (two scientists conferencing about DNA from 0:11-0:16); and a multiple stream sync module, which in operation: receives, from another participant in the video chat or conference (the two scientists videos are synced because the standing scientist drags the DNA from the database and then the sitting scientist manipulates it while the standing scientist observes, 0:11-0:16), an augmented video stream comprising augmentation data (there is augmentation data in the stream to facilitate the exchange of the DNA object between scientists where the standing scientist selects the DNA object and the sitting scientist manipulates it, 0:11-0:16) representing one or more 3D virtual objects retrieved from a virtual object database (DNA rendering is not created on the spot and inherently comes from database, 0:11-0:16; at 0:13, one scientist drags the DNA out of a database of other scientific objects on the left side of the screen), and multiplexes the augmented video stream received from the other participant with the real- world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment (each of the scientists receive a video stream with the DNA object, 0:11-0:16) and the one or more 3D virtual objects represented by the augmentation data received from the other participant (sitting scientist receives the DNA object from the standing scientist, 0:11-0:16), extracts at least one of the 3D virtual objects from the multiplexed video stream, based on an action of the participant (sitting scientist spins DNA object, 0:11-0:16), translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream,

wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space (both scientists can translate coordinates of the DNA object as shown, 0:11-0:16).

Claim 26 is substantially similar to claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2-8, 10-16, 19-25, 27-29, 31-36, 38-46, 48-52, and 54-59 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Zugara and Junuzovic (US 20120320158, PTO-892 12/11/15).

Regarding claim 2, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system (same hardware, [0024], fig. 5).

It would have been obvious to one of ordinary skill in the art to implement the object extraction and coordinate changes of Junuzovic in the system of Zugara (for all claims addressed under this section) since doing so is the use of known technique to improve a similar device in the same way.

Regarding claim 3, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems (similar hardware, [0024], fig. 5).

Regarding claim 4, Junuzovic and Zugara teaches the system of claim 1, wherein: the data input device is selected from a group consisting of an image device ([0025]), an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

Claim 5 represents locating a module locally or remotely in a network.

Claim 18 represents broadcasting video to extra users who may merely watch the video and not interact with the objects.

Although the subject matter of claims 5 and 18 is not explicitly disclosed by Junuzovic, each represents an obvious design choice which would have been readily apparent to one of ordinary skill in the art in light of the disclosed system of Junuzovic.

Regarding claim 6, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the initial real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects (location, [0107]).

Regarding claim 7, Junuzovic and Zugara teaches the system of claim 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset

database located at a location in the cloud that is accessible to all participants in the video chat or conference (page through slides, [0066]).

Regarding claim 8, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream ([0075]).

Regarding claim 10, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from different two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates (composition of only foregrounds, [0070])).

Regarding claim 11, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants (shared projected area, [0081]).

Regarding claim 12, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module broadcasts multiplexed video stream to all participants in the video chat or conference (sends video of each user's surface, [0069]).

Regarding claim 13, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device ([0031]), and

wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream (to control the system or objects on the surface , [0031]), selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

Regarding claim 14, Junuzovic and Zugara teaches the system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing (to control the system or objects on the surface , [0031]), and resizing an existing object in the multiplexed video stream.

Regarding claim 15, Junuzovic and Zugara teaches the system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements ([0098]).

Regarding claim 16, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands ([0031], [0105]).

Regarding claim 19, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform (similar hardware, [0024], fig. 5).

Regarding claim 20, Junuzovic and Zugara teaches the system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference

session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference ([0047]).

Regarding claim 21, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session ([0075]).

Regarding claim 22, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager performs device detection (initialization process for collaborating includes establishing communications between the local and remote locations using this module 144a, [0034]) to select video/audio protocols compatible with respective hosting devices of each of the participants (during establishment of the collaborative session, communications and user parameters are established in a manner similar to establishing a video call, [0047]).

Regarding claim 23, Junuzovic and Zugara teaches the system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants (inherent to enable the sharing of surfaces as disclosed, [0069]).

Regarding claim 24, Junuzovic and Zugara teaches the system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference (or more other remote locations, [0035]), the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

Regarding claim 25, Junuzovic and Zugara teaches the system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants ([0035]).

Regarding claim 43, Junuzovic and Zugara teaches the system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects ([0069]).

Regarding claim 44, Junuzovic and Zugara teaches the system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time (inherent for the system disclosed, [0069]).

Regarding claim 45, Junuzovic and Zugara teaches the system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module ([0059]), in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of

the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant ([0069]).

Regarding claim 46, Junuzovic and Zugara teaches the system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z) (foregrounds, [0070]).

Regarding claim 47, Junuzovic and Zugara teaches the system of claim 1, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

extracts the one or more virtual objects from the multiplexed video stream;

manipulates the extracted one or more virtual objects in response to input from the participant (annotation, [0045])); and

multiplexes a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream ([0069]).

Regarding claim 48, Junuzovic and Zugara teaches the system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant ([0069]).

Regarding claim 55, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment ([0069]).

Regarding claim 56, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment (presentation saved with circle, [0066]).

Claim 27 is substantially similar to claim 6 and is rejected for the same reasons.

Claim 28 is substantially similar to claim 7 and is rejected for the same reasons.

Claim 29 is substantially similar to claim 8 and is rejected for the same reasons.

Claim 31 is substantially similar to claim 10 and is rejected for the same reasons.

Claim 32 is substantially similar to claim 11 and is rejected for the same reasons.

Claim 33 is substantially similar to claim 12 and is rejected for the same reasons.

Claim 34 is substantially similar to claim 13 and is rejected for the same reasons.

Claim 35 is substantially similar to claim 15 and is rejected for the same reasons.

Claim 37 is substantially similar to claim 18 and is rejected for the same reasons.

Claim 38 is substantially similar to claim 19 and is rejected for the same reasons.

Claim 39 is substantially similar to claim 20 and is rejected for the same reasons.

Claim 40 is substantially similar to claim 21 and is rejected for the same reasons.

Claim 41 is substantially similar to claim 22 and is rejected for the same reasons.

Claim 42 is substantially similar to claim 24 and is rejected for the same reasons.

Claim 49 is substantially similar to claim 43 and is rejected for the same reasons.

Claim 50 is substantially similar to claim 44 and is rejected for the same reasons.

Claim 51 is substantially similar to claim 45 and is rejected for the same reasons.

Claim 52 is substantially similar to claim 46 and is rejected for the same reasons.

Claim 53 is substantially similar to claim 47 and is rejected for the same reasons.

Claim 54 is substantially similar to claim 48 and is rejected for the same reasons.

Claim 57 is substantially similar to claim 55 and is rejected for the same reasons.

Claim 58 is substantially similar to claim 56 and is rejected for the same reasons.

Regarding claim 59, Junuzovic and Zugara teaches the system of claim 1, wherein the one or more 3d virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera (inherently, the DNA objects are virtual and not seen by the cameras, 0:11-0:16).

Claim 17 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable Junuzovic, Zugara, and Nilsson (Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System. PsychNology Journal, 7(2), 175 – 196, PTO-892 4/14/15).

Regarding claim 17, Zugara teaches the system of claim 1.

Although Junuzovic and Zugara does not explicitly teach the feature wherein: the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes, Nilsson teaches that augmented reality systems may use gaze tracking to interact with the system (Nilsson, pg. 178).

It would have been obvious to one of ordinary skill in the art to use gaze tracking in the augmented reality system of Junuzovic and Zugara since doing so is the use of a known technique to improve a similar device in the same way.

Response to Arguments

Applicant's arguments with respect to claims 1-8, 10-17, 19-29, 31-36, 38-46, 48-52, and 54-59 have been considered but are moot in view of the new grounds of rejection.

Conclusion

This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on Monday-Friday.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kile Blair/

Application/Control Number: 13/778,430

Page 16

Art Unit: 2651

Examiner, Art Unit 2651

/DUC NGUYEN/

Supervisory Patent Examiner, Art Unit 2651

<i>Applicant-Initiated Interview Summary</i>	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.		
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No	Page 1 of 1

All participants (applicant, applicant's representative, PTO personnel):

- | | |
|---|--|
| 1. <u>Kile Blair (Examiner); Telephonic</u> | 2. <u>Joel Lehrer (Attorney); Telephonic</u> |
| 3. <u>Samuel Stone (); Telephonic</u> | 4. <u>Anne Vilsoet (); Telephonic</u> |

Date of Interview: 15 February 2017

Claim(s) discussed: 1

Identification of prior art discussed:

Amendment Proposed: see attached

Brief Description of main topic of discussion: The prior art was discussed and applicant suggested amendments. The examiner said they would require further search and consideration.

Issues Discussed:

/Kile Blair/ Examiner, Art Unit 2651	
<p>Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable time limit of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.</p> <p>Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.</p> <p>Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicant's responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04</p> <p>Please further see:</p> <p>MPEP 713.04 Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b) 37 CFR § 1.2 Business to be transacted in writing</p>	

Notice of References Cited	Application/Control No. 13/778,430		Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.	
	Examiner Kile Blair		Art Unit 2651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A	US-				
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	https://web.archive.org/web/20121026135728/http://weareorganizedchaos.com/index.php/2009/11/04/zugaras-zugstar-video-conferencing-augmented-reality-a-shared-ar-experience/
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Blair, Kile

From: Vilsoet, Anne E. <AVilsoet@goodwinlaw.com>
Sent: Tuesday, February 14, 2017 1:47 PM
To: Blair, Kile
Cc: Stone, Samuel S.; Lehrer, Joel E
Subject: Proposed Interview Agenda for U.S. App. No. 13/778,430 (Docket No. ZUG-001)
Attachments: ZUG-001 - Interview Agenda.pdf

Dear Examiner Blair,

Thank you for your courtesy in granting a telephone interview tomorrow (Wednesday, February 15, 2017) at 2:15PM EDT, in Application Serial No. 13/778,430. A proposed agenda for the interview is attached.

Regards,

Sent by Anne Vilsoet on behalf of:

Joel E. Lehrer
Reg. No. 56,401
Goodwin Procter LLP
100 Northern Avenue
Boston, MA 02210
T: 617-570-1057
jlehrer@goodwinlaw.com
www.goodwinlaw.com

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INTERVIEW AGENDA

Applicant's representatives, Joel Lehrer (Reg. No. 56,401), Samuel Stone, and Anne Vilsoet will call Examiner Blair at (571) 270-3544 on February 15, 2017, at 2:15PM EDT.

Discuss Rejections Under 35 U.S.C. § 103 in View of Proposed Claim Amendments

- The Office action rejects independent claim 1 under 35 U.S.C. § 103 as purportedly being obvious over Junuzovic in view of the Zugara video.
- The cited art does not teach or suggest changing 3D coordinates of an extracted virtual object within a 3D space defined by video a real-world 3D environment as recited in the proposed version of claim 1.
 - As shown in the proposed amendments to claim 1, listed below, Applicant proposes to amend claim 1 to recite a module which, in operation “based on an action of the participant, **changes 3D coordinates of the extracted virtual object within a 3D space of the multiplexed video stream, wherein the 3D space is defined by the video of the real-world 3D environment.**”
 - Junuzovic appears to describe a system that allows remote users to share and collaboratively annotate physical documents or whiteboards (¶¶ 1, 69, and 70). The system is said to make a surface and objects on or above the surface “interactive and shared” (¶ 3). According to Junuzovic, the system records video of physical or digital objects visible on or above a specified portion of a flat surface (¶¶ 23-26 and 81-89), uses a baseline representation of the surface to separate the video into a background portion and a foreground portion (¶¶ 34, 35, 48-51, and 54), and sends the foreground video to remote systems which project the foreground video onto corresponding surfaces of other users (FIG. 5 and ¶¶ 52, 55, 59, and 66-70). Alternatively, for collaboration between multiple users, the extracted foreground videos of each user are superimposed and then projected onto each user's surface (¶ 56). In addition, the portion of the surface that is “interactive and shared” is defined by the user using “touch events” or “special IR markers” during a calibration process (¶¶ 81-89). After the calibration process is completed, the system ignores portions of the foreground video outside the user-defined area on the surface (¶ 84).
 - The Office action (p. 3) cites the projected markings 514 shown in Junuzovic's FIG. 5 as corresponding to the “virtual object” of claim 1. According to Junuzovic, the projected markings correspond to physical markings written on the surface 520 of remote user (Fig. 5, ¶ 59). These markings are captured by cameras at one location, and projected onto the surface 510 of a user at another location (Fig. 5, ¶ 59).
 - The Office action acknowledges that Junuzovic does not teach or suggest extracting a virtual object form a video stream and changing coordinates of the extracted virtual object within the video stream, as recited in pending claim 1. However, the Office action argues the Zugara video shows extracting a virtual object from a video stream and changing coordinates of the extracted virtual object within the video stream, and further argues that it would have been obvious to implement the object extraction and coordinate changes of the Zugara video in the system of Junuzovic.

- Even assuming (without conceding) that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Junuzovic to extract a virtual object from a video stream and change the coordinates of the extracted virtual object on a user-defined portion of a physical surface, Applicant respectfully submits that it would not have been obvious to modify the system of Junuzovic to extract a virtual object from a multiplexed video stream and to change “3D coordinates of the extracted virtual object within a 3D space of the multiplexed video stream, wherein the 3D space is defined by the video of the real-world 3D environment,” as recited in amended claim 1.

Proposed Claim Amendments

1. (Currently amended) A system, comprising:
 - a data input device, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and
 - a multiple stream sync module, which in operation:
 - receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more virtual objects, and
 - multiplexes the augmented video stream received from the other participant with the real-world video stream of the ~~participant~~ real-world 3D environment in real time to generate a multiplexed video stream comprising the ~~real-world video stream~~ of the ~~participant~~ real-world 3D environment and the one or more virtual objects represented by the augmentation data received from the other participant,
 - extracts at least one of the virtual objects from the multiplexed video stream,
 - based on an action of the participant, changes 3D coordinates of the extracted virtual object within a 3D space of the multiplexed video stream, wherein the 3D space is defined by the video of the real-world 3D environment, and
 - causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more virtual objects, wherein both the participant and the other participant can change the coordinates of the one or more virtual objects within the 3D space.

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	19	remote near20 music\$4 near4 collaborat\$5 and object and video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L2	30	remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L3	5084	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd) <"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L4	24	L3 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L5	150	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L6	173	L4 L5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L7	222	L1 L2 L6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:41
L8	163	L7 and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/09 23:43

EAST Search History (Interference)

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6/9/2017 11:45:00 PM

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Search Notes 	Application/Control No. 13778430	Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.
	Examiner KILE BLAIR	Art Unit 2651

CPC- SEARCHED		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above	9/18/16	KB
updated above	6/9/17	KB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above text	9/18/16	KB
updated above	6/9/17	KB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Doc code: RCEX

PTO/SB/30EFS (07-14)

Doc description: Request for Continued Examination (RCE)

Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	13778430	Filing Date	2013-02-27	Docket Number (if applicable)	ZUG-001	Art Unit	2651
First Named Inventor	Matthew Szymczyk			Examiner Name	K. O. Blair		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____
- ☒ Enclosed
- ☒ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☒ Other Petition for Extension of Time

MISCELLANEOUS

- ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- ☐ Other _____

FEES

- The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
- ☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 07-1700

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

- ☒ Patent Practitioner Signature
- Applicant Signature

Doc code: RCEX

PTO/SB/30EFS (07-14)

Doc description: Request for Continued Examination (RCE)

Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	Joel E. Lehrer/	Date (YYYY-MM-DD)	2017-12-15
Name	Joel E. Lehrer	Registration Number	56401

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Joel E. Lehrer/Samuel Stone		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	850	850
Total in USD (\$)				1550

Electronic Acknowledgement Receipt	
EFS ID:	31246831
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Joel E. Lehrer/Samuel Stone
Filer Authorized By:	Joel E. Lehrer
Attorney Docket Number:	ZUG-001
Receipt Date:	15-DEC-2017
Filing Date:	27-FEB-2013
Time Stamp:	17:58:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1550
RAM confirmation Number	121817INTEFSW17585500
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	ZUG-001_BlogPost.pdf	452891	no	4
			5c3a3787382766a45ca8392d20f366486123e03b		
Warnings:					
Information:					
2	Non Patent Literature	ZUG-001_SLIDEDECK.pdf	10289023	no	30
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Warnings:					
Information:					
3	Non Patent Literature	ZUG-001_Zugara_Shopping_app.pdf	366112	no	3
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Warnings:					
Information:					
4	Non Patent Literature	ZUG-001_Examples_of_Augmented Reality.pdf	242907	no	2
			ef1287774c836e827057dfa70f2f4dc8662b773c		
Warnings:					
Information:					
5		ZUG_001_Reply_RCE.pdf	59623	yes	16
			9354585eca0d5a81529cfafe728ff55429d169f		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment Submitted/Entered with Filing of CPA/RCE		1	1	
	Claims		2	11	
	Applicant Arguments/Remarks Made in an Amendment		12	16	

Warnings:					
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6	Extension of Time	ZUG-001_EOT.pdf	23044	no	1
			d69fbca45bc114d8c1b2a46738b18f4db83596d2		
Warnings:					
Information:					
7	Transmittal Letter	ZUG_001_IDS.pdf	17962	no	2
			8498ac070c90fc69259e467f893e18c172e1265f		
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8	Information Disclosure Statement (IDS) Form (SB08)	ZUG_001_SB08_Form_121517.pdf	35649	no	2
			9e4b02542a36828cc6aff1ab171147249d7a4cdd7		
Warnings:					
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9	Affidavit-traversing rejectns or objectns rule 132	ZUG_001_signed_Declaration.pdf	3187576	no	3
			e3f5e6754ea91361a0552bfe2b0bf5cd57750f5c		
Warnings:					
Information:					
10	Request for Continued Examination (RCE)	Request_for_Continued_Examination_Fillable_PDF.pdf	1349568	no	3
			3256476c551b9dad8ca8fa258b7920057ae78cc9		
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Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	32526	no	2
			5d35dd3bd94efc61f31c8cbb1dd70f794996b2e9		
Warnings:					
Information:					
Total Files Size (in bytes):			16056881		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL TIME
MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND SYNCHRONIZED
VIDEO STREAMS IN AN AUGMENTED OR
MULTI-DIMENSIONAL SPACE

Examiner: K. O. Blair

Filed Electronically via EFS-Web

RESPONSE TO FINAL OFFICE ACTION
FILED WITH REQUEST FOR CONTINUED EXAMINATION (RCE)

In response to the Office Action dated June 15, 2017, reconsideration is respectfully requested.

A Listing of the Claims begins on page 2 of this paper.

Remarks begin on page 12 of this paper.

LISTING OF THE CLAIMS

1. (Previously presented) A system, comprising:
 - a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and
 - a multiple stream sync module, which in operation:
 - receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and
 - multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,
 - extracts at least one of the 3D virtual objects from the multiplexed video stream,
 - based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and
 - causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.
2. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system.
3. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.

4. (Previously presented) The system of claim 1, wherein the data input device further comprises an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and/or transmitter.
5. (Previously presented) The system of claim 43, wherein: the augmentation module resides either at a location of the participant or on a remote server.
6. (Previously presented) The system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
7. (Previously presented) The system of claim 43, wherein the virtual object database is accessible to all participants in the video chat or conference.
8. (Previously presented) The system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
9. (Canceled)
10. (Previously presented) The system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X, Y, Z, and T coordinates.
11. (Previously presented) The system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants.

12. (Previously presented) The system of claim 1, wherein: the multiple stream sync module broadcasts the multiplexed video stream to all participants in the video chat or conference.

13. (Previously presented) The system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, and wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

14. (Previously presented) The system of claim 13, wherein: the various commands selected and executed using the hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the multiplexed video stream.

15. (Original) The system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

16. (Previously presented) The system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands.

17. (Previously presented) The system of claim 1, wherein: the multiple stream sync module controls and manipulates the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

18. (Canceled)

19. (Previously presented) The system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform.

20. (Original) The system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.

21. (Previously presented) The system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

22. (Previously presented) The system of claim 20, wherein: the video conference manager performs device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

23. (Original) The system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants.

24. (Previously presented) The system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

25. (Previously presented) The system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants.

26. (Previously presented) A method, comprising:
- providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;
 - receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database;
 - multiplexing the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;
 - extracting at least one of the 3D virtual objects from the multiplexed video stream,
 - based on an action of the participant, translating coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment; and
 - causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.
27. (Previously presented) The method of claim 50, wherein the second augmentation data representing the one or more second virtual objects are synchronized with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
28. (Previously presented) The method of claim 49, wherein the virtual object database is accessible to all participants in the video chat or conference.
29. (Previously presented) The method of claim 50, further comprising: updating coordinates of the one or more second virtual objects in real time according to changing tracking data and

timing within each session of video chat or conference to reduce latency of the second augmented video stream.

30. (Canceled)

31. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream is performed based on active control on synchronization of HB (human behavior) of the participants in addition to X, Y, Z, and T coordinates.

32. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream comprises synchronizing the augmented and real-world video streams in such a way as to reduce latency of the multiplexed video stream.

33. (Previously presented) The method of claim 26, further comprising: broadcasting the multiplexed video stream to all participants in the video chat or conference.

34. (Previously presented) The method of claim 26, further comprising:
accepting one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface; and
using the one or more inputs to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

35. (Previously presented) The method of claim 34, further comprising: limiting the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

36. (Previously presented) The method of claim 26, further comprising: controlling and manipulating the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

37. (Canceled)

38. (Previously presented) The method of claim 26, further comprising: synchronizing the augmented and real-world video streams across multiple platforms so that the augmented video stream provided by the other participant from one platform is shared with the participant using a different platform.

39. (Original) The method of claim 26, further comprising: creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.

40. (Previously presented) The method of claim 39, further comprising: monitoring, organizing, and storing information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

41. (Previously presented) The method of claim 26, further comprising: performing device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

42. (Previously presented) The method of claim 26, further comprising: encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

43. (Previously presented) The system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

44. (Previously presented) The system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

45. (Previously presented) The system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant.

46. (Previously presented) The system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

47. (Canceled)

48. (Previously presented) The system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

49. (Previously presented) The method of claim 26, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the method further comprises generating a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

50. (Previously presented) The method of claim 49, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

51. (Previously presented) The method of claim 50, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

receiving, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexing the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sending the second multiplexed video stream to the other participant.

52. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises synchronizing the augmented video

stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

53. (Canceled)

54. (Previously presented) The method of claim 26, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

55. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

56. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

57. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

58. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

59. (Previously presented) The system of claim 1, wherein the one or more 3D virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera.

REMARKS

Administrative Overview

Prior to the Office action of June 15, 2017, claims 1-8, 10-17, 19-29, 31-36, 38-46, 48-52, and 54-59 were pending. In the Office action:

- a requirement for information under 37 C.F.R. § 1.105 is presented;
- claims 1 and 26 are rejected under pre-AIA 35 U.S.C. § 102(b) as purportedly being anticipated by a video available at <https://www.youtube.com/watch?v=eSFiCHkZgkA> (“the Zugara video”);
- claims 2-8, 10-16, 19-25, 27-29, 31-36, 38-46, 48-52, and 54-59 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Zugara video in view of U.S. PGPUB No. 2012/0320158 (“Junuzovic”); and
- claim 17 is rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over a proposed combination of the Zugara video, Junuzovic, and S. Nilsson et al., Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System, Psychology Journal, 7(2), 175-196 (2009) (“Nilsson”).

Reconsideration is respectfully requested in view of the remarks presented below and the Declaration of Matthew Szymczyk under 37 C.F.R. § 1.132 (the “Szymczyk Declaration”) filed herewith.

Requirement for Information under 37 C.F.R. § 1.105

In response to the requirement for information under 37 C.F.R. § 1.105, the Szymczyk Declaration is submitted herewith.

Claim Rejections under 35 U.S.C. §§ 102 and 103

I. Independent Claim 1 and the Claims Depending Therefrom

Independent claim 1 is rejected under pre-AIA 35 U.S.C. § 102(b) as purportedly being anticipated by the Zugara video. Reconsideration is respectfully requested in view of the Szymczyk Declaration and the remarks presented below.

Independent claim 1 is directed to a system comprising:

a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,

extracts at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space. (Emphasis added.)

Claim 1 is not anticipated by the Zugara video at least because the Zugara video does not provide an enabling disclosure of each and every element of claim 1. A prior art reference anticipates a claim only if the reference contains an enabling disclosure of what is claimed (MPEP § 2121.01). Here, the Office action cites the portion of the Zugara video from time indexes 0:11 to 0:16 as purportedly anticipating claim 1. The cited portion of the Zugara video appears to illustrate an augmented reality system in which two users video conference with each other. During the video conference, both users appear to interact with a virtual DNA helix. However, the Zugara video does not describe how the illustrated augmented reality system could be implemented. Furthermore, Applicant respectfully submits that the Zugara video's illustration of a desired feature of an augmented reality video conference would not have enabled one of ordinary skill in the art to practice the subject matter of claim 1 at the time of the invention.

For example, the Zugara video shows a standing user introducing the virtual DNA helix into the augmented reality video conference, and subsequently shows a sitting user viewing and manipulating the virtual DNA helix. However, the Zugara video does not provide an enabling description of a video-based augmented reality system in which the illustrated interaction could actually take place. By contrast, the following portions of claim 1 recite one possible implementation of this feature:

receives, from another participant in the video chat or conference, **an augmented video stream comprising augmentation data representing one or more 3D virtual objects** retrieved from a virtual object database, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time **to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects** represented by the augmentation data received from the other participant,

extracts at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.

The Zugara video does not describe any possible implementation of an augmented reality system having the illustrated feature, much less the implementation recited in claim 1, and one of ordinary skill in the art would not have been able to intuit a viable implementation of such an augmented reality system based on the Zugara video alone.

For at least the foregoing reasons, claim 1 is not anticipated by the Zugara video. Furthermore, even assuming (without conceding) that the Zugara video and Junuzovic could have been properly combined, the cited references (individually or in proper combination) do not teach or suggest each and every limitation of claim 1, for at least the reasons discussed in the Amendment filed on March 27, 2017. Accordingly, Applicant respectfully submits that claim 1

is allowable. Claims 2-8, 10-17, 19-25, 43-46, 48, 55, 56, and 59 depend from claim 1 and are allowable for at least the same reasons.

II. Independent Claim 26 and the Claims Depending Therefrom

Independent claim 26 is rejected under pre-AIA 35 U.S.C. § 102(b) as purportedly being anticipated by the Zugara video. Reconsideration is respectfully requested in view of the Szymczyk Declaration and the remarks presented below.

Independent claim 1 is directed to a method comprising:

providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database;

multiplexing the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;

extracting at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, translating coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment; and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.

For reasons that should be apparent from the discussion above, the Zugara video does not provide an enabling disclosure of each and every element of claim 26. Furthermore, the cited references (individually or in proper combination) do not teach or suggest each and every limitation of claim 26, for at least the reasons discussed in the Amendment filed on March 27, 2017. Accordingly, Applicant respectfully submits that claim 26 is allowable. Claims 27-29,

31-36, 38-42, 49-52, 54, 57, and 58 depend from claim 26 and are allowable for at least the same reasons.

CONCLUSION

In view of the above amendments, Applicant believes the pending application is in condition for allowance. If the Examiner believes that a telephone conversation with Applicant's attorney would expedite allowance of this application or would be helpful in resolving any other outstanding issue, the Examiner is cordially invited to call the undersigned at the telephone number below.

A Petition for a three-month extension of time, a Request for Continued Examination, and the corresponding fees are submitted herewith. Should any other extension of time and/or fees be required for consideration of this paper, the Commissioner is hereby authorized to consider this paper a petition for such extension of time and to charge such fees to Deposit Account No. 07-1700, under Ref. No. ZUG-001.

Dated: December 15, 2017

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/
Joel E. Lehrer

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ACTIVE/91551792

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) ZUG-001			
Application Number 13/778,430-Conf. #9672		Filed February 27, 2013			
For SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE					
Art Unit 2651		Examiner K. O. Blair			
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):					
		<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>	
☐	One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____
☐	Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____
☒	Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ 700.00
☐	Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____
☐	Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____
☒	Applicant asserts small entity status. See 37 CFR 1.27.				
☐	Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.				
☐	A check in the amount of the fee is enclosed.				
☒	Payment by credit card.				
☐	The Director has already been authorized to charge fees in this application to a Deposit Account.				
☒	The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 07-1700 .				
☒	Payment made via EFS-Web.				
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.					
I am the					
☐	applicant.				
☐	attorney or agent of record. Registration number _____.				
☒	attorney or agent acting under 37 CFR 1.34. Registration number 56,401 .				
_____ /Joel E. Lehrer/ Signature		_____ December 15, 2017 Date			
_____ Joel E. Lehrer Typed or printed name		_____ (617) 570-1057 Telephone Number			
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.					

☐ * Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL TIME
MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND SYNCHRONIZED
VIDEO STREAMS IN AN AUGMENTED OR
MULTI-DIMENSIONAL SPACE

Examiner: K. O. Blair

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT (IDS)

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, the attention of the United States Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of the above-identified application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement, pursuant to 37 C.F.R. § 1.114(c), accompanies the Request for Continued Examination (37 C.F.R. § 1.114) submitted herewith.

Submitted herewith are copies of non-patent literature in accordance with 37 C.F.R. § 1.98(a)(2).

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made. In accordance with 37 C.F.R. § 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that the information cited in this Information Disclosure Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98, and the Examiner is respectfully requested to consider the listed references.

Applicant believes no fee is due with this response.

Dated: December 15, 2017

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/
Joel E. Lehrer

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	13/778,430-Conf. #9672
				Filing Date	February 27, 2013
				First Named Inventor	Matthew Szymczyk
				Art Unit	2651
				Examiner Name	K. O. Blair
Sheet	2	of	2	Attorney Docket Number	ZUG-001

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	"Zugara's ZugSTAR: Video Conferencing + Augmented Reality = A Shared AR Experience," We Are Organized Chaos, published November 4, 2009 (4 pages).	
	C2	"The Future of Augmented Reality Online," IAB Poland - Zugara Augmented Reality Presentation, published November 6, 2009 (30 pages).	
	C3	"Zugara's Augmented Reality & Motion Capture Shopping App," Zugara, Youtube video published on June 23, 2009 (3 pages).	
	C4	"Examples of Augmented Reality," Youtube video published on November 2, 2009 (2 pages).	

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: M. Szymczyk Art Unit: 2651
Application No.: 13/778,430 Examiner: Kile O. Blair
Filing Date: February 27, 2013 Confirmation No.: 9672

Title: Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

Filed Electronically via EFS-Web

DECLARATION OF MATTHEW SZYMCHYK UNDER 37 C.F.R. § 1.132

I, Matthew Szymczyk, hereby declare and state that:

1. I am currently employed by Zugara, Inc., Los Angeles, CA ("Zugara") and my title is Chief Executive Officer. I have held this position at Zugara since March 12, 2001. I have also held the title of Director at Zugara since March 12, 2001.
2. Zugara is the Assignee of U.S. Patent Application Serial No. 13/778,430 (hereinafter the '430 Application). I am the first inventor named in the '430 Application.
3. I am familiar with the '430 Application, the claims pending in the '430 Application, and the June 15, 2017 Office action.
4. In November of 2009, I made a presentation titled "The Future of Augmented Reality Online" at the Interactive Advertising Bureau (IAB) in Poland (hereinafter "the IAB Presentation"). A copy of the slide deck presented during the IAB Presentation is submitted herewith. The slide deck (and the videos embedded therein) can be accessed on the Internet at <https://www.slideshare.net/zugarainc/iab-poland-zugara-presentation-2508066>. The slide deck and the videos embedded therein are also cited in an Information Disclosure Statement (IDS) filed herewith.

5. I am familiar with "We Are Organized Chaos," a blog post dated November 4, 2009 (hereinafter the "Chaos Blog Post"), which comments on the subject matter of the IAB Presentation. A copy of the Chaos Blog Post is submitted herewith.

6. The Office action includes a Requirement for Information under 37. C.F.R. § 1.105, which consists of four interrogatories. Having made a reasonable inquiry to find the factual information requested, Zugara responds to the interrogatories as follows:

7. Interrogatory #1

a. Interrogatory: "Was there any public use or sale offer in the United States of the claimed subject matter before February 27, 2012?"

b. Zugara's Response: No.

8. Interrogatory #2

a. Interrogatory: "Did the presentation in Poland described in 'We Are Organized Chaos' incorporate a substantial amount [of] the claimed subject matter? And if not which parts were missing? (Applicant can select to address only independent claims 1 and/or 26 for this question[.])"

b. Zugara's Response: No, the IAB Presentation did not incorporate a substantial amount of the subject matter of independent claim 1. For example, the IAB Presentation did not incorporate a demonstration or an enabling description of a multiple stream sync module as recited in independent claim 1.

9. Interrogatory #3

a. Interrogatory: "Was any similar presentation, public use, sale, or offer of sale of a system incorporating the claimed subject matter made in the United States (or in outer space to be considered as 'in the United States' under 35 U.S.C. 105) prior to February 27, 2012?"

- b. Zugara's Response: No, Zugara did not publicly present, use, sell, or offer for sale a system incorporating the claimed subject matter in the United States prior to February 27, 2012.

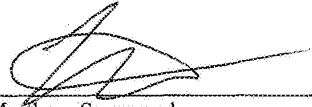
10. Interrogatory #4

- a. Interrogatory: "In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter."
- b. Zugara's Response: Zugara has never provided any products or services that incorporated all the subject matter of independent claim 1 or independent claim 26.

11. I am familiar with "ZugSTAR – Streaming Augmented Reality," a video published by Zugara on February 4, 2010. The video is available at <https://www.youtube.com/watch?v=eSFiCHkZgkA>. The portions of the video between time indexes 0:05-0:22 and time indexes 1:11-1:42 display the following caption: "The ZugMO technology illustrated in this demonstration of ZugSTAR is currently under development." As of the date of the video's publication, some aspects of the augmented reality system illustrated in those portions of the video had not been implemented by or for Zugara.

12. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful and false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 15, 2017


Matthew Szymczyk

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/778,430		Filing Date 02/27/2013		☐ To be Mailed				
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO												
APPLICATION AS FILED – PART I												
(Column 1)		(Column 2)										
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (j), or (m))		N/A		N/A		N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).										
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))												
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL						
APPLICATION AS AMENDED – PART II												
(Column 1)		(Column 2)		(Column 3)								
AMENDMENT	12/15/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	* 53	Minus	** 56	= 0		X \$40 =		0			
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0		X \$210 =		0			
	☐ Application Size Fee (37 CFR 1.16(s))											
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
	TOTAL ADD'L FEE								0			
(Column 1)		(Column 2)		(Column 3)								
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	*	Minus	**	=		X \$ =					
	Independent (37 CFR 1.16(h))	*	Minus	***	=		X \$ =					
	☐ Application Size Fee (37 CFR 1.16(s))											
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
	TOTAL ADD'L FEE											
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>												

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

77845	7590	12/29/2017
Goodwin Procter LLP Attn: Patent Administrator 100 Northern Avenue Boston, MA 02210		

EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
2651	

NOTIFICATION DATE	DELIVERY MODE
12/29/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

glenn.williams@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com
patentBos@goodwinlaw.com

Office Action Summary	Application No. 13/778,430	Applicant(s) SZYMCZYK ET AL.	
	Examiner Kile Blair	Art Unit 2651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 12/15/17.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-8,10-17,19-29,31-36,38-46,48-52 and 54-59 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☒ Claim(s) 1-8,10-17,19-29,31-36,38-46,48-52 and 54-59 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 26 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Zugara (ZugSTAR - Streaming Augmented Reality, Zugara, YouTube Uploaded on Feb 4, 2010, <https://www.youtube.com/watch?v=eSFiCHkZgkA>, PTO-892 9/26/16).

Regarding claim 1, Zugara teaches a system, comprising: a data input device comprising a video camera (“screen-in-screen” indicates video input, 0:16), which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference (two scientists conferencing about DNA from 0:11-0:16); and a multiple stream sync module, which in operation: receives, from another participant in the video chat or conference (the two scientists videos are synced because the standing scientist drags the DNA from the database and then the sitting scientist manipulates it while the standing scientist observes, 0:11-0:16), an augmented video stream comprising augmentation data (there is augmentation data in the stream to facilitate the exchange of the DNA object between scientists where the standing scientist selects the DNA object and the sitting scientist manipulates it, 0:11-0:16) representing one or more 3D virtual objects retrieved from a virtual object database (DNA

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rendering is not created on the spot and inherently comes from database, 0:11-0:16; at 0:13, one scientist drags the DNA out of a database of other scientific objects on the left side of the screen), and multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment (each of the scientists receive a video stream with the DNA object, 0:11-0:16) and the one or more 3D virtual objects represented by the augmentation data received from the other participant (sitting scientist receives the DNA object from the standing scientist, 0:11-0:16), extracts at least one of the 3D virtual objects from the multiplexed video stream, based on an action of the participant (sitting scientist spins DNA object, 0:11-0:16), translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space (both scientists can translate coordinates of the DNA object as shown, 0:11-0:16).

Although Zugara is arguably not enabling and cannot anticipate the claim, the claimed subject matter and implementation of it would have been obvious to one of ordinary skill in the art since it is clear that the DNA helix and other 3D virtual objects are “objects” in the sense of a separately manipulable aspect of the video than the “real-world” data comprising the recorded

video image camera sensor data. Additionally, it would have been apparent that there is some sort of object/video data separation (i.e. multiplexing) to allow the colleagues and family to cooperatively manipulate the DNA helix and house, respectively. Furthermore, the Zugara video clearly would have been suggestive to one of ordinary skill in the art that the object coordinates between remotely located users must be coordinated in order to enable the continuation of the object manipulation at the far-end terminal. No other specific technical implementation details are claimed which would not have been readily apparent to one of ordinary skill in the art from cursory consideration of the system represented in the Zugara video.

Claim 26 is substantially similar to claim 1.

Claim 2-8, 10-16, 19-25, 27-29, 31-36, 38-46, 48-52, and 54-59 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Zugara and Junuzovic (US 20120320158, PTO-892 12/11/15).

Regarding claim 2, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system (same hardware, [0024], fig. 5).

It would have been obvious to one of ordinary skill in the art to implement the object extraction and coordinate changes of Junuzovic in the system of Zugara (for all claims addressed under this section) since doing so is the use of known technique to improve a similar device in the same way.

Regarding claim 3, Junuzovic and Zugara teaches the system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems (similar hardware, [0024], fig. 5).

Regarding claim 4, Junuzovic and Zugara teaches the system of claim 1, wherein: the data input device is selected from a group consisting of an image device ([0025]), an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and transmitter.

Claim 5 represents locating a module locally or remotely in a network.

Claim 18 represents broadcasting video to extra users who may merely watch the video and not interact with the objects.

Although the subject matter of claims 5 and 18 is not explicitly disclosed by Junuzovic, each represents an obvious design choice which would have been readily apparent to one of ordinary skill in the art in light of the disclosed system of Junuzovic.

Regarding claim 6, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the initial real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects (location, [0107]).

Regarding claim 7, Junuzovic and Zugara teaches the system of claim 43, wherein: the augmentation module retrieves the one or more second virtual objects from an augmented asset database located at a location in the cloud that is accessible to all participants in the video chat or conference (page through slides, [0066]).

Regarding claim 8, Junuzovic and Zugara teaches the system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream ([0075]).

Regarding claim 10, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from different two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X,Y,Z, and T coordinates (composition of only foregrounds, [0070])).

Regarding claim 11, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants (shared projected area, [0081]).

Regarding claim 12, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module broadcasts multiplexed video stream to all participants in the video chat or conference (sends video of each user's surface, [0069]).

Regarding claim 13, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device ([0031]), and

wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream (to control the system or objects on the surface , [0031]), selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

Regarding claim 14, Junuzovic and Zugara teaches the system of claim 13, wherein: the various commands selected and executed using the intuitive hand gestures and motions include one of creating a new object, deleting, moving, changing (to control the system or objects on the surface , [0031]), and resizing an existing object in the multiplexed video stream.

Regarding claim 15, Junuzovic and Zugara teaches the system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements ([0098]).

Regarding claim 16, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands ([0031], [0105]).

Regarding claim 19, Junuzovic and Zugara teaches the system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform (similar hardware, [0024], fig. 5).

Regarding claim 20, Junuzovic and Zugara teaches the system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference ([0047]).

Regarding claim 21, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session ([0075]).

Regarding claim 22, Junuzovic and Zugara teaches the system of claim 20, wherein: the video conference manager performs device detection (initialization process for collaborating includes establishing communications between the local and remote locations using this module 144a, [0034]) to select video/audio protocols compatible with respective hosting devices of each of the participants (during establishment of the collaborative session, communications and user parameters are established in a manner similar to establishing a video call, [0047]).

Regarding claim 23, Junuzovic and Zugara teaches the system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants (inherent to enable the sharing of surfaces as disclosed, [0069]).

Regarding claim 24, Junuzovic and Zugara teaches the system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference (or more other remote locations, [0035]), the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

Regarding claim 25, Junuzovic and Zugara teaches the system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants ([0035]).

Regarding claim 43, Junuzovic and Zugara teaches the system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation

module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects ([0069]).

Regarding claim 44, Junuzovic and Zugara teaches the system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time (inherent for the system disclosed, [0069]).

Regarding claim 45, Junuzovic and Zugara teaches the system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module ([0059]), in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant ([0069]).

Regarding claim 46, Junuzovic and Zugara teaches the system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z) (foregrounds, [0070]).

Regarding claim 47, Junuzovic and Zugara teaches the system of claim 1, wherein the augmented video stream comprises a first augmented video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

extracts the one or more virtual objects from the multiplexed video stream;

manipulates the extracted one or more virtual objects in response to input from the participant (annotation, [0045])); and

multiplexes a second augmented data stream comprising augmentation data representing the extracted, manipulated one or more virtual objects with the real-world video stream to generate a second multiplexed video stream ([0069]).

Regarding claim 48, Junuzovic and Zugara teaches the system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant ([0069]).

Regarding claim 55, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment ([0069]).

Regarding claim 56, Junuzovic and Zugara teaches the system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment (presentation saved with circle, [0066]).

Claim 27 is substantially similar to claim 6 and is rejected for the same reasons.

Claim 28 is substantially similar to claim 7 and is rejected for the same reasons.

Claim 29 is substantially similar to claim 8 and is rejected for the same reasons.

Claim 31 is substantially similar to claim 10 and is rejected for the same reasons.

Claim 32 is substantially similar to claim 11 and is rejected for the same reasons.

Claim 33 is substantially similar to claim 12 and is rejected for the same reasons.

Claim 34 is substantially similar to claim 13 and is rejected for the same reasons.

Claim 35 is substantially similar to claim 15 and is rejected for the same reasons.

Claim 37 is substantially similar to claim 18 and is rejected for the same reasons.

Claim 38 is substantially similar to claim 19 and is rejected for the same reasons.

Claim 39 is substantially similar to claim 20 and is rejected for the same reasons.

Claim 40 is substantially similar to claim 21 and is rejected for the same reasons.

Claim 41 is substantially similar to claim 22 and is rejected for the same reasons.

Claim 42 is substantially similar to claim 24 and is rejected for the same reasons.

Claim 49 is substantially similar to claim 43 and is rejected for the same reasons.

Claim 50 is substantially similar to claim 44 and is rejected for the same reasons.

Claim 51 is substantially similar to claim 45 and is rejected for the same reasons.

Claim 52 is substantially similar to claim 46 and is rejected for the same reasons.

Claim 53 is substantially similar to claim 47 and is rejected for the same reasons.

Claim 54 is substantially similar to claim 48 and is rejected for the same reasons.

Claim 57 is substantially similar to claim 55 and is rejected for the same reasons.

Claim 58 is substantially similar to claim 56 and is rejected for the same reasons.

Regarding claim 59, Junuzovic and Zugara teaches the system of claim 1, wherein the one or more 3d virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera (inherently, the DNA objects are virtual and not seen by the cameras, 0:11-0:16).

Claim 17 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Zugara, and Nilsson (Nilsson, S., Gustafsson, T., & Carleberg, P. (2009). Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System. PsychNology Journal, 7(2), 175 – 196, PTO-892 4/14/15).

Regarding claim 17, Zugara teaches the system of claim 1.

Although Zugara does not explicitly teach the feature wherein: the multiple stream sync module utilizes pupil tracking to control and manipulate the objects within the synchronized augmented stream via the participant's eyes, Nilsson teaches that augmented reality systems may use gaze tracking to interact with the system (Nilsson, pg. 178).

It would have been obvious to one of ordinary skill in the art to use gaze tracking in the augmented reality system of Zugara since doing so is the use of a known technique to improve a similar device in the same way.

Response to Arguments

Applicant's arguments filed 12/15/17 have been fully considered but they are not persuasive.

Applicant argues that Zugara is not enabling of the claimed subject matter and therefore the rejection under 35 U.S.C. 102 based on anticipation should be withdrawn; However, the examiner makes a new rejection asserting obvious based on 35 U.S.C. 103 since a rejection under 35 U.S.C. 103 can be based on prior art that is not necessarily enabling as long as the required technical elements of the claim would have been obvious to one of ordinary skill in the art at the time applicant's invention was made as discussed in MPEP 2121.01(II). The declaration filed 12/15/17 for the purpose of responding to the requirement for information under 37 C.F.R. 1.105 has been considered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on Monday-Friday.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kile Blair/
Examiner, Art Unit 2651

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	20	remote near20 music\$4 near4 collaborat\$5 and object and video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L2	31	remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L3	5204	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd) <"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L4	25	L3 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L5	200	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L6	224	L4 L5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L7	275	L1 L2 L6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02
L8	178	L7 and (@pd @ad @rlad @prad @rlpd @ptad @ptld @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/12/25 21:02

EAST Search History (Interference)

<This search history is empty>

12/25/2017 9:18:30 PM

C:\Users\kblair\Documents\EAST\Workspaces\13778430.wsp

Search Notes 	Application/Control No. 13778430	Applicant(s)/Patent Under Reexamination SZYMCZYK ET AL.
	Examiner KILE BLAIR	Art Unit 2651

CPC- SEARCHED		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above	9/18/16	KB
updated above	6/9/17	KB
updated above	12/25/17	KB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above text	9/18/16	KB
updated above	6/9/17	KB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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PTO/SB/08a (07-09)

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO <h1>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</h1> <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	13/778,430-Conf. #9672
				Filing Date	February 27, 2013
				First Named Inventor	Matthew Szymczyk
				Art Unit	2651
				Examiner Name	K. O. Blair
				Attorney Docket Number	ZUG-001
Sheet	1	of	2		

[illegible][illegible]

Examiner Signature	/KILE O BLAIR/	Date Considered	12/25/2017
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.B./

PTO/SB/08b (07-09)

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	13/778,430-Conf. #9672
				Filing Date	February 27, 2013
				First Named Inventor	Matthew Szymczyk
				Art Unit	2651
				Examiner Name	K. O. Blair
Sheet	2	of	2	Attorney Docket Number	ZUG-001

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	C1	"Zugara's ZugSTAR: Video Conferencing + Augmented Reality = A Shared AR Experience," We Are Organized Chaos, published November 4, 2009 (4 pages).	
	C2	"The Future of Augmented Reality Online," IAB Poland - Zugara Augmented Reality Presentation, published November 6, 2009 (30 pages).	
	C3	"Zugara's Augmented Reality & Motion Capture Shopping App," Zugara, Youtube video published on June 23, 2009 (3 pages).	
	C4	"Examples of Augmented Reality," Youtube video published on November 2, 2009 (2 pages).	

Examiner Signature	/KILE O BLAIR/	Date Considered	12/25/2017
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

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100 Northern Avenue
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**Courtesy Reminder for
Application Serial No: 13/778,430**

Attorney Docket No: ZUG-001

Customer Number: 77845

Date of Electronic Notification: 12/29/2017

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

PSousa-Atwood@goodwinprocter.com
glenn.williams@goodwinprocter.com
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To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>. If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

Docket No.: ZUG-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk *et al.*

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL TIME
MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND
SYNCHRONIZED VIDEO STREAMS IN AN
AUGMENTED OR MULTI-DIMENSIONAL
SPACE

Examiner: K. O. Blair

Filed Electronically via EFS-Web

AMENDMENT AND RESPONSE TO NON-FINAL OFFICE ACTION
UNDER 37 C.F.R. § 1.111

In response to the Office action dated December 29, 2017, please amend the above-identified U.S. patent application as follows:

A Listing of the Claims begins on page 2 of this paper.

Remarks begin on page 12 of this paper.

LISTING OF THE CLAIMS

1. (Previously presented) A system, comprising:
 - a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and
 - a multiple stream sync module, which in operation:
 - receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and
 - multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,
 - extracts at least one of the 3D virtual objects from the multiplexed video stream,
 - based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and
 - causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.
2. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with one Augmented Reality (AR) system.
3. (Original) The system of claim 1, wherein: the participants of the video chat or conference are associated with different Augmented Reality (AR) systems.

4. (Previously presented) The system of claim 1, wherein the data input device further comprises an audio device, a depth sensing camera, a laser-based equipment, a wave emitter and/or transmitter.
5. (Previously presented) The system of claim 43, wherein: the augmentation module resides either at a location of the participant or on a remote server.
6. (Previously presented) The system of claim 44, wherein: the augmentation module generates the second augmented video stream by synchronizing the one or more second virtual objects with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
7. (Previously presented) The system of claim 43, wherein the virtual object database is accessible to all participants in the video chat or conference.
8. (Previously presented) The system of claim 44, wherein: the augmentation module updates coordinates of the one or more second virtual objects in real time according to changing tracking data and timing within each session of video chat or conference to reduce latency of the second augmented video stream.
9. (Canceled)
10. (Previously presented) The system of claim 1, wherein: the multiple stream sync module, in operation, multiplexes video streams from two or more participants into a multiplexed video stream via active control on synchronization of HB (human behavior) of the two or more participants in addition to X, Y, Z, and T coordinates.
11. (Previously presented) The system of claim 1, wherein: the multiple stream sync module synchronizes augmented video streams from two or more participants in such a way as to reduce latency of multiplexed video streams shared among the two or more participants.

12. (Previously presented) The system of claim 1, wherein: the multiple stream sync module broadcasts the multiplexed video stream to all participants in the video chat or conference.

13. (Previously presented) The system of claim 1, wherein: the multiple stream sync module accepts one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface of the data input device, and wherein the one or more inputs are used to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

14. (Previously presented) The system of claim 13, wherein: the various commands selected and executed using the hand gestures and motions include one of creating a new object, deleting, moving, changing, and resizing an existing object in the multiplexed video stream.

15. (Original) The system of claim 13, wherein: the multiple stream sync module limits the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

16. (Previously presented) The system of claim 1, wherein: the multiple stream sync module interacts with and controls the one or more virtual objects within the multiplexed video stream in response to voice commands.

17. (Previously presented) The system of claim 1, wherein: the multiple stream sync module controls and manipulates the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

18. (Canceled)

19. (Previously presented) The system of claim 1, wherein: the multiple stream sync module works across multiple platforms so that the augmented video stream provided by the other participant from one platform is synchronized and shared with the participant using a different platform.

20. (Original) The system of claim 1, further comprising: a video conference manager, which in operation, creates a chat room or conference session for the video chat or conference, invites the participants to join the video chat or conference, and maintains the session during the video chat or conference.

21. (Previously presented) The system of claim 20, wherein: the video conference manager monitors, organizes, and stores information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

22. (Previously presented) The system of claim 20, wherein: the video conference manager performs device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

23. (Original) The system of claim 1, further comprising: a transport system, which in operation, encodes and distributes the video streams among the participants.

24. (Previously presented) The system of claim 23, wherein: the transport system supports the distribution of the video streams without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

25. (Previously presented) The system of claim 1, further comprising: a media server, which in operation, distributes and stores the real-world, augmented, and/or multiplexed video streams from the participants.

26. (Previously presented) A method, comprising:
- providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;
 - receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database;
 - multiplexing the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;
 - extracting at least one of the 3D_virtual objects from the multiplexed video stream,
 - based on an action of the participant, translating coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment; and
 - causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D_environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.
27. (Previously presented) The method of claim 50, wherein the second augmentation data representing the one or more second virtual objects are synchronized with the real-world video stream based on relative (X, Y, Z) coordinates and time (T) of the one or more second virtual objects.
28. (Previously presented) The method of claim 49, wherein the virtual object database is accessible to all participants in the video chat or conference.
29. (Previously presented) The method of claim 50, further comprising: updating coordinates of the one or more second virtual objects in real time according to changing tracking data and

timing within each session of video chat or conference to reduce latency of the second augmented video stream.

30. (Canceled)

31. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream is performed based on active control on synchronization of HB (human behavior) of the participants in addition to X, Y, Z, and T coordinates.

32. (Previously presented) The method of claim 26, wherein the multiplexing of the augmented video stream and the real-world video stream to generate the multiplexed video stream comprises synchronizing the augmented and real-world video streams in such a way as to reduce latency of the multiplexed video stream.

33. (Previously presented) The method of claim 26, further comprising: broadcasting the multiplexed video stream to all participants in the video chat or conference.

34. (Previously presented) The method of claim 26, further comprising:
accepting one or more inputs selected from the group consisting of hand gestures, motions, and touches of the participant through a video-based computer interface; and
using the one or more inputs to perform one or more acts selected from the group consisting of: creating or controlling the one or more virtual objects in the multiplexed video stream, selecting various commands from an object submenu, and drawing three dimensional curves, surfaces, and/or ribbons in the multiplexed video stream.

35. (Previously presented) The method of claim 34, further comprising: limiting the controlling hand gestures of the participant to his/her first finger, second finger, and arm movements.

36. (Previously presented) The method of claim 26, further comprising: controlling and manipulating the one or more virtual objects within the multiplexed video stream by using pupil tracking to track movement of the participant's eyes.

37. (Canceled)

38. (Previously presented) The method of claim 26, further comprising: synchronizing the augmented and real-world video streams across multiple platforms so that the augmented video stream provided by the other participant from one platform is shared with the participant using a different platform.

39. (Original) The method of claim 26, further comprising: creating a chat room or conference session for the video chat or conference, inviting the participants to join the video chat or conference, and maintaining the session during the video chat or conference.

40. (Previously presented) The method of claim 39, further comprising: monitoring, organizing, and storing information relevant to the participants and/or the locations of the one or more virtual objects used during the session.

41. (Previously presented) The method of claim 26, further comprising: performing device detection to select video/audio protocols compatible with respective hosting devices of each of the participants.

42. (Previously presented) The method of claim 26, further comprising: encoding and distributing the video streams among the participants without any limitation on one or more of: the number of the participants in the video chat/conference, the number or type of objects controlled or accessed by the participants, the locations of the objects, and the types of real-world or augmented video streams.

43. (Previously presented) The system of claim 1, further comprising an augmentation module, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the augmentation module, in operation, generates a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

44. (Previously presented) The system of claim 43, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

45. (Previously presented) The system of claim 44, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the multiple stream sync module, in further operation:

receives, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexes the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sends the second multiplexed video stream to the other participant.

46. (Previously presented) The system of claim 1, wherein the multiple stream sync module, in further operation, synchronizes the augmented video stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

47. (Canceled)

48. (Previously presented) The system of claim 1, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

49. (Previously presented) The method of claim 26, wherein the augmented video stream, the augmentation data, and the one or more virtual objects comprise, respectively, a first augmented video stream, first augmentation data, and one or more first virtual objects, and wherein the method further comprises generating a second augmented video stream comprising second augmentation data representing one or more second virtual objects.

50. (Previously presented) The method of claim 49, wherein generating the second augmented video stream comprises synchronizing the second augmentation data representing the one or more second virtual objects with the real-world video stream in real time.

51. (Previously presented) The method of claim 50, wherein the real-world video stream comprises a first real-world video stream, wherein the multiplexed video stream comprises a first multiplexed video stream, and wherein the method further comprises:

receiving, from the other participant, a second real-world video stream comprising video of a real-world environment including the other participant;

multiplexing the second augmented video stream generated by the augmentation module with the second real-world video stream received from the other participant in real time to generate a second multiplexed video stream comprising the second real-world video stream of the other participant and the one or more second virtual objects represented by the second augmentation data generated by the augmentation module; and

sending the second multiplexed video stream to the other participant.

52. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises synchronizing the augmented video

stream with the real-world video stream in both time (T) and three-dimensional coordinates (X, Y, Z).

53. (Canceled)

54. (Previously presented) The method of claim 26, wherein the real-world video stream comprises a first real-world video stream, and wherein the augmented video stream is synchronized with a second real-world video stream comprising video of a real-world environment including the other participant.

55. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

56. (Previously presented) The system of claim 1, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

57. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises overlaying the one or more virtual objects onto the video of the real-world environment.

58. (Previously presented) The method of claim 26, wherein multiplexing the augmented video stream with the real-world video stream comprises inserting the one or more virtual objects into the video of the real-world environment.

59. (Previously presented) The system of claim 1, wherein the one or more 3D virtual objects are simultaneously present in the multiplexed video stream and not visible to image sensors of the video camera.

REMARKS

Administrative Overview

Prior to the Office action of December 29, 2017, claims 1-8, 10-17, 19-29, 31-36, 38-46, 48-52, and 54-59 were pending. In the Office action:

- claims 1 and 26 are rejected under pre-AIA 35 U.S.C. § 103(a) as purportedly being obvious over a video available at <https://www.youtube.com/watch?v=eSFiCHkZgkA> (“the Zugara video”);
- claims 2-8, 10-16, 19-25, 27-29, 31-36, 38-46, 48-52, and 54-59 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over the Zugara video in view of U.S. PG PUB No. 2012/0320158 (“Junuzovic”); and
- claim 17 is rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over a proposed combination of the Zugara video, Junuzovic, and S. Nilsson et al., Hands Free Interaction with Virtual Information in a Real Environment: Eye Gaze as an Interaction Tool in an Augmented Reality System, Psychology Journal, 7(2), 175-196 (2009) (“Nilsson”).

Reconsideration is respectfully requested in view of the remarks presented below.

Claims Rejections Under 35 U.S.C. § 103

I. Independent Claim 1 and the Claims Depending Therefrom

Claim 1 is rejected under pre-AIA 35 U.S.C. § 103(a) as purportedly being obvious over the portion of the Zugara video from time indexes 0:11 to 0:16. Reconsideration is respectfully requested. Claim 1 is not obvious over the Zugara video because the Zugara video does not teach or suggest each and every limitation of claim 1.

Independent claim 1 is directed to a system comprising:

a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and

a multiple stream sync module, which in operation:

receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and

multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant,

extracts at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and

causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space. (Emphasis added.)

The Zugara video does not teach or suggest a module that “multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment ... to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant” as recited in claim 1. Rather, the cited portion of the Zugara video appears to illustrate a hypothetical user experience with hypothetical augmented reality / video conferencing technology. In the portion of the Zugara video cited in the Office action, a hypothetical augmented reality video conference between two users is illustrated. The Zugara video appears to convey the following information:

- From time index 0:11-0:14, the Zugara video appears to show a “picture-in-a-picture” video configuration with a first video (“V1”) of a first, standing user (“U1”) and a second video (“V2”) of a second, sitting user (“U2”). The second video appears to overlie a small portion of the first video. User U1 gestures toward an augmented object (a DNA helix), and a visual effect indicates that the DNA helix object has been selected. User U1 then motions across his body, and the DNA helix object appears to follow the trajectory of the user’s gesture. The DNA helix object is not shown in video V2.
- At time index 0:14, the Zugara video inverts the “picture-in-a-picture” video configuration, such that the video V2 is enlarged, and the first video V1 appears to

overlie a small portion of the second video. At this point, a DNA helix object is shown in the second video, and a DNA helix object is still shown in the first video.

- From time index 0:14-0:16, user U2 gestures toward the DNA helix object in video V2, and the DNA helix object appears to rotate on one or more axes. The DNA helix object in video V1 also appears to be rotating.
- From time index 0:05-0:16, a narrator of the Zugara video states, “What if you could combine augmented reality with live video conferencing for real-time interactive communication? Now you can. Introducing ZugSTAR technology from Zugara.”

Nothing in the Zugara video teaches or suggests how such augmented reality / video conferencing technology might be implemented. In particular, nothing in the Zugara video teaches or suggests how the video V2 of the user U2 and DNA helix object is generated. One of ordinary skill in the art, upon viewing the Zugara video, would recognize that the video V2 of the user V2 could potentially be generated in any number of ways. Even assuming (without conceding) that the Zugara video could be understood to show a “video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects” as recited in claim 1, there is simply nothing in the Zugara video that teaches or suggests that video V2 is generated by a module that “multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment ... to generate” such a video stream as recited in claim 1, and there is nothing in the Zugara video that teaches or suggests that the 3D virtual objects in the multiplexed video stream are “represented by the augmentation data received from the other participant” as recited in claim 1. The Zugara video is completely silent as to these claimed aspects of the technology’s implementation.

If the rejection of the claims over the Zugara video is maintained in a first Office action, despite the Zugara video’s clear failure to disclose the above-emphasized portion of the claim, Applicant respectfully requests that the Examiner clearly articulate a rationale for the conclusion of obviousness, such as one of the rationales listed in MPEP § 2143(I), including any necessary findings based on the Graham factual inquiries.

For at least the foregoing reasons, the Zugara video does not teach or suggest at least the above-emphasized portion of claim 1. Furthermore, even assuming (without conceding) that the Zugara video and Junuzovic could have been properly combined, the cited references

(individually or in proper combination) do not teach or suggest each and every limitation of claim 1, for at least the reasons discussed in the Amendment filed on March 27, 2017. Accordingly, Applicant respectfully submits that claim 1 is allowable. Claims 2-8, 10-17, 19-25, 43-46, 48, 55, 56, and 59 depend from claim 1 and are allowable for at least the same reasons.

II. Independent Claim 26 and the Claims Depending Therefrom

Independent claim 26 is rejected under pre-AIA 35 U.S.C. § 103(a) as purportedly being obvious over the Zugara video. Reconsideration is respectfully requested in view of the remarks presented below.

Independent claim 26 is directed to a method comprising:

providing, using a video camera, a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference;

receiving, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database;

multiplexing the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant;

extracting at least one of the 3D virtual objects from the multiplexed video stream,

based on an action of the participant, translating coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment; and

causing a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.

For reasons that should be apparent from the discussion above, the Zugara video does not teach or suggest each and every element of claim 26. Furthermore, the cited references (individually or in proper combination) do not teach or suggest each and every limitation of claim 26, for at least the reasons discussed in the Amendment filed on March 27, 2017.

Accordingly, Applicant respectfully submits that claim 26 is allowable. Claims 27-29, 31-36, 38-42, 49-52, 54, 57, and 58 depend from claim 26 and are allowable for at least the same reasons.

CONCLUSION

In view of the above amendments, Applicant believes the pending application is in condition for allowance. If the Examiner believes that a telephone conversation with Applicant's attorney would expedite allowance of this application or would be helpful in resolving any other outstanding issue, the Examiner is cordially invited to call the undersigned at the telephone number below.

A Petition for a three-month extension of time and the corresponding fees are submitted herewith. Should any other extension of time and/or fees be required for consideration of this paper, the Commissioner is hereby authorized to consider this paper a petition for such extension of time and to charge such fees to Deposit Account No. 07-1700, under Ref. No. ZUG-001.

Dated: June 29, 2018

Respectfully submitted,

Electronic signature: /Joel E. Lehrer/
Joel E. Lehrer

Registration No.: 56,401
GOODWIN PROCTER LLP
100 Northern Avenue
Boston, Massachusetts 02210
(617) 570-1057
Attorney for Applicant

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Joel E. Lehrer/Samuel Stone		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 3 months with \$0 paid	2253	1	700	700
Miscellaneous:				
Total in USD (\$)				700

Electronic Acknowledgement Receipt	
EFS ID:	33055290
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Joel E. Lehrer/Samuel Stone
Filer Authorized By:	Joel E. Lehrer
Attorney Docket Number:	ZUG-001
Receipt Date:	29-JUN-2018
Filing Date:	27-FEB-2013
Time Stamp:	20:40:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$700
RAM confirmation Number	070218INTEFSW20421200
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	ZUG-001_EOT.pdf	23071	no	1
			b3f0b4e7d9374fe0b0e1291c4d137e73340de83b		
Warnings:					
Information:					
2		ZUG-001_RESP.pdf	137011	yes	17
			222e5552bb66209671fc63e099c6a5c70b8b1fb1		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	11	
	Applicant Arguments/Remarks Made in an Amendment		12	17	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30330	no	2
			778929f484b33efcabac2dd9f3f8ff504ff05375		
Warnings:					
Information:					
Total Files Size (in bytes):			190412		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) ZUG-001	
Application Number 13/778,430-Conf. #9672		Filed February 27, 2013	
For SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE			
Art Unit 2651		Examiner K. O. Blair	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>
☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150
☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750
☒ Applicant asserts small entity status. See 37 CFR 1.27.			
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.			
☐ A check in the amount of the fee is enclosed.			
☒ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 07-1700 .			
☒ Payment made via EFS-Web.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the			
☐ applicant.			
☐ attorney or agent of record. Registration number _____.			
☒ attorney or agent acting under 37 CFR 1.34. Registration number 56,401 .			
_____ Signature		_____ Date	
Joel E. Lehrer Typed or printed name		(617) 570-1057 Telephone Number	
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.			
☐ * Total of 1 forms are submitted.			



UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

77845 7590 09/27/2018
Goodwin Procter LLP
Attn: Patent Administrator
100 Northern Avenue
Boston, MA 02210

EXAMINER

BLAIR, KILE O

ART UNIT PAPER NUMBER

2651

DATE MAILED: 09/27/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

TITLE OF INVENTION: Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	12/27/2018

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

77845 7590 09/27/2018
Goodwin Procter LLP
Attn: Patent Administrator
100 Northen Avenue
Boston, MA 02210

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

TITLE OF INVENTION: Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	12/27/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, KILE O	2651	348-014070

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p>☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p>☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,</p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.</p>	<p>1 _____</p> <p>2 _____</p> <p>3 _____</p>
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672
77845	7590	09/27/2018	EXAMINER	
Goodwin Procter LLP Attn: Patent Administrator 100 Northen Avenue Boston, MA 02210			BLAIR, KILE O	
			ART UNIT	PAPER NUMBER
			2651	

DATE MAILED: 09/27/2018

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<i>Notice Requiring Inventor's Oath or Declaration</i>	Application No. 13/778,430	Applicant(s) Matthew Szymczyk	
	Examiner BLAIR, KILE O	Art Unit 2651	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) **MUST** be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Matthew Szymczyk, Alex Goldberg, Hans Forsman, Jack Benoff, Aaron von Hungen, Blake Callens, Mark Weisheit, and Andrey Tkachuk.**

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.** Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/778,430	Applicant(s) Szymczyk et al.	
	Examiner Kile Blair	Art Unit 2651	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/29/18.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	

/KILE O BLAIR/ Examiner, Art Unit 2651	/DUC NGUYEN/ Supervisory Patent Examiner, Art Unit 2651
---	--

Continuation of 3. The allowed claim(s) is/are: 1-8,10-17,19-29,31-36,38-46 and 48-59

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance:

The prior art fails to teach or fairly suggest a system, comprising: a data input device comprising a video camera, which in operation, provides a real-world video stream comprising video of a real-world 3D environment including a participant in a video chat or conference; and a multiple stream sync module, which in operation: receives, from another participant in the video chat or conference, an augmented video stream comprising augmentation data representing one or more 3D virtual objects retrieved from a virtual object database, and multiplexes the augmented video stream received from the other participant with the real-world video stream of the real-world 3D environment in real time to generate a multiplexed video stream comprising the video of the real-world 3D environment and the one or more 3D virtual objects represented by the augmentation data received from the other participant, extracts at least one of the 3D virtual objects from the multiplexed video stream, based on an action of the participant, translates coordinates of the extracted virtual object in at least three dimensions within a multi-dimensional space of the multiplexed video stream, wherein the three dimensions of the multi-dimensional space are defined by the video of the real-world 3D environment, and causes a display device associated with the participant to display the multiplexed video stream comprising the video of the real-world_3D environment and the one or more 3D virtual objects, wherein both the participant and the other participant can translate the coordinates of the one or more 3D virtual objects within the three dimensions of the multi-dimensional space.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile Blair whose telephone number is (571)270-3544. The examiner can normally be reached on M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

Application/Control Number: 13/778,430
Art Unit: 2651

Page 4

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KILE O BLAIR/
Examiner, Art Unit 2651

/DUC NGUYEN/
Supervisory Patent Examiner, Art Unit 2651

Issue Classification 	Application/Control No. 13/778,430	Applicant(s)/Patent Under Reexamination Szymczyk et al.
	Examiner Kile Blair	Art Unit 2651

CPC						
Symbol					Type	Version
H04N	/	7	/	157	F	2013-01-01
H04L	/	12	/	1827	I	2013-01-01

CPC Combination Sets						
Symbol				Type	Set	Ranking
	/		/			

/KILE O BLAIR/ Examiner, Art Unit 2651 (Assistant Examiner)	17 September 2018 (Date)	Total Claims Allowed: 53	
/DUC NGUYEN/ SPE, Art Unit 2651 (Primary Examiner)	17 September 2018 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 3

U.S. Patent and Trademark Office

Part of Paper No.: 20180917

Issue Classification 	Application/Control No. 13/778,430	Applicant(s)/Patent Under Reexamination Szymczyk et al.
	Examiner Kile Blair	Art Unit 2651

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04L	/	12	/ 18

NON-CLAIMED			
/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
348	207.99

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

/KILE O BLAIR/ Examiner, Art Unit 2651 (Assistant Examiner)	17 September 2018 (Date)	Total Claims Allowed: 53	
/DUC NGUYEN/ SPE, Art Unit 2651 (Primary Examiner)	17 September 2018 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 3

U.S. Patent and Trademark Office

Part of Paper No.: 20180917

Issue Classification 	Application/Control No. 13/778,430	Applicant(s)/Patent Under Reexamination Szymczyk et al.
	Examiner Kile Blair	Art Unit 2651

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	6	19	15	28	25	37	49	46	34				
2	2	11	8	20	16	29	55	38	50	47	35				
3	3	12	46	21	17	30	56	39	27	48	36				
4	4	13	48	22	19	31	59	40	29	49	38				
5	43	14	10	23	20	32	26	41	51	50	39				
6	44	15	11	24	21	33	52	42	28	51	40				
7	5	16	12	25	22	34	54	43	31	52	41				
8	7	17	13	26	23	35	57	44	32	53	42				
9	45	18	14	27	24	36	58	45	33						

/KILE O BLAIR/ Examiner, Art Unit 2651 (Assistant Examiner)	17 September 2018 (Date)	Total Claims Allowed: 53	
/DUC NGUYEN/ SPE, Art Unit 2651 (Primary Examiner)	17 September 2018 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 3

U.S. Patent and Trademark Office

Part of Paper No.: 20180917

Search Notes 	Application/Control No. 13/778,430	Applicant(s)/Patent Under Reexamination Szymczyk et al.
	Examiner Kile Blair	Art Unit 2651

CPC - Searched*		
Symbol	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above	9/18/16	KB
updated above	6/9/17	KB
updated above	12/25/17	KB
updated above	09/17/2018	KB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
H04L12/1813 H04N7/157	4/6/15	KB
updated above	11/30/15	KB
updated above text	9/18/16	KB
updated above	6/9/17	KB
see EAST printout	09/17/2018	KB

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<i>Search Notes</i> 	Application/Control No. 13/778,430	Applicant(s)/Patent Under Reexamination Szymczyk et al.
	Examiner Kile Blair	Art Unit 2651

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	see EAST printout	09/17/2018	KB

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	21	remote near20 music\$4 near4 collaborat\$5 and object and video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L2	36	remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L3	5490	(H04L12/1813 H04N7/157).CPC. and (@pd @ad @rlad @prad @rlpd @ptad @pt1d @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L4	32	L3 and augmented adj reality	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L5	280	augmented adj reality and human adj (behavior behaviour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L6	311	L4 L5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L7	368	L1 L2 L6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46
L8	197	L7 and (@pd @ad @rlad @prad @rlpd @ptad @pt1d @pt3d @ptpd @read @repd)<"20130228"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/17 10:46

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L9	2	(remote near20 drawing near4 collaborat\$5 and (control controlling cocontrolled modif\$4 augment\$5 interact\$5) near6 object).clm.	USPAT	OR	ON	2018/09/17 10:49

9/ 17/ 2018 10:54:31 AM

C:\Users\kblair\Documents\EAST\Workspaces\13778430.wsp

Bibliographic Data

Application No: 13/778,430

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged:

Examiner's Signature

Initials

Title:

Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
02/27/2013	348	2651	
RULE			

APPLICANTS

INVENTORS

Matthew Szymczyk Manhattan Beach, CA, UNITED STATES

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Andrey Tkachuk Simferopol, UKRAINE

CONTINUING DATA

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/21/2013

** SMALL ENTITY **

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UNITED STATES

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Goodwin Procter LLP
Attn: Patent Administrator
100 Northern Avenue
Boston, MA 02210



**Courtesy Reminder for
Application Serial No: 13/778,430**

Attorney Docket No: ZUG-001

Customer Number: 77845

Date of Electronic Notification: 09/27/2018

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

glenn.williams@goodwinprocter.com
PSousa-Atwood@goodwinprocter.com
patentBos@goodwinlaw.com

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE
-------------------------------	---

As the below named inventor, I hereby declare that:

This declaration ☐ The attached application, or
is directed to: ☒ United States application or PCT International application number 13/778,490
filed on 02/27/2013

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Matthew Szymczyk Date (Optional): _____

Signature: 

Note: An application data sheet (PTO/AIA/01-608-120 or equivalent), including naming the entire inventive entity, must accompany this form, or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

ACTIVPAR/68824.1

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE
---------------------------	---

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or
☒ United States application or PCT international application number 13/778 430
 filed on 02/27/2013

The above-identified application was made or authorized to be made by me.

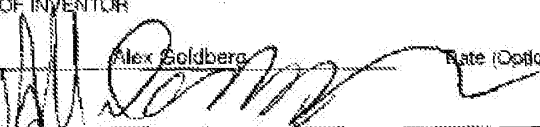
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

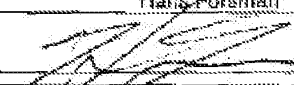
Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-203B submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.212(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-203B submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Alex Goldberg Date (Optional): _____
 Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/91 form for each additional inventor.

ACTIVE#2668241

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	
Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration ☐ The attached application, or is directed to: ☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u></p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.</p> <p style="text-align: center;">WARNING:</p> <p>Patenters/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identify theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Patenters/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p>	
<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>Hans Foreman</u> Date (Optional): _____</p> <p>Signature: </p> <p><small>Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/USPTO form for each additional inventor.</small></p>	

ACTIVE/1206/0026.1

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE
-------------------------------	---

As the below named inventor, I hereby declare that:

This declaration ☐ The attached application, or
is directed to:
☒ United States application or PCT international application number 13/778,480
 filed on 02/27/2013

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTORInventor: Jack BenoitDate (Optional): 10/23/18Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/ST form for each additional inventor.

ACT1008 (06/08/24)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE
-------------------------------	---

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or
☒ United States application or PCT international application number 13778430
 filed on 2013-02-27

The above-identified application was made or authorized to be made by me.

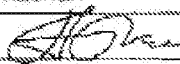
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identify theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Andrey Tkachuk Date (Optional): _____
 Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to be used by the USPTO to process an application. Confidentiality is governed by 35 U.S.C. 132 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Fees will vary depending upon the individual case. Any comments on the burden of this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1456, Alexandria, VA 22313-1456.

If you need assistance in completing this form, call 1-800-PTO-9195 and select option 2.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE						
This statement is directed to: ☐ The attached application, OR ☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>							
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname) Blake Callens							
Residence (except for a deceased or legally incapacitated inventor): <table border="1"><tr><td>City Toluca Lake</td><td>State CA</td><td colspan="2">Country US</td></tr></table>				City Toluca Lake	State CA	Country US	
City Toluca Lake	State CA	Country US					
Mailing Address (except for a deceased or legally incapacitated inventor): 10645 Valley Springs Lane, #10 <table border="1"><tr><td>City Toluca Lake</td><td>State CA</td><td>Zip 91602</td><td>Country US</td></tr></table>				City Toluca Lake	State CA	Zip 91602	Country US
City Toluca Lake	State CA	Zip 91602	Country US				
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application. The above-identified application was made or authorized to be made by me. I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.							
Relationship to the inventor to whom this substitute statement applies: ☐ Legal Representative (for deceased or legally incapacitated inventor only), ☐ Assignee, ☐ Person to whom the inventor is under an obligation to assign, ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or ☒ Joint Inventor.							

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-8199 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)**3814 Highland Ave. #6**

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc code: Oath
Document Description: Oath or declaration filed

PTO/AIA/02 (07-12)
Approved for use through 11/28/2020. OAS (06/1/2020)
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(h) AND 37 CFR 1.64)**

**Title of
Invention**
**SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH
MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR
MULTI-DIMENSIONAL SPACE**

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number **13/778,430** filed on **02/27/2013**

LEGAL NAME of inventor to whom this substitute statement applies:

(E.g., Given Name (first and middle (if any)) and Family Name or Surname)

Blake Callens

Residence (except for a deceased or legally incapacitated inventor):

Toluca Lake

CA **US**
State Country

Mailing Address (except for a deceased or legally incapacitated inventor):

10645 Valley Springs Lane, #10

Toluca Lake

CA **91602** **US**
State Zip Country

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

☐ Legal Representative (for deceased or legally incapacitated inventor only).

☐ Assignee.

☐ Person to whom the inventor is under an obligation to assign.

☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.45 is required), or

☒ Joint Inventor.

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to the (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.61 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1480.

If you need assistance in completing the form, call 1-800-PTO-0779 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

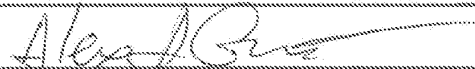
- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
- OR
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.54(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks** State **CA** Zip **91362** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2804 and 2805. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Blake Callens			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Toluca Lake	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
10645 Valley Springs Lane, #10			
City	State	Zip	Country
Toluca Lake	CA	91602	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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If you need assistance in completing the form, call 1-800-FTO-9198 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

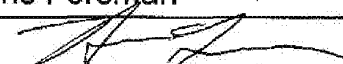
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Hans Forsman** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Marina del Rey** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3221 Carter Ave.
Unit 146

City **Marina del Rey** State **CA** Zip **90292** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE										
This statement is directed to: ☐ The attached application, OR ☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>											
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname) Blake Callens											
Residence (except for a deceased or legally incapacitated inventor): <table border="1"><tr><td>City</td><td>Toluca Lake</td><td>State</td><td>CA</td><td>Country</td><td>US</td></tr></table>				City	Toluca Lake	State	CA	Country	US		
City	Toluca Lake	State	CA	Country	US						
Mailing Address (except for a deceased or legally incapacitated inventor): 10645 Valley Springs Lane, #10											
<table border="1"><tr><td>City</td><td>Toluca Lake</td><td>State</td><td>CA</td><td>Zip</td><td>91602</td><td>Country</td><td>US</td></tr></table>				City	Toluca Lake	State	CA	Zip	91602	Country	US
City	Toluca Lake	State	CA	Zip	91602	Country	US				
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application. The above-identified application was made or authorized to be made by me. I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.											
Relationship to the inventor to whom this substitute statement applies: ☐ Legal Representative (for deceased or legally incapacitated inventor only), ☐ Assignee, ☐ Person to whom the inventor is under an obligation to assign, ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or ☒ Joint Inventor.											

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO: THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted,
OR
☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Jack Benoff** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City	Hermosa Beach	State	CA	Country	USA
Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)					
645 3rd St. #4					
City	Hermosa Beach	State	CA	Zip	90254
				Country	USA

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Blake Callens			
Residence (except for a deceased or legally incapacitated inventor):			
City	Toluca Lake	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
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OR

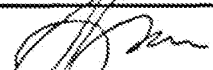
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Culver City	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	State	Zip	Country
Culver City	CA	90239	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3814 Highland Ave. #6

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application.			
OR			
☒ United States application or PCT International application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Culver City	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	State	Zip	Country
Culver City	CA	90239	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEE OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-3199 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
- OR
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.54(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg** Date (Optional):Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks** State **CA** Zip **91362** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention:	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Culver City	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	State	Zip	Country
Culver City	CA	90239	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee.			
☐ Person to whom the inventor is under an obligation to assign.			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased;
- ☐ Inventor is under legal incapacity;
- ☒ Inventor cannot be found or reached after diligent effort; or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

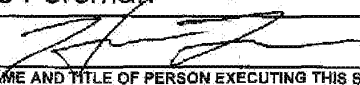
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Hans Forsman** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Marina del Rey** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3221 Carter Ave.
Unit 146

City **Marina del Rey** State **CA** Zip **90292** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Culver City	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	State	Zip	Country
Culver City	CA	90239	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
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☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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SUBSTITUTE STATEMENT

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☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
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If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

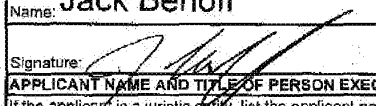
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Jack Benoff**

Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):City **Hermosa Beach** State **CA** Country **USA**Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)
645 3rd St. #4City **Hermosa Beach** State **CA** Zip **90254** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

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LEGAL NAME of inventor to whom this substitute statement applies:			
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Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	Culver City	State	CA Country US
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	Culver City	State	CA Zip 90239 Country US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
- OR
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	State	Zip	Country
Hermosa Beach	CA	90254	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
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☒ Joint Inventor.			

[Page 1 of 2]

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SUBSTITUTE STATEMENT

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☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3814 Highland Ave. #6

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached, after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Doc code: Oath

Document Description: Oath or declaration filed

PTO/IAIR2 (07-13)
Approved for use through 11/30/2020, OMB 0651-0022
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.54)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT International application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	Hermosa Beach	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	Hermosa Beach	State	CA
		Zip	90254
		Country	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-2198 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
☐ Inventor is under legal incapacity.
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

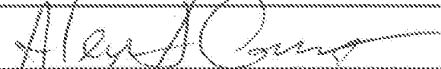
- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
 OR
☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks** State **CA** Zip **91362** Country **USA**

Note: Use an additional PTO/AIA/C2 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 263(a)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 2181(c)).
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Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
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OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
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☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
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If there are joint inventors, please check the appropriate box below:

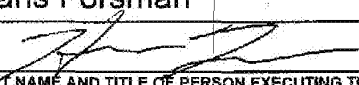
- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Hans Forsman** Date (Optional):Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):City **Marina del Rey** State **CA** Country **USA****Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)**3221 Carter Ave.
Unit 146City **Marina del Rey** State **CA** Zip **90292** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	State	Zip	Country
Hermosa Beach	CA	90254	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only).			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign.			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.53. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-FTO-9100 and select option 2.

Under the Paperwork Reduction Act of 1986, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

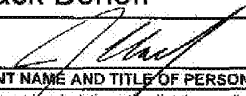
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Jack Benoff**

Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):City **Hermosa Beach** State **CA** Country **USA**Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)
645 3rd St. #4City **Hermosa Beach** State **CA** Zip **90254** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	Hermosa Beach	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	Hermosa Beach	State	CA
		Zip	90254
		Country	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
 OR
☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Corrected Application Data Sheet

Inventor Information

Inventor Number::	1
Name Prefix::	
Given Name::	Matthew
Family Name::	Szymczyk
City of Residence::	Manhattan Beach
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	3184 Highland Avenue, #1 <u>3814 Highland Avenue, #6</u>
City of mailing address::	Manhattan Beach
State or Province of mailing address::	CA
Country of mailing address::	US
Postal or Zip Code of mailing address::	90266
Inventor Number::	2
Name Prefix::	
Given Name::	Alex
Family Name::	Goldberg
City of Residence::	West Hills <u>Thousand Oaks</u>
State or Province of Residence::	CA
Country of Residence::	US

Street of mailing address:: ~~23684 Strathorn Street~~
2875 Venezia Lane
City of mailing address:: ~~West Hills~~ Thousand Oaks
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: ~~91304~~ 91362

Inventor Number:: 3
Name Prefix::
Given Name:: Hans
Family Name:: Forsman
City of Residence:: ~~Venice~~ Marina del Rey
State or Province of Residence:: CA
Country of Residence:: US
Street of mailing address:: ~~681 San Juan Avenue~~
3221 Carter Ave
Unit 146
City of mailing address:: ~~Venice~~ Marina del Rey
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: ~~90266~~ 90292

Inventor Number:: 4

Name Prefix::

Given Name::

Jack

Family Name::

Benoff

City of Residence::

~~Manhattan Beach~~

Hermosa Beach

State or Province of Residence::

CA

Country of Residence::

US

Street of mailing address::

~~422 21st Place~~

645 3rd Street

#4

City of mailing address::

~~Manhattan Beach~~

Hermosa Beach

State or Province of mailing address::

CA

Country of mailing address::

US

Postal or Zip Code of mailing address::

~~90266~~ 90254

Inventor Number::

5

Name Prefix::

Given Name::

Aaron

Middle Name::

Family Name::

von Hungen

City of Residence::

Culver City

State or Province of Residence::

CA

Country of Residence:: US
Street of mailing address:: 11115 Orville Street
City of mailing address:: Culver City
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: 90239

Inventor Number:: 6
Name Prefix::
Given Name:: Blake
Family Name:: Callens
City of Residence:: Toluca Lake
State or Province of Residence:: CA
Country of Residence:: US
Street of mailing address:: 10645 Valley Springs Lane, #10
City of mailing address:: Toluca Lake
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: 91602

Inventor Number:: 7
Name Prefix::
Given Name:: Mark

Family Name:: Weisheit
City of Residence:: Hermosa Beach
State or Province of Residence:: CA
Country of Residence:: US
Street of mailing address:: 1100 Monterey Boulevard, #13
City of mailing address:: Hermosa Beach
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: 90254

Inventor Number:: 8
Name Prefix::
Given Name:: Andrey
Family Name:: Tkachuk
City of Residence:: ~~Simferopol~~ Stryi
Country of Residence:: Ukraine
Street of mailing address:: ~~25, Industrial'Naya Street~~
13101 Washington Blvd
Suite 403
City of mailing address:: ~~Simferopol~~ Los Angeles
Country of mailing address:: ~~UA~~ US
Postal or Zip Code of mailing address:: 90066

Correspondence Information

Customer number:: 77845
E-Mail address:: patentsv@goodwinprocter.com

Application Information

Application Number:: 13/778,430
Filing Date:: 02/27/13
Application Type:: Regular
Subject Matter:: Utility
CD-ROM or CD-R?: None
Sequence submission?: None
Computer Readable Form (CRF)?:: No
Title:: SYSTEMS AND METHODS FOR
REAL TIME MANIPULATION AND
INTERACTION WITH MULTIPLE
DYNAMIC AND SYNCHRONIZED
VIDEO STREAMS IN AN
AUGMENTED OR MULTI-
DIMENSIONAL SPACE
Attorney Docket Number:: ZUG-0004 ZUG-001
Request for Early Publication?: No
Request for Non-Publication?: No
Small Entity?: ~~No~~ Yes
Petition included?: No
Portions or all of the application associated with this No

Application Data Sheet may fall under a Secrecy
Order pursuant to 37 CFR 5.2::

Representative Information

Representative Customer Number:: 77845

Domestic Priority Information

Foreign Priority Information

Applicant Information

Non-Applicant Assignee Information

Assignee Number:: 1
Organization Name:: Zugara, Inc.
Street of mailing address:: 13101 Washington Blvd
Suite 403
City of mailing address:: Los Angeles
State or Province of mailing address:: CA
Country of mailing address:: US
Postal or Zip Code of mailing address:: 90066

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Gozde Guckaya/	Date (YYYY-MM-DD)	2018-12-27
Name	Gozde Guckaya	Registration Number	74,989

Electronic Acknowledgement Receipt	
EFS ID:	34699503
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Gozde Guckaya/Andrea Borden
Filer Authorized By:	Gozde Guckaya
Attorney Docket Number:	ZUG-001
Receipt Date:	27-DEC-2018
Filing Date:	27-FEB-2013
Time Stamp:	14:04:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	ZUG-001_Declaration.pdf	649013 1f0777facb2251c24d3f0f59a159faa0bffe410	no	5
Warnings:					

Information:					
2	Supp reissue dec filed in accord with MPEP 1414.01.	Callens_Substitute_Agreement.pdf	7376037 4efcd858fd25f965653f511b14e7b4c0866bb84e	no	15
Warnings:					
Information:					
3	Supp reissue dec filed in accord with MPEP 1414.01.	von_Hungen_Substitute_Agreement.pdf	7305812 7b83b28e2fd4f7574db2063a0ab68a15d2518840	no	15
Warnings:					
Information:					
4	Supp reissue dec filed in accord with MPEP 1414.01.	Weisheitz_Substitute_Agreement.pdf	7340704 36898e0050cb4c4036f53ffc7248eb31c8ee05b	no	15
Warnings:					
Information:					
5	Application Data Sheet	ZUG-001_Corrected_ADS.pdf	71616 b33fe6dbac9b6ec9ffcb074e216bebea94f5214	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			22743182		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Matthew Szymczyk et al.

Application No.: 13/778,430

Confirmation No.: 9672

Filed: February 27, 2013

Art Unit: 2651

For: SYSTEMS AND METHODS FOR REAL
TIME MANIPULATION AND
INTERACTION WITH MULTIPLE
DYNAMIC AND SYNCHRONIZED
VIDEO STREAMS IN AN AUGMENTED
OR MULTI-DIMENSIONAL SPACE

Examiner: K. O. Blair

Filed Electronically via EFS-Web

**COMMENTS ON STATEMENT OF REASONS
FOR ALLOWANCE UNDER 37 C.F.R. § 1.104(e)**

Applicant has received the Examiner's Statement of Reasons for Allowance with the September 27, 2018 Notice of Allowance and Allowability regarding the above-identified application. Entry of the Statement into the record should not be construed as any agreement with or acquiescence in the reasoning stated by the Examiner. Each of the claims stands on its own merits and is patentable because of the combination it recites and not because of the presence or absence of any one particular element. The Examiner's Statement was not prepared by Applicant and only contains the Examiner's possible positions in one or more reasons for allowability. Thus, any interpretation with respect to the Examiner's Statement of Reasons for Allowance should not be imputed to the Applicant.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 07-1700, under Order No. ZUG-001 from which the undersigned is authorized to draw.

Dated: December 27, 2018

Respectfully submitted,
Electronic signature: /Gozde Guckaya/
Gozde Guckaya
Registration No.: 74,989
GOODWIN PROCTER LLP
100 Northern Avenue
Boston, Massachusetts 02210
(617) 570-1000
Agent for Applicant

Electronic Patent Application Fee Transmittal				
Application Number:		13778430		
Filing Date:		27-Feb-2013		
Title of Invention:		Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space		
First Named Inventor/Applicant Name:		Matthew Szymczyk		
Filer:		Gozde Guckaya/Andrea Borden		
Attorney Docket Number:		ZUG-001		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	34699745
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Gozde Guckaya/Andrea Borden
Filer Authorized By:	Gozde Guckaya
Attorney Docket Number:	ZUG-001
Receipt Date:	27-DEC-2018
Filing Date:	27-FEB-2013
Time Stamp:	14:07:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	122818INTEFSW14080700
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	ZUG-001_Issue_Fee.pdf	1577558	no	1
			fe5baea35462bce29c2e38dccc5d05382c76f816		
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	ZUG-001_Comment_on_State ment_of_Reasons.pdf	78944	no	1
			35875421d933e552b5ef6b27fe28c97022b5946e		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30345	no	2
			671fe43a32491d628b2ce6d12ec310dff3dc519		
Warnings:					
Information:					
Total Files Size (in bytes):			1686847		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

77845 7590 09/27/2018
Goodwin Procter LLP
Attn: Patent Administrator
100 Northen Avenue
Boston, MA 02210

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/27/2013	Matthew Szymczyk	ZUG-001	9672

TITLE OF INVENTION: Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space.

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	12/27/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, KILE O	2651	348-014070

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Goodwin Procter LLP
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☒ Payment by credit card.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 07-1700 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Gozde Guckaya/ Date December 27, 2018
Typed or printed name Gozde Guckaya Registration No. 74,989

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE						
This statement is directed to: ☐ The attached application, OR ☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>							
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname) Blake Callens							
Residence (except for a deceased or legally incapacitated inventor): <table border="1"><tr><td>City Toluca Lake</td><td>State CA</td><td colspan="2">Country US</td></tr></table>				City Toluca Lake	State CA	Country US	
City Toluca Lake	State CA	Country US					
Mailing Address (except for a deceased or legally incapacitated inventor): 10645 Valley Springs Lane, #10 <table border="1"><tr><td>City Toluca Lake</td><td>State CA</td><td>Zip 91602</td><td>Country US</td></tr></table>				City Toluca Lake	State CA	Zip 91602	Country US
City Toluca Lake	State CA	Zip 91602	Country US				
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application. The above-identified application was made or authorized to be made by me. I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.							
Relationship to the inventor to whom this substitute statement applies: ☐ Legal Representative (for deceased or legally incapacitated inventor only), ☐ Assignee, ☐ Person to whom the inventor is under an obligation to assign, ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or ☒ Joint Inventor.							

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)**3814 Highland Ave. #6**

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc code: Oath
Document Description: Oath or declaration filed

PTO/AIA/02 (07-12)
Approved for use through 11/28/2020. OAS (05/1/2020)
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Espersen-Peterson Act of 1935, no persons are required to respond to a collection of information unless it displays a valid OAS control number

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(h) AND 37 CFR 1.54)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application, OR			
☒ United States application or PCT international application number 13/778,430 filed on 02/27/2013			
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Blake Callens			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Toluca Lake	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
10645 Valley Springs Lane, #10			
City	State	Zip	Country
Toluca Lake	CA	91602	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only), ☐ Assignee, ☐ Person to whom the inventor is under an obligation to assign, ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.45 is required), or ☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.53. The information is required to obtain or retain a benefit by the public which is to the (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.41 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1480.

If you need assistance in completing the form, call 1-800-PTO-0779 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
☐ Inventor is under legal incapacity.
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
 OR
☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.54(b).

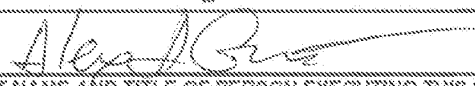
WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg**

Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks**State **CA**Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks**State **CA**Zip **91362**Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

(Page 2 of 2)

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2804 and 2808. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Blake Callens			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Toluca Lake	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
10645 Valley Springs Lane, #10			
City	State	Zip	Country
Toluca Lake	CA	91602	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-FTO-9198 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Hans Forsman** Date (Optional):

Signature:

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Marina del Rey** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3221 Carter Ave.
Unit 146

City **Marina del Rey** State **CA** Zip **90292** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE										
This statement is directed to: ☐ The attached application, OR ☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>											
LEGAL NAME of inventor to whom this substitute statement applies: (E.g., Given Name (first and middle (if any)) and Family Name or Surname) Blake Callens											
Residence (except for a deceased or legally incapacitated inventor): <table border="1"><tr><td>City</td><td>Toluca Lake</td><td>State</td><td>CA</td><td>Country</td><td>US</td></tr></table>				City	Toluca Lake	State	CA	Country	US		
City	Toluca Lake	State	CA	Country	US						
Mailing Address (except for a deceased or legally incapacitated inventor): 10645 Valley Springs Lane, #10 <table border="1"><tr><td>City</td><td>Toluca Lake</td><td>State</td><td>CA</td><td>Zip</td><td>91602</td><td>Country</td><td>US</td></tr></table>				City	Toluca Lake	State	CA	Zip	91602	Country	US
City	Toluca Lake	State	CA	Zip	91602	Country	US				
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application. The above-identified application was made or authorized to be made by me. I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.											
Relationship to the inventor to whom this substitute statement applies: ☐ Legal Representative (for deceased or legally incapacitated inventor only), ☐ Assignee, ☐ Person to whom the inventor is under an obligation to assign, ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or ☒ Joint Inventor.											

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SUBSTITUTE STATEMENT

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Jack Benoff** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Hermosa Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

645 3rd St. #4

City **Hermosa Beach** State **CA** Zip **90254** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

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This statement is directed to:			
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OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Blake Callens			
Residence (except for a deceased or legally incapacitated inventor):			
City	Toluca Lake	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
10645 Valley Springs Lane, #10			
City	Toluca Lake	State	CA
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I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
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☒ Joint Inventor.			

[Page 1 of 2]

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):
 Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
 Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Culver City	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	State	Zip	Country
Culver City	CA	90239	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint inventor.			

[Page 1 of 2]

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3814 Highland Ave. #6

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
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OR			
☒ United States application or PCT International application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
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I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

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- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg** Date (Optional):Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks** State **CA** Zip **91362** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention:	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
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Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
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Mailing Address (except for a deceased or legally incapacitated inventor):			
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I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
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☐ Assignee.			
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☒ Joint Inventor.			

[Page 1 of 2]

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If there are joint inventors, please check the appropriate box below:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Hans Forsman** Date (Optional):

Signature:

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Marina del Rey** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3221 Carter Ave.
Unit 146

City **Marina del Rey** State **CA** Zip **90292** Country **USA**

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[Page 2 of 2]

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Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
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☒ Joint Inventor.			

[Page 1 of 2]

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comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S.
Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO
THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing this form, call 1-800-PTO-9198 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

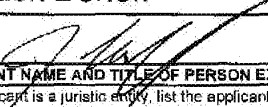
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Jack Benoff**

Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):City **Hermosa Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

645 3rd St. #4

City **Hermosa Beach** State **CA** Zip **90254** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Aaron von Hungen			
Residence (except for a deceased or legally incapacitated inventor):			
City	Culver City	State	CA Country US
Mailing Address (except for a deceased or legally incapacitated inventor):			
11115 Orville Street			
City	Culver City	State	CA Zip 90239 Country US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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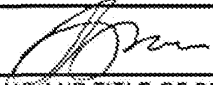
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	State	Zip	Country
Hermosa Beach	CA	90254	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
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☒ Joint Inventor.			

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- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Matthew Szymczyk** Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Manhattan Beach** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3814 Highland Ave. #6

City **Manhattan Beach** State **CA** Zip **90266** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached, after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

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Doc code: Oath

Document Description: Oath or declaration filed

Approved for use through 11/30/2020, OMB 0651-0022
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	Hermosa Beach	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	Hermosa Beach	State	CA
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I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
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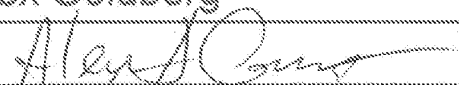
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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Alex Goldberg** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Thousand Oaks** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2875 Venezia Lane

City **Thousand Oaks** State **CA** Zip **91362** Country **USA**

Note: Use an additional PTO/AIA/C2 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 263(a)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 2181(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2604 and 2605. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 C.F.R. 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referred to by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency if the USPTO becomes aware of a violation or potential violation of law or regulation.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	State	Zip	Country
Hermosa Beach	CA	90254	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only).			
☐ Assignee.			
☐ Person to whom the inventor is under an obligation to assign.			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9190 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

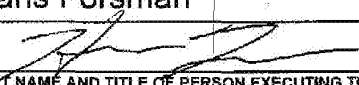
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Hans Forsman**

Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Marina del Rey** State **CA** Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

3221 Carter Ave.
Unit 146

City **Marina del Rey** State **CA** Zip **90292** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	State	Country	
Hermosa Beach	CA	US	
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	State	Zip	Country
Hermosa Beach	CA	90254	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only).			
☐ Assignee.			
☐ Person to whom the inventor is under an obligation to assign.			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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If you need assistance in completing the form, call 1-800-FTO-9100 and select option 2.

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

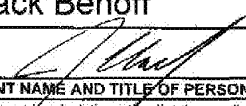
- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:Name: **Jack Benoff**

Date (Optional):

Signature: **APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer.

Applicant Name:

Title of Person Executing
This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):City **Hermosa Beach** State **CA** Country **USA**Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)
645 3rd St. #4City **Hermosa Beach** State **CA** Zip **90254** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

[Page 2 of 2]

Privacy Act Statement

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	SYSTEMS AND METHODS FOR REAL TIME MANIPULATION AND INTERACTION WITH MULTIPLE DYNAMIC AND SYNCHRONIZED VIDEO STREAMS IN AN AUGMENTED OR MULTI-DIMENSIONAL SPACE		
This statement is directed to:			
☐ The attached application,			
OR			
☒ United States application or PCT international application number <u>13/778,430</u> filed on <u>02/27/2013</u>			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Mark Weisheit			
Residence (except for a deceased or legally incapacitated inventor):			
City	Hermosa Beach	State	CA
		Country	US
Mailing Address (except for a deceased or legally incapacitated inventor):			
1100 Monterey Boulevard, #13			
City	Hermosa Beach	State	CA
		Zip	90254
		Country	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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☐ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☒ Joint Inventor.			

[Page 1 of 2]

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
☐ Inventor is under legal incapacity,
☒ Inventor cannot be found or reached after diligent effort, or
☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

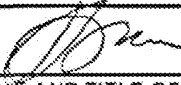
- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
 OR
☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Andrey Tkachuk** Date (Optional):

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name:

Title of Person Executing

This Substitute Statement:

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Stryi** State **Lviv Region** Country **Ukraine**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

13101 Washington Blvd.
Suite #403

City **Los Angeles** State **CA** Zip **90066** Country **USA**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Privacy Act Statement

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Electronic Acknowledgement Receipt	
EFS ID:	34706325
Application Number:	13778430
International Application Number:	
Confirmation Number:	9672
Title of Invention:	Systems and methods for real time manipulation and interaction with multiple dynamic and synchronized video streams in an augmented or multi-dimensional space
First Named Inventor/Applicant Name:	Matthew Szymczyk
Customer Number:	77845
Filer:	Gozde Guckaya
Filer Authorized By:	
Attorney Docket Number:	ZUG-001
Receipt Date:	27-DEC-2018
Filing Date:	27-FEB-2013
Time Stamp:	16:20:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	Callens_Substitute_Agreement.pdf	7376037 4efcd858fd25f965653f511b14e7b4c0866b b84e	no	15
Warnings:					

Information:					
2	Oath or Declaration filed	von_Hungen_Substitute_Agreement.pdf	7305812 7b83b28e2fd4f7574db2063a0ab68a15d2518840	no	15
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3	Oath or Declaration filed	Weisheitz_Substitute_Agreement.pdf	7340704 36898e0050cb4c4036f53ffc7248eb631c8ee05b	no	15
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Total Files Size (in bytes):			22022553		
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/778,430	02/05/2019	10200654	ZUG-001	9672

77845 7590 01/16/2019
Goodwin Procter LLP
Attn: Patent Administrator
100 Northern Avenue
Boston, MA 02210

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 150 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

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IR103 (Rev. 10/09)