Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Troy Plota	Nonprovisional Application Number (if known):	
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☐ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /W. Brad Barger/	Date 2018-08-13
Name (Print/Typed) W. Brad Barger	Practitioner Registration Number 69566

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

☐ *Total of _____ forms are submitted.

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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:

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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.

VIA eFILE

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of		)
		)
	Troy Plota, *et al.*	)
		)
Serial No.:	Unassigned	) Art Unit
		) unassigned
Filed:	Herewith	)
		)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
		)
Confirmation No.:	unassigned	)
		)
Customer No.:	22913	)
		)
Examiner:	unassigned	)

TRANSMITTAL FOR APPLICATION

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

Sir:

Transmitted herewith for entry with the above-identified Non-Provisional Application are the following:

X Application (38 pages)

X Application Data Sheet (9 pages)

X Drawing Sheets (9 pages)

X Request for Prioritized Examination (2 pages)

The fees have been calculated as follows:

X Payment in the amount of $2,865.00 using the Credit Card payment option in E-Filer with RAM will be used to cover the payment of the Filing fees with respect to this Application.

X The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 23-3178.

- X Any additional filing fees required under 37 CFR § 1.16.
- X Any patent application processing fees under 37 CFR § 1.17.
- X Any post-issuance fees under 37 CFR 1.20.

X If any additional extension of time is required, which has not otherwise been requested, please consider this a petition under 37 CFR 1.136 (a) to extend the reply period for this communication and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 13th day of August, 2018.

Respectfully submitted,

/W. Brad Barger, Reg. No. 69,566/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
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WBB:lg
6222100_1.DOC

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Automated Pixel Shifting Within a Digital Image
First Named Inventor/Applicant Name:	Troy Plota
Filer:	William Brad Barger/Lindsey Gifford
Attorney Docket Number:	20970.1.1.1.2

Filed as Small Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2000	2000
Pages:				
Claims:				
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70

Petition:	
Patent-Appeals-and-Interference:	
Post-Allowance-and-Post-Issuance:	
Extension-of-Time:	
Miscellaneous:	
Total in USD ($)	**2855**

Electronic Acknowledgement Receipt

EFS ID:	33437798
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	Automated Pixel Shifting Within a Digital Image
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	William Brad Barger/Lindsey Gifford
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	13-AUG-2018
Filing Date:	
Time Stamp:	15:43:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2855
RAM confirmation Number	081418INTEFSW15440600
Deposit Account	233178
Authorized User	Willilam Barger

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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		20970-1-1-1-2_2018-08-10_Application.pdf	212330 bde26c2e4958c53e20e080daa512fbf30797f498	yes	38

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Abstract	38	38
	Claims	29	37
	Specification	1	28

Warnings:

Information:

2	Drawings-only black and white line drawings	20970-1-1-1-2_2018-08-10_Figures.pdf	1473110 c07b61e0f465eed4aa7855b4a0423b48ffcd7709	no	9

Warnings:

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

Information:

3	Application Data Sheet	20970-1-1-1-2_2018-08-13_ADS.pdf	1813866 04a0099aa0a1cbc8de25615e70f8894c16a938f3	no	9

Warnings:

Information:

4	TrackOne Request	20970-1-1-1-2_2018-08-13_Request-for-Prioritized-Examination.pdf	115688 b728483b2c22f9dfbb1610389637f723eb815689	no	2

Warnings:

Information:

5	Transmittal Letter	20970-1-1-1-2_2018-08-13_Transmittal-for-Application.pdf	90466 8add58744c566948a32a4833955a5d8f62efa2a7	no	2
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	40317 f4489c3a1a2dfdcedbc24a0cccaa6050e529b96e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3745777		

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.

ABSTRACT

Automating the shifting of pixels within a digital image comprises a processor receiving an indication of a starting point through a user interface. The starting point is received through a user selection of a particular portion of the digital image. Additionally, the processor receives, through the user interface, a direction associated with the starting point. The processor also selects a set of pixels extending in the direction away from the starting point. Further, the processor shifts the set of pixels in the first direction. Shifting the set of pixels comprises rendering and re-rendering in a loop the set of pixels being shifted.

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CLAIMS

What is claimed is:

1. A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:

access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface;

create a first link between the first starting point and the first ending point, wherein the first link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identify a first set of pixels that lie between the first starting point

and the first ending point; and

shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

2. The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

3. The computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

4. The computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

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5. The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to:

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image;

receive a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface;

create a second link between the second starting point and the second ending point, wherein the second link comprises:

a second direction extending from the second starting point to the second ending point; and

a second length between the second starting point and the second ending point;

identify a second set of pixels that lie between the second starting point and the second ending point; and

shift the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

6. The computer system of claim 5, wherein the first direction is different from the second direction.

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7. The computer system of claim 5, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.

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8. A method for automating the shifting of pixels within a digital image, comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a portion of the digital image;

receiving, through the user interface, a first direction associated with the first starting point;

selecting a first set of pixels extending in the first direction away from the first starting point; and

shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted.

9. The method as recited in claim 8, further comprising receiving an indication of an ending point through a user interface, wherein the ending point is received through a user selection of a different portion of the digital image.

10. The method as recited in claim 9, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point.

11. The method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.

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12. The method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated.

13. The method of claim 12, further comprising:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

14. The method as recited in claim 8, further comprising:

receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image;

receiving, through the user interface, a second direction associated with the second starting point;

selecting a second set of pixels extending in the second direction away from the second starting point; and

shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

15. The method as recited in claim 14, wherein the first direction is different from the second direction.

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16. A method for automating the shifting of pixels within a digital image, comprising:

accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface;

creating a first link between the first starting point and the first ending point, wherein the first link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identifying a first set of pixels that lie between the first starting point and the first ending point; and

shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

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17. The method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

18. The method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

19. The method of claim 17, further comprising:

generating the mask, wherein generating the mask comprises:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

20. The method of claim 16, further comprising:

receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image;

receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface;

creating a second link between the second starting point and the second ending point, wherein the second link comprises:

a second direction extending from the second starting point to the

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second ending point; and

a second length between the second starting point and the second ending point;

identifying a second set of pixels that lie between the second starting point and the second ending point; and

shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

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UNITED STATES PATENT APPLICATION

of

Troy Plota

and

Sascha Connelly

for

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Automated Pixel Shifting Within a Digital Image

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims is a continuation of U.S. Patent Application Ser No. 15/660,677 entitled "AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE," filed on July 26, 2017 which claims priority to and the benefit of U.S. Provisional Application 62/514,703 entitled "Automated Pixel Shifting Within A Digital Image", filed on June 2, 2017, and U.S. Provisional Application Ser. No. 62/368,017 entitled "Automated Pixel Shifting Within A Digital Image", filed on July 28, 2016. The entire contents of each of the aforementioned applications and/or patents are incorporated by reference herein in their entirety.

BACKGROUND

[0002] Computers and computing systems have affected nearly every aspect of modern living. Computers are generally involved in work, recreation, healthcare, transportation, entertainment, household management, etc.

[0003] Computers, and in particular the fairly recent boom of digital photography, have changed the entire photography industry. For example, instead of taking pictures and then waiting for film to develop before viewing the images, with modern digital cameras, high quality photographs can be captured and immediately viewed. The increase in digital photography has been accompanied with a related increase in digital image software tools.

[0004] Digital image software tools include compression algorithms that dramatically reduce the size of digital images with little or no loss of image quality. Additionally,

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digital image software tools also include tools to edit or otherwise manipulate digital images. For example, many digital image editing tools and digital image sharing tools include filters that can be applied to images to generate desired effects and appearances within an image.

[0005] While in some cases the use of digital image tools can appear seamless and quick to an end-user, many of these tools utilize extremely complex computer-based technological solutions. For example, properly applying a filter to an image can involve complex mathematical equations necessary to consistently adjust the color of individual pixels within a digital image.

[0006] Adjusting relatively simple aspects of a digital image, such as color, provides many users with highly desirable tools for editing their digital images. Additional, tools are desirable for improving digital images, such as the ability to incorporate movement within a digital image.

[0007] The subject matter claimed herein is not limited to embodiments that solve any disadvantages or that operate only in environments such as those described above. Rather, this background is only provided to illustrate one exemplary technology area where some embodiments described herein may be practiced.

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BRIEF SUMMARY

[0008] Embodiments disclosed herein comprise a computer system for automating the shifting of pixels within a digital image. The system comprises one or more processors and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform various steps. For example, the system accesses, from memory, a digital image file. The digital image file comprises information that corresponds to individual pixels within the digital image. The system also identifies a particular portion of the digital image to mask. The mask prevents pixels covered by the mask from being shifted. The system also receives a first starting point through a user interface. The first starting point is received through a user selection of a first beginning portion of the digital image. Additionally, the system receives a first ending point through the user interface. The first starting point is received through a user selection of a first ending portion of the user interface.

[0009] The system then creates a first link between the first starting point and the first ending point. The first link comprises a first direction extending from the first starting point to the first ending point. The first link also comprises a first length between the first starting point and the first ending point. In addition, the system identifies a first set of pixels that lie between the first starting point and the first ending point. The system shifts the first set of pixels in the first direction. Shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

[0010] Disclosed embodiments include automating the shifting of pixels within a digital image by using a processor to receive an indication of a starting point through a user interface. The starting point is received through a user selection of a particular

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portion of the digital image. Additionally, the processor receives, through the user interface, a direction associated with the starting point. The processor also selects a set of pixels extending in the direction away from the starting point. Further, the processor shifts the set of pixels in the first direction. Shifting the set of pixels comprises rendering and re-rendering in a loop the set of pixels being shifted.

[0011] Additional disclosed embodiments comprise a method for automating the shifting of pixels within a digital image. The method comprises receiving a first indication of a first starting point through a user interface. The first starting point is received through a user selection of a portion of the digital image. The method also comprises receiving, through the user interface, a first direction associated with the first starting point. Additionally, the method comprises selecting a first set of pixels extending in the first direction away from the first starting point. The method also comprises shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

[0012] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0013] Additional features and advantages will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by the practice of the teachings herein. Features and advantages of the invention may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. Features of the present invention will become more fully apparent from

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the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0014] In order to describe the manner in which the above-recited and other advantages and features can be obtained, a more particular description of the subject matter briefly described above will be rendered by reference to specific embodiments which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments and are not therefore to be considered to be limiting in scope, embodiments will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0015] Figure 1 illustrates a schematic of an embodiment of a computer system for automating the shifting of pixels within a digital image.

[0016] Figure 2 illustrates a schematic of an embodiment of a software architecture for automating the shifting of pixels within a digital image.

[0017] Figures 3A-3C illustrate embodiments of a photo that has received beginning and ending points.

[0018] Figure 4 illustrates an embodiment of a photo that has formed a mesh from received beginning and ending points.

[0019] Figures 5A-5D illustrates embodiments of individual pixels being shifted.

[0020] Figure 6A illustrates an embodiment of a mask.

[0021] Figure 6B illustrates another embodiment of a mask

[0022] Figure 7 illustrates a flow chart of an embodiment of a method for automating the shifting of pixels within a digital image.

[0023] Figure 8 illustrates a flow chart of another embodiment of a method for automating the shifting of pixels within a digital image.

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DETAILED DESCRIPTION

[0024] Embodiments disclosed herein comprise systems, methods, and computer-readable media that automate the shifting of pixels within a digital image. Disclosed embodiments provide interfaces and tools for automating the shifting of pixels within a digital image. For example, disclosed embodiments automate the shifting of pixels within a digital photograph of water such that the water appears to be flowing.

[0025] In at least one embodiment, a user, through simple interface actions, selects portions of a digital image to automate the shifting of pixels. The user controls the speed of the pixel shifting, the magnitude of the pixel shifting, the direction of pixel shifting, and various other attributes of the pixel movement. Additionally, the user applies masks to the digital image to prevent pixels within specific portions of the digital image from moving. As such, disclosed embodiments provide technical solutions for automating the manipulation of pixels within a digital image.

[0026] For example, Figure 1 illustrates a schematic of an embodiment of a computer system 100 for automating the shifting of pixels within a digital image. The depicted computer system 100 comprises a variety of different components, including one or more client applications 120, load balancers 110, application servers 130(a-c), databases 140, and workers 150(a-b). In the depicted embodiment, the computer system 100 comprises a network-based or cloud-based system that allows a user to manipulate a digital photograph over a network connection. One will understand, however, that alternate or additional embodiments may be otherwise configured such that the system is otherwise distributed or localized. For instance, in at least one embodiment, the system 100 is executed by a single local computer.

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[0027] In at least one embodiment, a client application 120 is executed within a web browser at a user's computer. The client application 120 comprises a user interface for uploading, or otherwise selecting, a digital image and issuing commands to cause one or more pixels within the digital image to shift. At least a portion of the processing and actual manipulation of the digital image occurs on an application server 130(a-c) within the cloud. A load balancer 110 balances the processing load of one or more users between multiple application servers 130(a-c). For example, the load balancer 110 may ensure that each application server 130(a-c) is, on average, under the same processing load.

[0028] The application servers 130(a-c) and the client application 120 are in communication with one or more web storage services 160, such as AMAZON™ S3 storage. Additionally, the application servers 130(a-c) may be in communication with various backend databases 140. The various storage services 160 and databases 140 may store the digital images and software components used within the computer system 100.

[0029] Figure 2 illustrates a schematic of an embodiment of a software architecture 200 for automating the shifting of pixels within a digital image. In particular, Figure 2 depicts various screen interfaces 210, actions 220, and dialog/context dependent controls 230 that are present within the software architecture 200. In at least one embodiment, a user is presented with a Home/List Projects screen interface. 210a The Home/List Projects 210a provide the user with a selection of previously saved projects and/or the option to select a digital image and initiate a new project.

[0030] Once a user selects a project of choice, the software architecture 200 accesses, from memory, a digital image file of interest. As used herein, a digital image file comprises information that corresponds to individual pixels within a digital image. A view/edit project screen interface 210b provides the user with various editing options,

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both manual and automated. For example, the editing screen provides the user with actions for uploading a base image 220a, selecting a transformation mask 210c, generating points 210d, adjusting animation duration and FPS rate 220b, selecting a mask type 220c, generating a static preview 220d, and editing a point selection 230a.

[0031] In at least one embodiment, a user is presented with options to select between various different types of transformation mask operations. For example, the user can choose a select area option 220e that allows a user to draw boundaries around an area. A mask is then automatically generated within that area. Additionally, a user may select an automated mask by edge-detection option 220f that scans a digital image and automatically identifies distinct areas within the image based upon edge detection. A user may also select a manual mask painting option 220g that allows a user to manually draw a mask on the digital image.

[0032] A mask defines a static portion of the image with respect to shifting. In at least one embodiment, the mask is created by using a combination of two tools - automatic and manual. The automatic tool lets the user define masked and shifted areas by drawing lines in them. Any changes along those lines trigger an automatic edge detection using a watershed transformation on the image gradient. This generates a binary mask image that the user can later modify via a simple brush tool. The final mask image is then once again passed through edge detection so it can be saved in vector format.

[0033] In at least one embodiment, a mask is later applied in one of two ways. In the first application method, the mask is fixed and is applied by adding static (unmovable) points on all mask edges. In the second application method, the mask is an overlay that cuts-and-pastes the masked portions of the image on top of the animation.

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[0034] For example, Figure 3A depicts a user utilizing the automated mask by edge-detection option 220f. In particular, the user has drawn two lines 300a, 300b across the house and mountain behind the house. The software architecture 200 interprets the lines as indicating the area that the user wishes to mask. In at least one embodiment, a user may only select a single pixel within the area that should be masked. Various different embodiments may accept a variety of different input interfaces. For example, a user may draw the lines using a computer mouse, a touch interface, a stylus interface, a keyboard interface, or any number of other user interfaces.

[0035] Upon receiving the selection, the software architecture 200 performs an edge detection method to identify edges that form boundaries around the selected area. After identifying a boundary, the software architecture 200 generates a mask to cover the area within the boundary. For instance, Figure 3B illustrates a mask 310 covering the house and the mountain behind the house, but excluding the sky and the grass in front of the house. As such, a user is provided with tools for identifying a particular portion of the digital image to mask. The mask prevents pixels covered by the mask from being shifted.

[0036] In at least one embodiment, methods other than generating a mask are used to prevent portions of a digital image from moving. For example, in at least one embodiment, a user selects the manual mask painting option 220g and manually places stabilizer points around a portion of the digital image that should not move. The stabilizer points indicate to the architecture software that pixels associated with the stationary points should be not be shifted or otherwise moved. In at least one embodiment, the stabilizer points are useable for creating a fence around an area that should not be shifted. For example, placing the stabilizer points causes the architecture software to stop shifting pixels at a boundary that is made up of the stabilizer points.

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[0037] The software architecture 200 also provides a user with a point generation display 210 that comprises options 220h, 220i for generating points. For example, the user may be provided with an automatic feature point detection option 220h that generates points through automatic feature point detection or a manual feature point addition/removal option 220i. When generating points through automatic feature point detection the software architecture 200 identifies areas outside the mask that are associated with directional texture, directional patterns, that otherwise comprise a visually detectable pattern of motion. For example, Figure 3C depicts the picture of the house and landscape with points drawn throughout the foreground grass 320a and points drawn throughout the clouds in the sky 320b.

[0038] In at least one embodiment, the software architecture 200 places the points within the grass based upon identified lines and edges within the grass that extend outward from the ground or from the user generated mask 310. Based upon the lines and textures associated with the grass extending upwards and away from the ground, the software architecture 200 determines that the grass is associated with movement away from the ground. As such, the software architecture 200 automatically places points through the grass.

[0039] In at least one embodiment, a user can alternatively or additionally manually add or remove points. For example, a user can manually add all of the points depicted in Figure 3C or a user can direct the software architecture 200 to automatically add a portion of the points and then the user can add additional points.

[0040] In at least one embodiment, points are added to a digital image in two different stages. During the first stage, the software architecture 200 receives a first starting point through a user interface. A starting point is received through a user selection of a

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beginning portion of the digital image. The beginning portion of the digital image comprises a starting pixel, or area, from which the user wishes pixels to shift. For example, in Figure 3C, various beginning points (also referred to herein as "starting points") comprise the points nearest to the base of the grass and represented by crosses. In at least one embodiment, a beginning point comprise a particular pixel that is selected by a user or automatically selected by the software architecture 200.

[0041] During the second stage of the point generation, the software architecture 200 receives an ending point through the user interface. The ending point is received through a user selection of an ending portion of the user interface. The ending portion of the digital image comprises an ending pixel, or area, to which the user wishes pixels to shift. For example, in Figure 3C various ending points are selected on the outer periphery of the grass and are represented by arrows. In at least one embodiment, each starting point is paired with a specific ending point and vice versa. Additionally, the software architecture creates a link between the starting point and first ending point. In at least one embodiment, a link is a vector extending from the starting point to the ending point. A link comprises a direction extending from the first starting point to the first ending point and a length between the first starting point and the first ending point.

[0042] A user is capable of choosing the direction of a link and length of a link at will. For example, upon placing a starting point, the user can place an associated ending point at any other location within the user interface – even outside the edges of the digital image. As such, in at least one embodiment, a single digital image can be associated with a multitude of different starting points, ending points, and associated links going in different directions and comprising different lengths. In the case the points are generated

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automatically by the software architecture 200, a user is free to move and adjust the points in any way that is desirable.

[0043] In at least one embodiment, the software architecture 200 generates a starting mesh from the collective starting points. Similarly, the software architecture 200 generates an ending mesh from the collective ending points. For example, Figure 4 depicts a starting mesh and ending mesh overlaid on the digital image of the house and landscape. In at least one embodiment, the software architecture provides the user with the option of viewing one or both of the meshes. Visualizing the meshes may assist a user in viewing the inputs that cause the pixels to shift.

[0044] Once a user has established one or more starting and ending point pairs, the software architecture identifies sets of pixels that lie between the respective starting points and the respective ending points. In at least one embodiment, a first set of pixels may comprise a group of pixels that intersect with a link between a starting point and an ending point and that are not covered by a mask. The size of the group of pixels may be user selectable or automatically determined. For example, a user may increase the threshold distances that the set of pixels extend beyond the link. As such at one extreme, the set of pixels may comprise a line of individual pixels extending from the starting point to the ending point, or at another extreme the set of pixels may comprise a relatively wide swatch of pixels that are parallel to the link that extends between the starting point and the ending point.

[0045] After identifying the appropriate set of pixels associated with each starting point and ending point pair, the software architecture 200 shifts the respective sets of pixels in the direction determined by their relative links. In at least one embodiment, shifting the sets of pixels comprises rendering and re-rendering in a loop the sets of pixels

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being shifted. Additionally, as described above, different sets of pixels may be associated with different directions. As such, sets of pixels may travel in different directions within the digital image.

[0046] In at least one embodiment once pixels begin to shift, the user may notice that a particular portion of the digital image that the user desired to not move is in fact being shifted. To correct this error, the user can edit the mask such that it covers the portion of interest. Additionally, in at least one embodiment, to correct the error, the user executes a feather tool that blurs the portion of interest such that the shifting pixels are no longer noticeable. In a further embodiment, the user places stabilizer points along the portion of interest. The stabilizer points may be placed with a simple click along the particular portion of the digital image. The stabilizer points cause pixels within the particular portion of the digital image to not be shifted.

[0047] By way of example, Figures 5A-5D depict embodiments of individual pixels being shifted. In particular, Figure 5A depicts a starting point 550, an ending point 530, and an associated link 540. Additionally, Figures 5A depicts exemplary pixels 500, 510, and 520. One will understand that the pixels 500, 510, 520 are provided only for the sake of clarity and explanation and that in various embodiments the pixels may comprise a variety of different colors.

[0048] Figure 5A depicts the pixels 500, 510, 520 in their original state within the digital image. Once the software architecture 200 begins shifting the set of pixels in the direction of the link (extending from the starting point to the ending point), the pixels 500, 510, 520 are moved. For example, Figure 5B depicts the pixels 500, 510, 520 after the initial movement. As compared to Figure 5A the set of pixels are shifted left, along the direction of the link, one space.

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[0049] In various embodiments, a user is provided with an animation duration and FPS rate option 220b for determining the step size within the shift and/or the speed at which the shift occurs. For example, while the embodiment depicted in Figures 5A-5D have a step size of a single pixel space, in various embodiments, the pixels may shift multiple pixels at a time. Additionally, in at least one embodiment the step size is time constrained. For example, a user may indicate that each respective loop in the pixel shifting only take 2 seconds. In such a case, the step size may be determined by the length of the link and the frame rate of the shifting. In other words, one set of pixels may need to travel a link length of 20 pixels within the 2 seconds, while another set of pixels may only need to travel a link length of 6 pixels within two seconds. As such, based upon the frame rate at which the steps occur, the two sets of pixels would operate at different step sizes. In at least one embodiment, a user can set a particular desired framerate to be associated with a digital image. Additionally, in at least one embodiment, the magnitude of the shifting of a set of pixels is proportionally related to the length of an associated link.

[0050] In contrast, in at least one embodiment the step size of each set of pixels is consistent such that sets of pixels along longer links take more time to complete a loop than sets of pixels along shorter links. Accordingly, a user can create a particularly long link to indicate a long, or more extended, motion within a digital image. In contrast, the user can create a particular short link to indicate a short, or faster, motion within the digital image.

[0051] Figure 5C depicts pixels 500, 510, 520 another step along the shift. In Figure 5D the pixels 500, 510, 520 are shown at yet another step along the shift, but in this step the pixels 500, 510, 520 are beginning to loop around. For example, pixel 500a is at the

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left of the shift, while corresponding pixel 500b is reappearing at the right of the shift to begin the shifting loop. In various additional or alternative embodiments, the set of pixels only begins to loop as pixels 500, 510, 520 leave the screen. For example, once pixel 500a reaches the end of the link (i.e., ending point 530), pixel 500a disappears on the next step. Upon disappearing, pixel 500b then reappears at the beginning of the link (i.e., starting point 550) to start the loop. Additionally, in at least one additional or alternative embodiment, the pixels 500, 510, 520 fade in and out at the beginning and ending of each loop. For example, upon reaching the end of the link, pixel 500a fades out of the image by slowing growing transparent, such that the disappearance of pixel 500a is not abrupt or jarring. Similarly, pixel 500b can fade in such that its appearance is not abrupt of jarring.

[0052] In various alternative or additional embodiments, different methods of pixel shifting and blending can be used to similar effect. For example, in at least one embodiment, the pixels immediately begin cycling as soon as the shifting begins. For example, instead of what is shown in Figures 5A-5D, as soon as pixel 500 shifted to its new position depicted in Figure 5B, pixel 500B would appear in the position depicted in Figure 5D. As such, the pixels begin looping and blending into each other immediately.

[0053] In at least one embodiment, the software architecture 200 uses alpha blending when shifting the pixels from the starting point to the ending point. For example, the software application 200 may utilize a sin, cosine, or linear alpha blend to shift the set of pixels. Additionally, in at least one embodiment, the software architecture uses a warping function, such as a Shepard's distortion. When using a mesh algorithm, the software architecture 200 triangulates the mesh using defined points and then calculates an affine transformation for every triangle. Further, the software architecture 200 supports

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animation blending in order to achieve the seaming effect of a continuous motion. This is achieved by blending animated frames two by two using one of a few predefined blend functions.

[0054] Similarly, a user is provided with a mask type option 220c to select between different types of masks. Each different mask type may use different mask configurations. In at least one embodiment, mask types also vary by the color that is used to depict the mask within the image.

[0055] For example, Figures 6A and 6B illustrate an embodiment of a mask 600. In the depicted embodiment, a strip of points 610 on the edge of the mask ("edge strip") is used to generate the flow of points simulating an animation. The dimensions and shape of the edge strip depend on properties of the mask and the user selected flow. In at least one embodiment, the width of the edge strip 610 is determined as a linear function of the dimensions of the target image. Further, the shape of the edge strip 610 may be a result of sliding the shape of the mask 600 in the direction of the vector flow. As such, a user is able to customize the mask.

[0056] When in use, the mask 600 assists in generating pixel flow. For example, as depicted in Figure 6B the points 632, 642, 652 on the edge strip 610 are being stretched in order to generate a flow of points in the desired direction. For example, the points 632, 642, 652 are shown as being stretched to strips 630, 640, 650 that are stretched from the edge 610 of the mask 600. The stretching motion is performed continuously such that the points 632, 642, 652 are continuously reset and stretched such that the pixel shifting is continuous and results in the impression of motion.

[0057] In various additional or alternative embodiments, a user has the ability to further manipulate a digital image. For example, instead of the straight links depicted in

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Figures 5A-5D, the user can view an edit point selection dialog 230a as depicted in Figure 2. The edit point selection provides a user with the options of changing a movement direction and path 220j or selecting a predefined movement 220k. For example, instead of straight links extending between a starting point and ending point, the user can create a custom path between any two starting and ending points. In such a case, the associated set of pixels would travel along the path of the link. Similarly, the user may select a predefined path (i.e., movement) that is defined within the software architecture 200. For example, the predefined paths may include a curved path. Using the curved path option, the user can cause a set of pixels to travel along a curved path (i.e., link) between a starting and ending point.

[0058] Once a user is satisfied with their work on an image, a preview output screen 210e allows a user to view the image while the pixels are being shifted. Such a view may give the impression that at least a portion of the static image is animated. In contrast, a user is also given a static preview option 220d that allows the user to view the un-animated image. If the user is satisfied with the final product, the user is provided with a format selection and export action 220. This action generates a variety of different formats that are configured for viewing. For example, an animated GIF may be produced.

[0059] Additionally, in at least one embodiment, a user is able to save all of the masking work, point generation work, and animation duration and FPS rate work separate from the underlying image. For example, the user may perform the above discussed steps on a particular photo. The user may then decide to manipulate the photo within a photo editor application. In such a case, instead of having to restart the animation process with the modified photo, the user applies the previously saved animation work to the modified photo.

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[0060] The following discussion now refers to a number of methods and method acts that may be performed. Although the method acts may be discussed in a certain order or illustrated in a flow chart as occurring in a particular order, no particular ordering is required unless specifically stated, or required because an act is dependent on another act being completed prior to the act being performed.

[0061] One will appreciate that embodiments disclosed herein can also be described in terms of flowcharts comprising one or more acts for accomplishing a particular result. For example, Figure 7 and the corresponding text describe acts in various methods and systems for automating the shifting of pixels within a digital image. The acts of Figure 7 are described below.

[0062] For example, Figure 7 illustrates that a flow chart of an exemplary method 700 for automating the shifting of pixels within a digital image includes an act 710 of receiving a starting point. Act 710 comprises receiving an indication of a starting point through a user interface, wherein the starting point is received through a user selection of a particular portion of the digital image. For example, as depicted and explained with respect to Figure 5A, a user selects a starting point 550. Similarly, Figure 3C depicts various user-selected starting points surrounding the grass in the digital image.

[0063] Additionally, Figure 7 illustrates that the method includes an act 720 of receiving a direction. Act 720 comprises receiving, through the user interface, a direction associated with the starting point. For example, as depicted and explained with respect to Figure 5A, the user can select an ending point 530. A link 540 is then formed between the starting point 550 and the ending point 530. The link 540 is associated with a direction extending from the starting point 550 to the ending point 530. As such, the software architecture 200 receives a direction from the link 540.

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[0064] In contrast, in additional or alternative embodiments, the software architecture 200 can receive a direction without the use of an ending point 530 or a link 540. For example, the software architecture 200 may receive the direction from a default setting stored within memory or explicitly from the user. Further, in at least one embodiment, the software architecture 200 identifies a direction from line and edge detection. For example, the software architecture 200 may identify a direction that follows the blades of grass depicted in Figure 3A. In any case, in at least one embodiment, a user may only need to enter a starting point and the direction is identified either automatically or through user interaction other than the creation of an ending point.

[0065] Figure 7 also illustrates that the method includes an act 730 of selecting a set of pixels. Act 730 comprises selecting a set of pixels extending in the direction away from the starting point. For example, as depicted and explained with respect to Figure 5A, the software architecture 200 selects a set of pixels 500, 510, 520 that extend in the direction of the link 540 away from the starting point 550. The computer architecture 200 may define the set of pixels 500, 510, 520 as being every pixel that extends in the direction away from the starting point and that is within a user or computer-defined threshold distance from the link 540.

[0066] Further, Figure 7 illustrates that the method includes an act 740 of shifting the set of pixels. Act 740 comprises shifting the set of pixels in the first direction. Shifting the set of pixels comprises rendering and re-rendering in a loop the set of pixels being shifted. For example, as depicted and explained with respect to Figures 5A-5D, a shifting loop is described where pixels 500, 510, 520 are shifted upward and then re-looped.

[0067] Additionally, Figure 8 depicts an embodiment of a method 800 for shifting pixels comprising a step 810 of accessing a digital file. Act 810 includes accessing, from

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memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image. For example, as depicted and described with respect to Figure 1, a user can upload a digital image through a client application 120. The computer system 100 then receives the digital image.

[0068] Figure 8 also illustrates that the method 800 includes an act 820 of identifying a portion of an image to mask. Act 820 comprises identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted. For example, as depicted and described with respect to Figures 3A-3C, a user is able to mask a particular portion of the digital image. The masked portion of the image is held static, such that the pixels do not shift.

[0069] Additionally, Figure 8 illustrates that the method 800 includes an act 830 of receiving a starting point. Act 830 comprises receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image. For example, as depicted and explained with respect to Figure 5A, a user selects a starting point 550. Similarly, Figure 3C depicts various user-selected starting points surrounding the grass in the digital image.

[0070] Figure 8 also illustrates that the method 800 includes an act 840 of receiving an ending point. Act 840 comprises receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface. For example, as depicted and explained with respect to Figure 5A, a user selects an ending point 530. Similarly, Figure 3C depicts various user-selected starting ending surrounding the grass in the digital image.

[0071] In addition, Figure 8 illustrates that the method 800 includes an act 850 of creating a link between the beginning and the ending points. Act 850 comprises creating

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a first link between the first starting point and the first ending point, wherein the first link comprises a first direction extending from the first starting point to the first ending point and a first length between the first starting point and the first ending point. For example, as depicted and explained with respect to Figure 5A, a link 540 is created between beginning points 550 and ending points 530. Similarly, Figure 3C depicts various links connecting beginning points and ending points.

[0072] Further, Figure 8 illustrates that the method 800 includes an act 860 of identifying a set of pixels. Act 860 comprises identifying a first set of pixels that lie between the first starting point and the first ending point. For example, as depicted and explained with respect to Figure 5A, the software architecture 200 identifies a set of pixels 500, 510, 520 that extend in the direction of the link 540 away from the starting point 550. The computer architecture 200 may define the set of pixels 500, 510, 520 as being every pixel that extends in the direction away from the starting point and that is within a user or computer-defined threshold distance from the link 540.

[0073] Further still, Figure 8 illustrates that the method 800 includes an act 870 of shifting the set of pixels 870. Act 870 comprises shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted. For example, as depicted and explained with respect to Figures 5A-5D, a shifting loop is described where pixels 500, 510, 520 are shifted upward and then re-looped.

[0074] Accordingly, disclosed embodiments provide novel and innovative technical methods for automatically shifting pixels within a digital image. The shifted pixels may give a digital image the perception of movement. At least one disclosed embodiment requires only a single digital image to create a perception of movement within the digital

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image. Disclosed embodiments also provide novel and innovative technical solutions for receiving user input through a computer interface to simply and efficiently manipulate a digital image by shifting pixels.

[0075] Further, the methods may be practiced by a computer system including one or more processors and computer-readable media such as computer memory. In particular, the computer memory may store computer-executable instructions that when executed by one or more processors cause various functions to be performed, such as the acts recited in the embodiments. In various embodiments, disclosed methods and systems may comprise software executed within the cloud. For example, a user may access the software through a web browser. In additional or alternative embodiments, the software is executed locally at a device. For example, the software may be executed on a mobile computing device such as a smart phone or tablet.

[0076] Embodiments of the present invention may comprise or utilize a special purpose or general-purpose computer including computer hardware, as discussed in greater detail below. Embodiments within the scope of the present invention also include physical and other computer-readable media for carrying or storing computer-executable instructions and/or data structures. Such computer-readable media can be any available media that can be accessed by a general purpose or special purpose computer system. Computer-readable media that store computer-executable instructions are physical storage media. Computer-readable media that carry computer-executable instructions are transmission media. Thus, by way of example, and not limitation, embodiments of the invention can comprise at least two distinctly different kinds of computer-readable media: physical computer-readable storage media and transmission computer-readable media.

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[0077] Further, computing system functionality can be enhanced by a computing system's ability to be interconnected to other computing systems via network connections. Network connections may include, but are not limited to, connections via wired or wireless Ethernet, cellular connections, or even computer to computer connections through serial, parallel, USB, or other connections. The connections allow a computing system to access services at other computing systems and to quickly and efficiently receive application data from other computing systems.

[0078] Interconnection of computing systems has facilitated distributed computing systems, such as so-called "cloud" computing systems. In this description, "cloud computing" may be systems or resources for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, services, etc.) that can be provisioned and released with reduced management effort or service provider interaction. A cloud model can be composed of various characteristics (e.g., on-demand self-service, broad network access, resource pooling, rapid elasticity, measured service, etc.), service models (e.g., Software as a Service ("SaaS"), Platform as a Service ("PaaS"), Infrastructure as a Service ("IaaS"), and deployment models (e.g., private cloud, community cloud, public cloud, hybrid cloud, etc.).

[0079] Cloud and remote based service applications are prevalent. Such applications are hosted on public and private remote systems such as clouds and usually offer a set of web based services for communicating back and forth with clients.

[0080] Many computers are intended to be used by direct user interaction with the computer. As such, computers have input hardware and software user interfaces to facilitate user interaction. For example, a modern general-purpose computer may include

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a keyboard, mouse, touchpad, camera, etc. for allowing a user to input data into the computer. In addition, various software user interfaces may be available.

[0081] Examples of software user interfaces include graphical user interfaces, text command line based user interface, function key or hot key user interfaces, and the like.

[0082] Physical computer-readable storage media includes RAM, ROM, EEPROM, CD-ROM or other optical disk storage (such as CDs, DVDs, etc.), magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store desired program code means in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer.

[0083] A "network" is defined as one or more data links that enable the transport of electronic data between computer systems and/or modules and/or other electronic devices. When information is transferred or provided over a network or another communications connection (either hardwired, wireless, or a combination of hardwired or wireless) to a computer, the computer properly views the connection as a transmission medium. Transmissions media can include a network and/or data links which can be used to carry or desired program code means in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer. Combinations of the above are also included within the scope of computer-readable media.

[0084] Further, upon reaching various computer system components, program code means in the form of computer-executable instructions or data structures can be transferred automatically from transmission computer-readable media to physical computer-readable storage media (or vice versa). For example, computer-executable instructions or data structures received over a network or data link can be buffered in

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RAM within a network interface module (e.g., a "NIC"), and then eventually transferred to computer system RAM and/or to less volatile computer-readable physical storage media at a computer system. Thus, computer-readable physical storage media can be included in computer system components that also (or even primarily) utilize transmission media.

[0085] Computer-executable instructions comprise, for example, instructions and data which cause a general-purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. The computer-executable instructions may be, for example, binaries, intermediate format instructions such as assembly language, or even source code. Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to the described features or acts described above. Rather, the described features and acts are disclosed as example forms of implementing the claims.

[0086] Those skilled in the art will appreciate that the invention may be practiced in network computing environments with many types of computer system configurations, including, personal computers, desktop computers, laptop computers, message processors, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, mobile telephones, PDAs, pagers, routers, switches, and the like. The invention may also be practiced in distributed system environments where local and remote computer systems, which are linked (either by hardwired data links, wireless data links, or by a combination of hardwired and wireless data links) through a network, both

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perform tasks. In a distributed system environment, program modules may be located in both local and remote memory storage devices.

[0087] Alternatively, or in addition, the functionality described herein can be performed, at least in part, by one or more hardware logic components. For example, and without limitation, illustrative types of hardware logic components that can be used include Field-programmable Gate Arrays (FPGAs), Program-specific Integrated Circuits (ASICs), Program-specific Standard Products (ASSPs), System-on-a-chip systems (SOCs), Complex Programmable Logic Devices (CPLDs), etc.

[0088] The present invention may be embodied in other specific forms without departing from its spirit or characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

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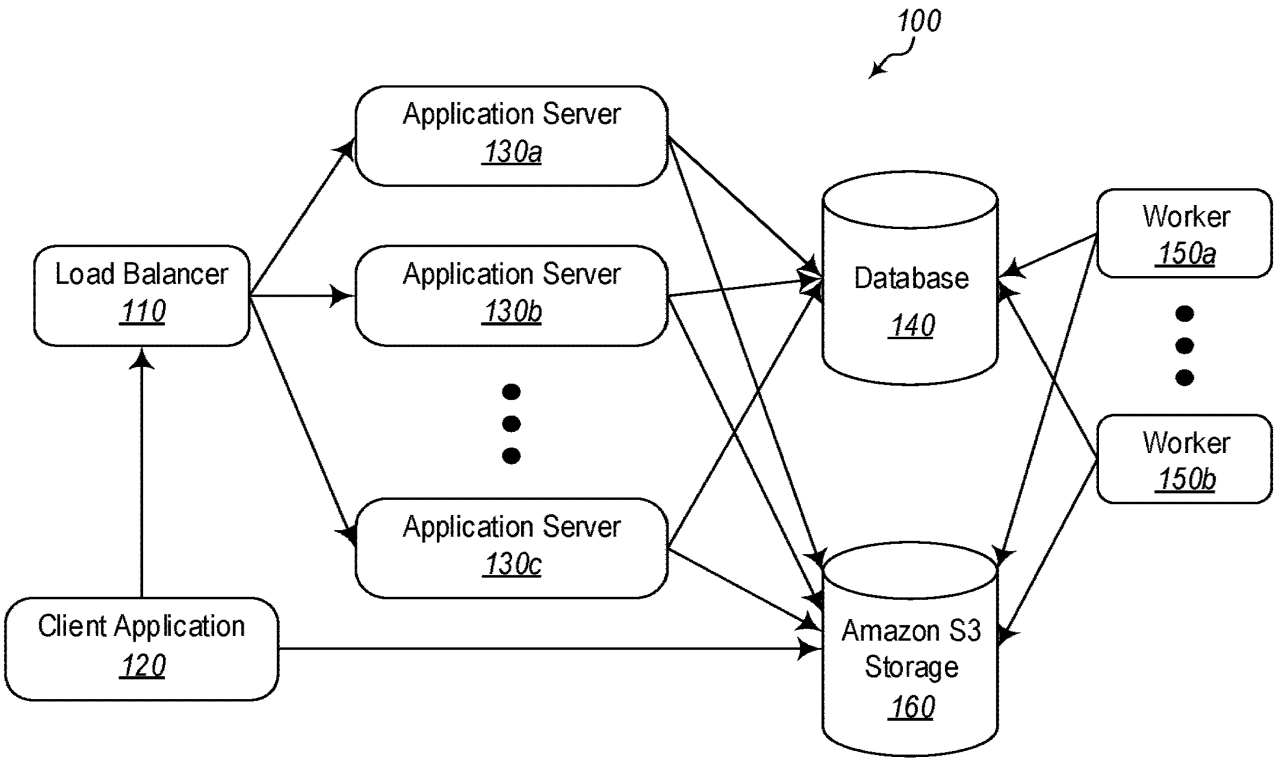

100
Application Server
130a
Load Balancer
110
Application Server
130b
Application Server
130c
Client Application
120
Database
140
Amazon S3
Storage
160
Worker
150a
Worker
150b

Fig. 1

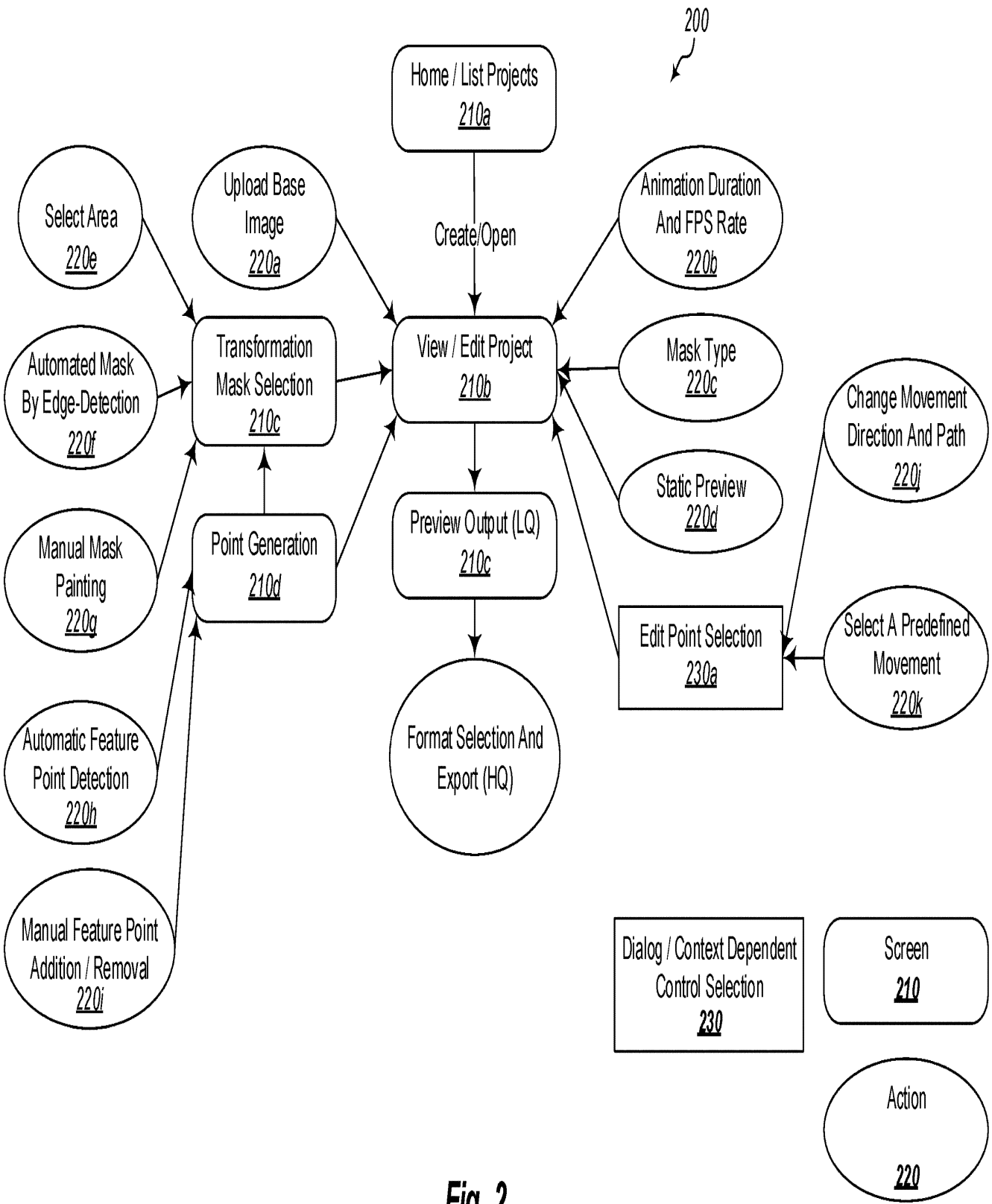

200
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210a
Select Area
220e
Upload Base Image
220a
Create/Open
Animation Duration And FPS Rate
220b
Automated Mask By Edge-Detection
220f
Transformation Mask Selection
210c
View / Edit Project
210b
Mask Type
220c
Change Movement Direction And Path
220j
Static Preview
220d
Manual Mask Painting
220g
Point Generation
210d
Preview Output (LQ)
210c
Edit Point Selection
230a
Select A Predefined Movement
220k
Format Selection And Export (HQ)
Automatic Feature Point Detection
220h
Manual Feature Point Addition / Removal
220i
Dialog / Context Dependent Control Selection
230
Screen
210
Action
220

Fig. 2

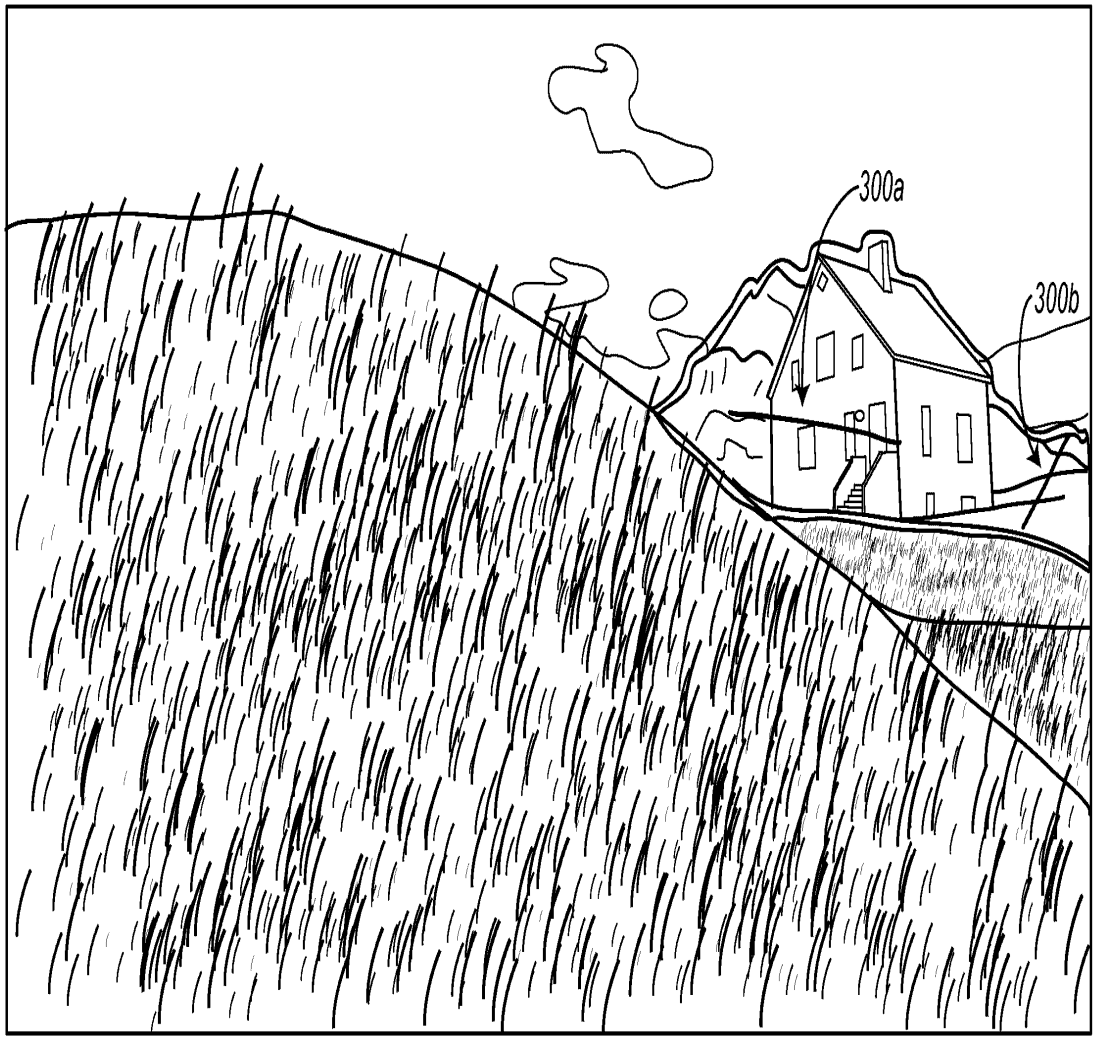


Fig. 3A

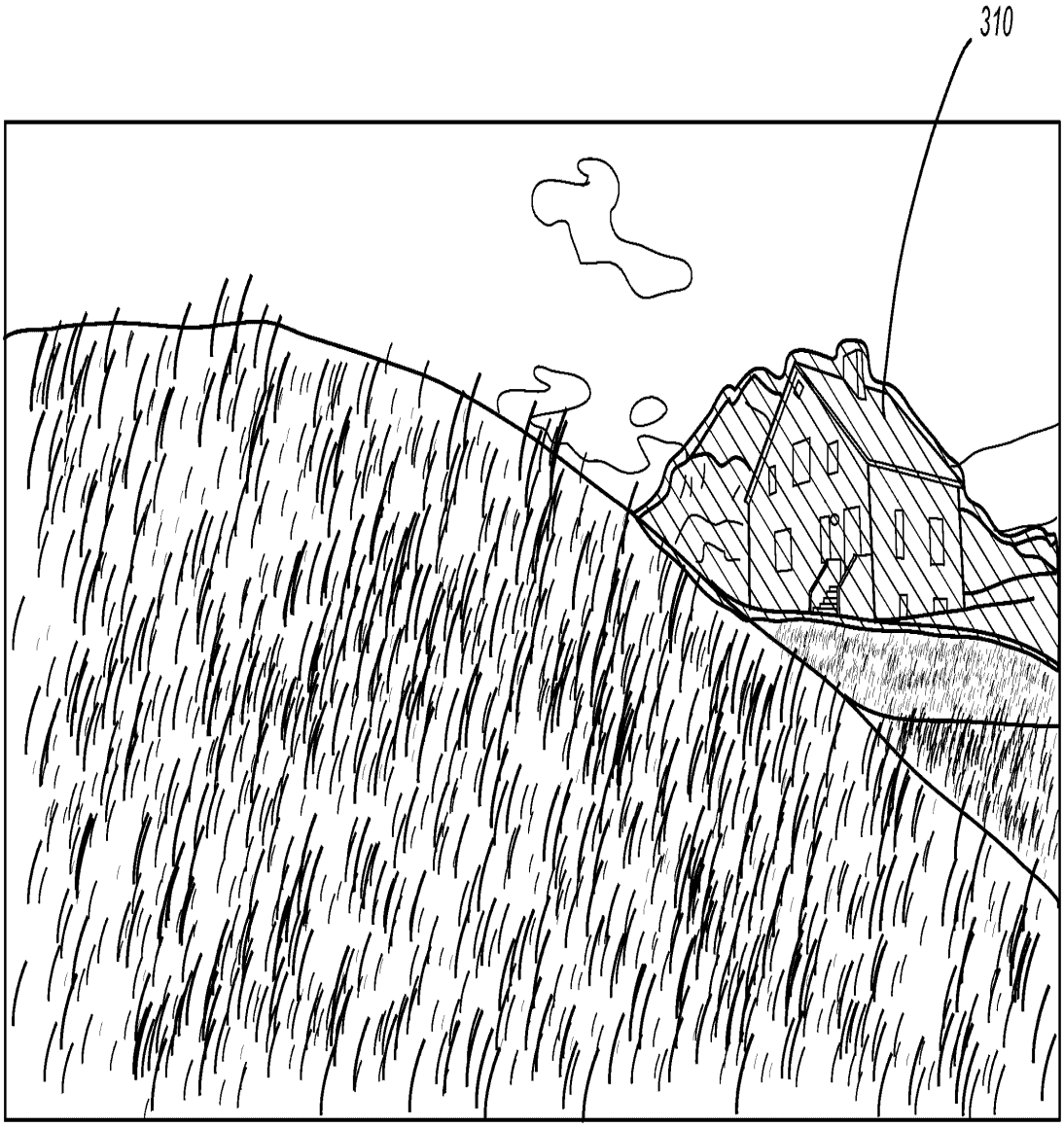


Fig. 3B

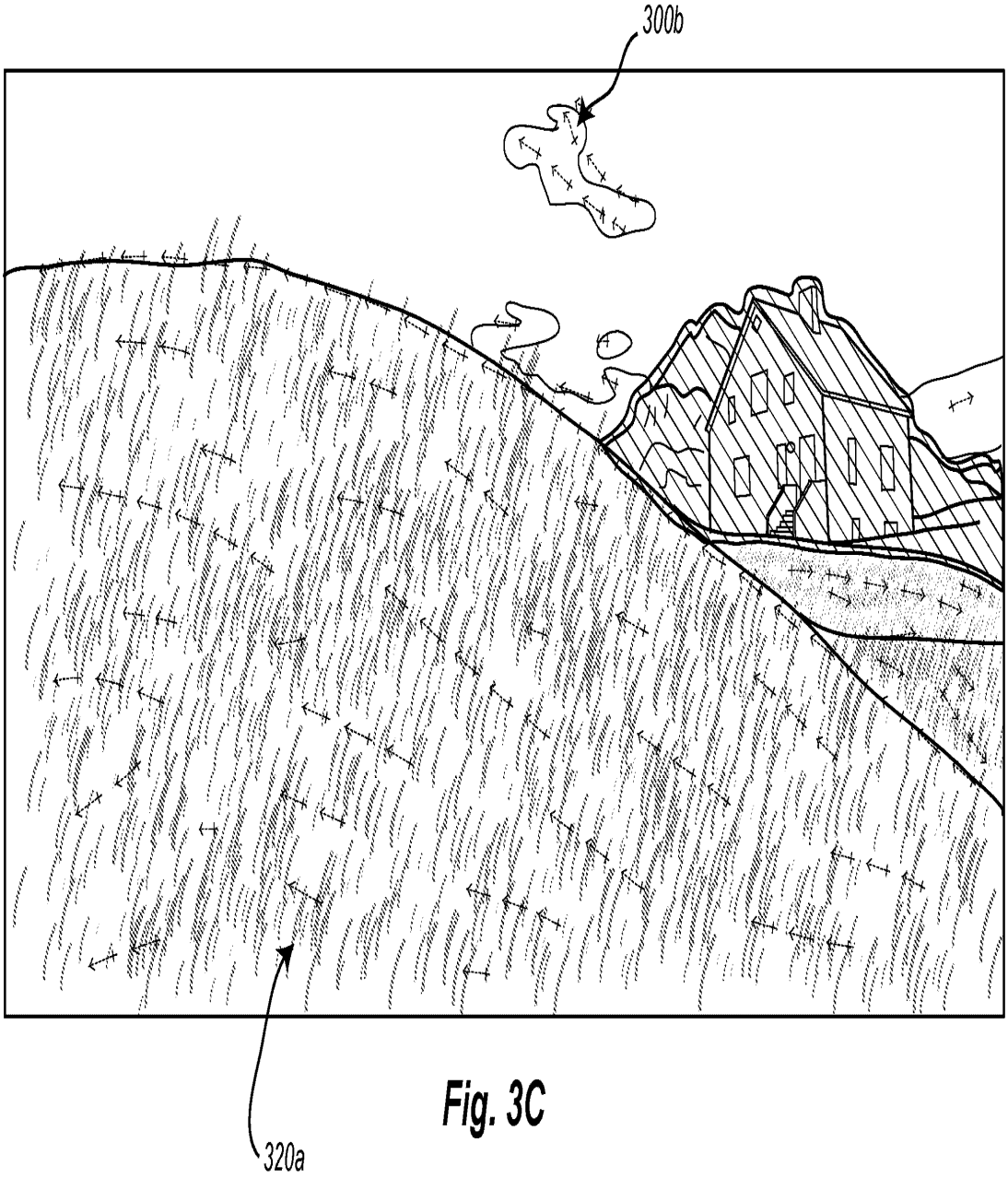


Fig. 3C

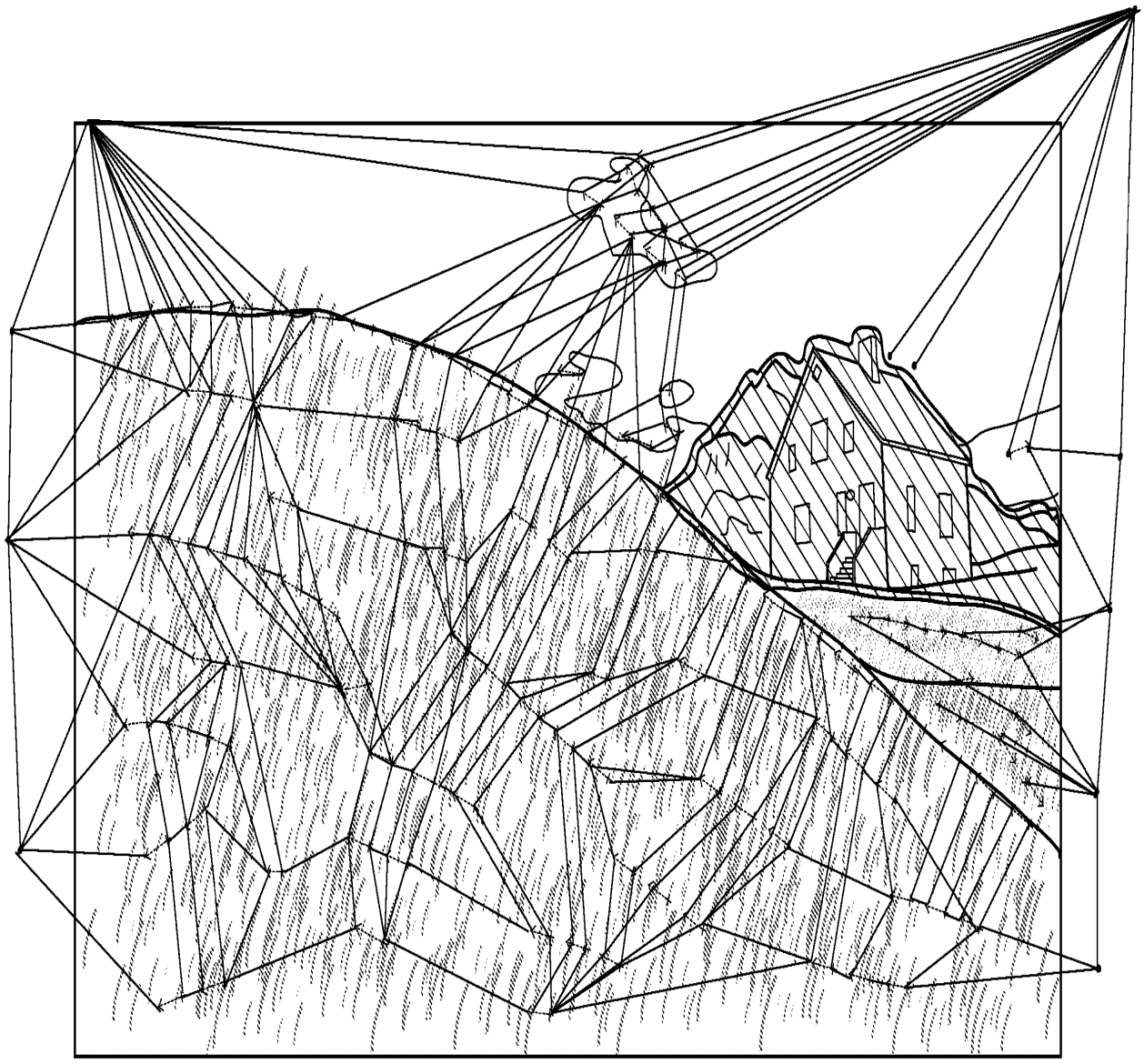


Fig. 4

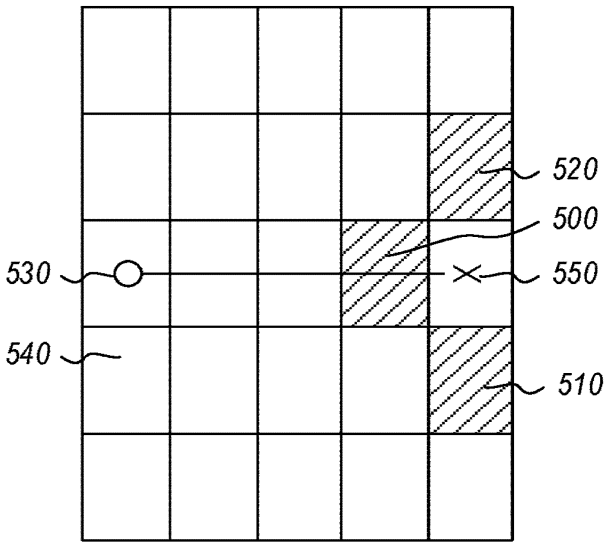


Fig. 5A

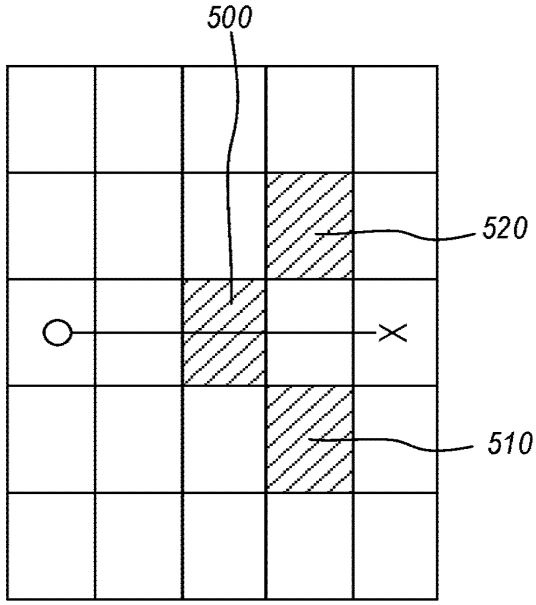


Fig. 5B

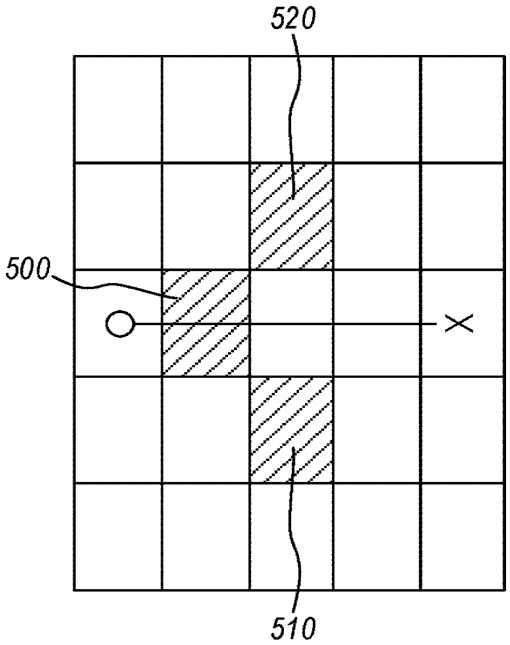


Fig. 5C

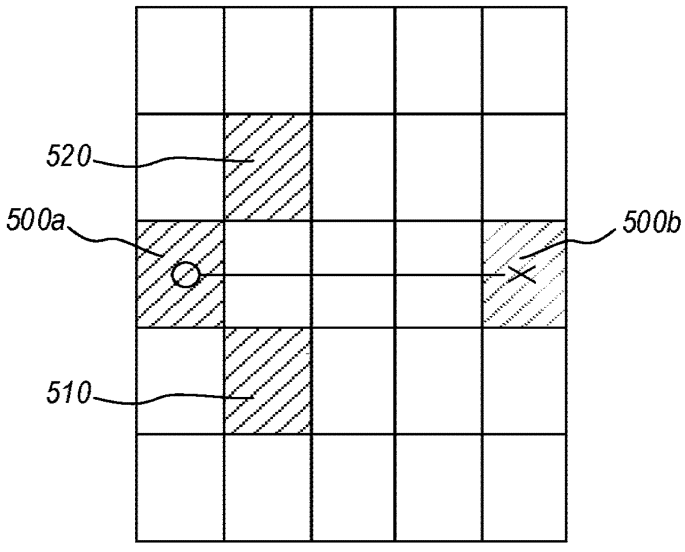


Fig. 5D

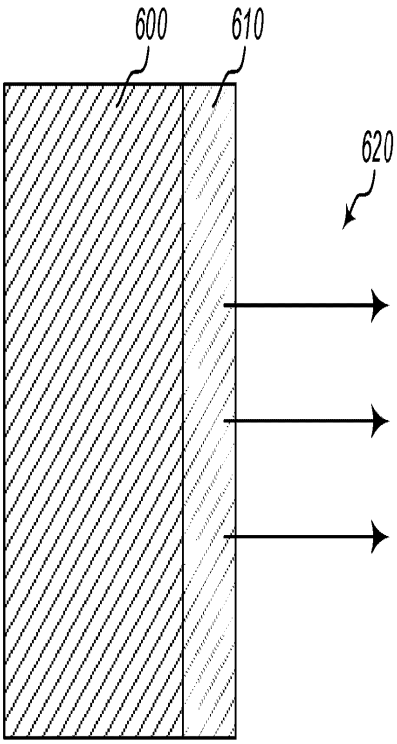


Fig. 6A

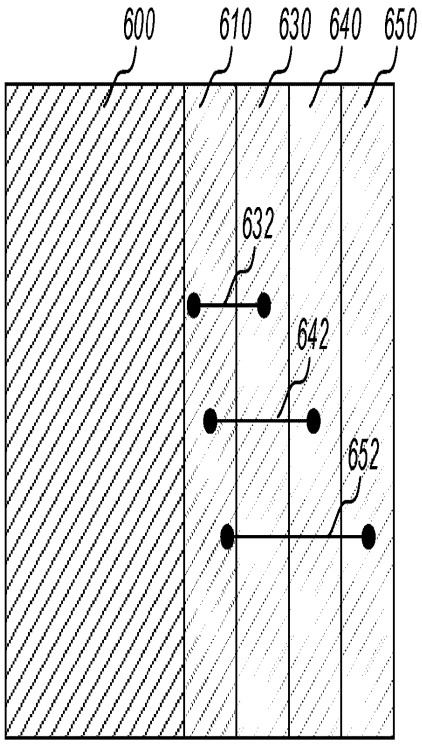


Fig. 6B

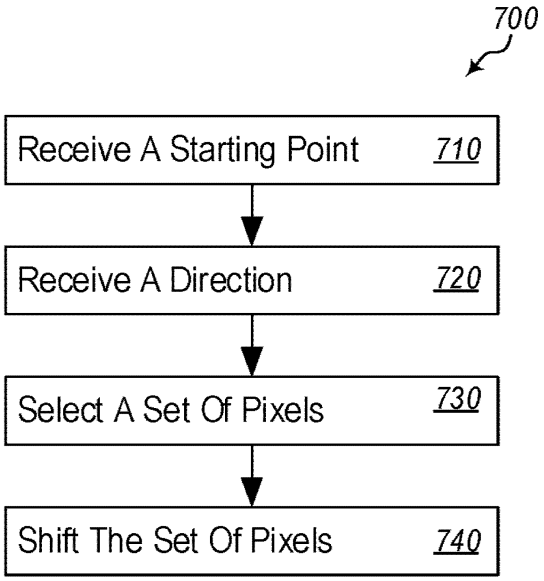

700
Receive A Starting Point 710
Receive A Direction 720
Select A Set Of Pixels 730
Shift The Set Of Pixels 740

Fig. 7

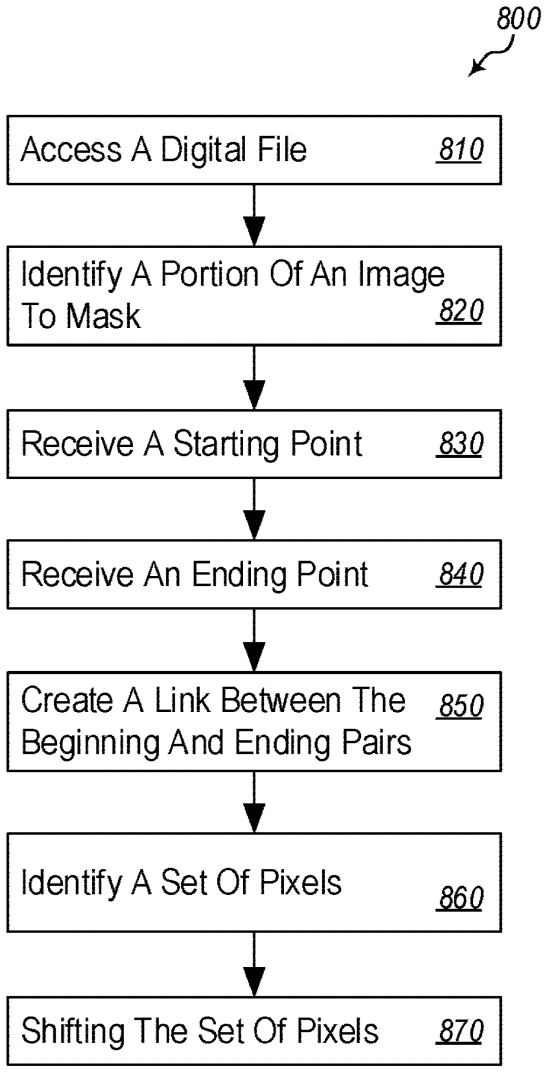

800
Access A Digital File 810
Identify A Portion Of An Image To Mask 820
Receive A Starting Point 830
Receive An Ending Point 840
Create A Link Between The Beginning And Ending Pairs 850
Identify A Set Of Pixels 860
Shifting The Set Of Pixels 870

Fig. 8

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

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.
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.

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.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Troy		Plota	

Residence Information (Select One) ● US Residency Non US Residency Active US Military Service

City	Santa Barbara	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	c/o PLOTAGRAPH, INC.
Address 2	2987 Arriba Way

City	Santa Barbara	State/Province	CA
Postal Code	93105	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Sascha		Connelly	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

City	Santa Barbara	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	c/o PLOTAGRAPH, INC.
Address 2	2987 Arriba Way

City	Santa Barbara	State/Province	CA
Postal Code	93105	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

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

Customer Number	22913		
Email Address	docketing@wnlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE		
Attorney Docket Number	20970.1.1.1.2	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ 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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	22913		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15/660677	2017-07-26
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15/660677	Claims benefit of provisional	62/514703	2017-06-02
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15/660677	Claims benefit of provisional	62/368017	2016-07-28

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[j] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Approved for use through 04/30/2017. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

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.

Clear

Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

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:

If the Applicant is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Applicant:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

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	/W. Brad Barger/			Date (YYYY-MM-DD)	2018-08-13
First Name	W. Brad	Last Name	Barger	Registration Number	69566

Additional Signature may be generated within this form by selecting the Add button. Add

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1.2
	Application Number	
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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.

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 CooperationTreaty.

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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2

CONFIRMATION NO. 1042

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

INFORMAL NOTICE

OC00000102005179

Date Mailed: 08/31/2018

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):
  Troy Plota
  Sascha Connelly

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/amanalac/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/102,055

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 230 =	0.00			
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).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	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.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/102,055	08/13/2018	2676	865	20970.1.1.1.2	20	3

CONFIRMATION NO. 1042

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

FILING RECEIPT

OC000000102005178

Date Mailed: 08/31/2018

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)

Troy Plota, Santa Barbara, CA;
Sascha Connelly, Santa Barbara, CA;

Applicant(s)

Troy Plota, Santa Barbara, CA;
Sascha Connelly, Santa Barbara, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/660,677 07/26/2017
which claims benefit of 62/514,703 06/02/2017
and claims benefit of 62/368,017 07/28/2016

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 Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/30/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/102,055**

Projected Publication Date: 12/06/2018

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Preliminary Class

358

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 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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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Doc Code: Oath

Document Description: Oath or declaration filed

PTO/AIA/08 (11-15)

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐ Declaration Submitted With Initial Filing OR ☒ Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(f)) required)

Attorney Docket Number	20970.1.1.1.2
First Named Inventor	Troy Plota
COMPLETE IF KNOWN	
Application Number	16/102,055
Filing Date	August 13, 2018
Art Unit	Unknown
Examiner Name	Unknown

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

(Title of the Invention)

As a below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application,

OR

☒ United States Application Number or PCT International application number 16/102,055

filed on August 13, 2018.

The above-identified application was made or authorized to be made by me.

I believe 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 punishab e under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Direct all correspondence to: ☒ The address associated with Customer Number: 22913 OR ☐ Correspondence address below

Name		
Address		
City	State	Zip
Country	Telephone	Email

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 21 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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DECLARATION — Utility or Design Patent Application

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. Petitioner/applicant is advised that documents which form the record of a patent application (such as the PTO/SB/01) are placed into the Privacy Act system of records DEPARTMENT OF COMMERCE, COMMERCE-PAT-7, System name: *Patent Application Files*. Documents not retained in an application file (such as the PTO-2038) are placed into the Privacy Act system of COMMERCE/PAT-TM-10, System name: *Deposit Accounts and Electronic Funds Transfer Profiles*.

LEGAL NAME OF SOLE OR FIRST INVENTOR:

(*E.g.*, Given Name (first and middle if any) and Family Name or Surname)

Troy Plota

Inventor's Signature	Date (Optional)

Residence: City	State	Country
Kihei	HI	US

Mailing Address

c/o Plotagraph, Inc., 1215 South Keihei Road, Suite O Unit 1074

City	State	Zip	Country
Kihei	HI	96753	US

☐ Additional inventors are being named on the _____ Supplemental sheet(s) PTO/AIA/10 attached hereto

Doc Code: Oath
Document Description: Oath or declaration filed

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☐ Declaration Submitted With Initial Filing OR ☒ Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(f)) required)

Attorney Docket Number	20970.1.1.1.2
First Named Inventor	Troy Plota
COMPLETE IF KNOWN	
Application Number	16/102,055
Filing Date	August 13, 2018
Art Unit	Unknown
Examiner Name	Unknown

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

(Title of the Invention)

As a below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application,

OR

☒ United States Application Number or PCT International application number 16/102,055

filed on August 13, 2018

The above-identified application was made or authorized to be made by me.

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Direct all correspondence to: ☒ The address associated with Customer Number: 22913 OR ☐ Correspondence address below

Name		
Address		
City	State	Zip
Country	Telephone	Email

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DECLARATION — Utility or Design Patent Application

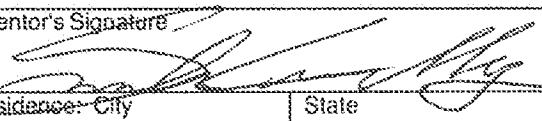
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LEGAL NAME OF SOLE OR FIRST INVENTOR:

(*E.g.*, Given Name (first and middle if any) and Family Name or Surname)

Sascha Connelly

Inventor's Signature	Date (Optional)
	

Residence: City	State	Country
Kihei	HI	US

Mailing Address

c/o Plotagraph, Inc., 1215 South Keihei Road, Suite O Unit 1074

City	State	Zip	Country
Kihei	HI	96753	US

☐ Additional inventors are being named on the _____ Supplemental sheet(s) PTO/AIA/10 attached hereto

Electronic Patent Application Fee Transmittal

Application Number:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Sue Held
Attorney Docket Number:	20970.1.1.1.2

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:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**80**

Electronic Acknowledgement Receipt

EFS ID:	33704777
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Sue Held
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	12-SEP-2018
Filing Date:	13-AUG-2018
Time Stamp:	18:39:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$80
RAM confirmation Number	091318INTEFSW18405000
Deposit Account	233178
Authorized User	Sue Held

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Oath or Declaration filed	20970_1_1_1_2_Declarations.pdf	891488 9e8840a873b87d515cf914033b9c8c59e106fb7d	no	4
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30469 a7b83c40919f59c54a027ce9d639fea20a83d9c7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	921957		

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 09/20/2018

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
09/20/2018	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):

Docketing@wnlaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Doc Code:
TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.:16/102,055

1. THE REQUEST FILED August 13, 2018 IS **GRANTED.**

The above-identified application has met the requirements for prioritized examination
A. ☒ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

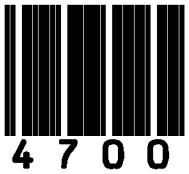
2. **The above-identified application will undergo prioritized examination.** The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;
B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;
C. filing a **request for continued examination**;
D. filing a notice of appeal;
E. filing a request for suspension of action;
F. mailing of a notice of allowance;
G. mailing of a final Office action;
H. completion of examination as defined in 37 CFR 41.102; or
I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to Kimberly Inabinet at 571-272-4618.

/Kimberly Inabinet/ Paralegal Specialist, Office of Petitions

Office of Petitions: Routing Sheet



Application No. 16102055

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application, as indicated below. For details of this decision, please see the document PET.OP.DEC filed on the same date as this document.

- [X] **GRANTED**
- [ ] **DISMISSED**
- [ ] **DENIED**

Office of Petitions: Decision Count Sheet

Mailing Month: 9

Application No.: 16102055

16102055

For US serial numbers: enter number only, no slashes or commas. Ex: 10123456
For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official: Kimberly Inabinet

Count (1) - Palm Credit 16102055

Decision: GRANT

FINANCE WORK NEEDED
☐ Select Check Box for YES

GRANT

Decision Type: 643 - Track One request

643

Notes:

Count (2)

Decision: n/a

FINANCE WORK NEEDED
☐ Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

Decision: n/a

FINANCE WORK NEEDED
☐ Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach 2nd count sheet & mark this box ☐

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

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EXAMINER	
LIU, GORDON G	

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
10/02/2018	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):

Docketing@wnlaw.com

Office Action Summary	Application No. 16/102,055	Applicant(s) PLOTA ET AL.	
	Examiner GORDON LIU	Art Unit 2612	AIA (First Inventor to File) Status Yes

-- 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 *8/13/2018*.

☐ 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) *1-20* 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) *1-20* 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 *8/13/2018* 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, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA. **Claims 1-20** are pending under this Office action.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. **Claims 1-20** are directed to an abstract idea. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception. The rationale for this determination is explained below:

Claim 1, and its dependent **claims 2-7; Claim 8,** and its dependent **claims 9-15**; **Claim 16**, and its dependent **claims 17-20**; are rejected under 35 U.S.C 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. **Claim 1**, and the related independent **claims 8** and **16**, is directed to an abstract idea that a computer system for automating the shifting of pixels within a digital image, comprising: one or more processors; and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following: access, from memory, a digital

image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface; create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point; and shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

The following analysis of facts of this particular patent application follows the rationale suggested in the "Federal Register Notice: 2014 Interim Guidance on Patent Subject Matter Eligibility" (OG Notices: December 16, 2014, available from the US PTO website at https://www.gpo.gov/fdsys/pkg/FR-2014-12-16/pdf/2014-29414.pdf).

The Guidelines states:

> Limitations that were found not to be enough to qualify as "significantly more" when recited in a claim with a judicial exception include (P7):
>
> • Adding the words "apply it" (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer;
>
> • Simply appending well-understood, routine and conventional activities

previously known to the industry, specified at a high level of generality, to the judicial exception, e.g., a claim to an abstract idea requiring no more than a generic computer to perform generic computer functions that are well understood, routine and conventional

activities previously known to the industry;

• Adding insignificant extra solution activity to the judicial exception, e.g., mere data gathering in conjunction with a law of nature or abstract idea; or

• Generally linking the use of the judicial exception to a particular technological environment or field of use.

In the instant case, at least one embodiment of the claimed invention merely automates the shifting of pixels within a digital image, comprising: one or more processors; and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following: access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface; create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting

point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point; and shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

Claim 1 recites a method of a few steps. Thus, the claim is directed to a process which is a statutory category under 35 U. S. C 101. (**Step 1: YES**)

The claim is then analyzed to determine whether it is directed to any judicial exception.

The claim recites the steps of automating the shifting of pixels within a digital image, comprising: one or more processors; and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following: access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface; create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point; and shift the first set of pixels

in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

The steps of automating the shifting of pixels within a digital image, comprising: access a digital image file; receive a first starting point; receive a first ending point; create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point; and shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted, are “an idea ‘of itself’”, and these steps may be done by hands. Thus, the claim 1 is directed to a judicial exception. (**Step 2A: YES**).

The claim is then analyzed to determine whether the claim as a whole amount to significantly more than the judicial exception.

The claim recites a computer system with a processor, a memory, and a program that shits a set of pixel. These limitations are broad: the computer has a memory and a program to shift a set of pixels, which is still a generic computer and does not make the system special. One my use a generic computer running a general software such as Microsoft Paint, and move one pixel around. Thus, these limitations are broad and do not amount to “significantly more” than the judicial exception.

The claim recites access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital

image. This limitation is broad: the memory stores an image file, and the image file contains digital image data that represent pixel values. Thus, this limitation is broad and does not amount to “significantly more” than the judicial exception.

The claim recites receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface. These limitations are broad: these can be done manually by choosing two points within the image. Thus, these limitations are broad and do not amount to “significantly more” than the judicial exception.

The claim recites create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point. These limitations are broad: these can be done manually by choosing two points within the image, link these two points, and assume there is a direction from one point to the other point. Thus, these limitations are broad and do not amount to “significantly more” than the judicial exception.

The claim recites shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted. This limitation is broad: it does not specify how to shift the pixel, it could be cycling shift like circular buffer, or sliding shift, or just move one pixel from the

starting point to the ending point in many step, and it can be done manually. Thus, this limitation is broad and does not amount to “significantly more” than the judicial exception.

The claim does not recite additional elements that amount to significantly more than the judicial exception. Even when viewed as a combination, the additional elements fail to transform the exception into a patent-eligible application of that exception. (**Step 2B: No**)

The claim is “directed to” a judicial exception. Further, the claim as a whole does not recite any more additional limitations. Therefore, the independent **Claim 1**, and the related independent **claims 8** and **16**, is directed to an abstract idea and is rejected under 35 USC § 101.

Claim 2 adds the new limitation of the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted. This also does not teach that the invention is more than just an abstract idea.

Claim 3 adds the new limitation of the computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image. This also does not teach that the invention is more than just an abstract idea.

Claim 4 adds the new limitation of the computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the

computer system to generate the mask by: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary. This also does not teach that the invention is more than just an abstract idea.

Claim 5 adds the new limitation of the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to: receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receive a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; create a second link between the second starting point and the second ending point, wherein the second link comprises: a second direction extending from the second starting point to the second ending point; and a second length between the second starting point and the second ending point; identify a second set of pixels that lie between the second starting point and the second ending point; and shift the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted. These limitations are just a second run (repeat) of the same steps. This also does not teach that the invention is more than just an abstract idea.

Claim 6 adds the new limitation of the computer system of claim 5, wherein the first direction is different from the second direction. This also does not teach that the invention is more than just an abstract idea.

Claim 7 adds the new limitation of the computer system of claim 5, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length. This also does not teach that the invention is more than just an abstract idea.

Claim 9 adds the new limitation of the method as recited in claim 8, further comprising receiving an indication of an ending point through a user interface, wherein the ending point is received through a user selection of a different portion of the digital image. This also does not teach that the invention is more than just an abstract idea.

Claim 10 adds the new limitation of the method as recited in claim 9, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point. This also does not teach that the invention is more than just an abstract idea.

Claim 11 adds the new limitation of the method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting. This also does not teach that the invention is more than just an abstract idea.

Claim 12 adds the new limitation of the method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated. This also does not teach that the invention is more than just an abstract idea.

Claim 13 adds the new limitation of the method of claim 12, further comprising: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary. This also does not teach that the invention is more than just an abstract idea.

Claim 14 adds the new limitation of the method as recited in claim 8, further comprising: receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a second direction associated with the second starting point; selecting a second set of pixels extending in the second direction away from the second starting point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted. These limitations are just a repeat of the first set of steps. This also does not teach that the invention is more than just an abstract idea.

Claim 15 adds the new limitation of the method as recited in claim 14, wherein the first direction is different from the second direction. This also does not teach that the invention is more than just an abstract idea.

Claim 17 adds the new limitation of the method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted. This also does not teach that the invention is more than just an abstract idea.

Claim 18 adds the new limitation of the method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image. This also does not teach that the invention is more than just an abstract idea.

Claim 19 adds the new limitation of the method of claim 17, further comprising: generating the mask, wherein generating the mask comprises: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary. This also does not teach that the invention is more than just an abstract idea.

Claim 20 adds the new limitation of the method of claim 16, further comprising: receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; creating a second link between the second starting point and the second ending point, wherein the second link comprises: a second direction extending from the second starting point to the second ending point; and a second length between the second starting point and the second ending point; identifying a second set of pixels that lie between the second starting point and the second ending point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

These limitations are a repeat of the same steps. This also does not teach that the invention is more than just an abstract idea.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file

provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over **Claims 1-18** of the US Patent Application No.15/660,677. Although the claims at issue are not identical, they are not patentably distinct from each other, see the following mapping table.

Application No. 16/102,055 (Instant Application)	Application No. 15/660,677
1. A computer system for automating the shifting of pixels within a digital image, comprising:	1. A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and	one or more processors; and
one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:	one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:
access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;	access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;
	identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted;
receive a first starting point through a user interface, wherein the first starting point is	receive a first starting point through a user interface, wherein the first starting point is

received through a user selection of a first beginning portion of the digital image;	received through a user selection of a first beginning portion of the digital image;
receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface;	receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface;
create a first link between the first starting point and the first ending point, wherein the first link comprises:	create a first link between the first starting point and the first ending point, wherein the first link comprises:
a first direction extending from the first starting point to the first ending point; and	a first direction extending from the first starting point to the first ending point; and
a first length between the first starting point and the first ending point;	a first length between the first starting point and the first ending point;
identify a first set of pixels that lie between the first starting point and the first ending point; and	identify a first set of pixels that lie between the first starting point and the first ending point; and

shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.	shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.
2. The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.	1. identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted;
3. The computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.	2. The computer system of claim 1, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.
4. The computer system of claim 2, wherein the executable instructions	3. The computer system of claim 2, wherein the executable instructions

include instructions that are executable to configure the computer system to generate the mask by: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.	include instructions that are executable to configure the computer system to generate the mask by: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.
5. The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to: receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receive a second ending point through the user interface, wherein the second ending	4. The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to: receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receive a second ending point through the user interface, wherein the second ending

point is received through a user selection of a second beginning portion of the user interface;	point is received through a user selection of a second beginning portion of the user interface;
create a second link between the second starting point and the second ending point, wherein the second link comprises:	create a second link between the second starting point and the second ending point, wherein the second link comprises:
a second direction extending from the second starting point to the second ending point; and	a second direction extending from the second starting point to the second ending point; and
a second length between the second starting point and the second ending point;	a second length between the second starting point and the second ending point;
identify a second set of pixels that lie between the second starting point and the second ending point; and	identify a second set of pixels that lie between the second starting point and the second ending point; and
shift the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-	shift the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-

rendering in a loop the second set of pixels being shifted.	rendering in a loop the second set of pixels being shifted.
6. The computer system of claim 5, wherein the first direction is different from the second direction.	5. The computer system of claim 4, wherein the first direction is different from the second direction.
7. The computer system of claim 5, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.	6. The computer system of claim 4, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.
8. A method for automating the shifting of pixels within a digital image, comprising: receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a first	7. A method for automating the shifting of pixels within a digital image, comprising: receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a first

direction associated with the first starting point; selecting a first set of pixels extending in the first direction away from the first starting point; and shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted.	direction associated with the first starting point; selecting a first set of pixels extending in the first direction away from the first starting point; and shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.
9. The method as recited in claim 8, further comprising receiving an indication of an ending point through a user interface, wherein the ending point is received through a user selection of a different portion of the digital image.	8. The method as recited in claim 7, further comprising receiving an indication of an ending point through a user interface, wherein the ending point is received through a user selection of a different portion of the digital image.
10. The method as recited in claim 9, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in	9. The method as recited in claim 8, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in

the loop the pixel being shifted from the first starting point to the ending point.	the loop the pixel being shifted from the first starting point to the ending point.
11. The method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.	10. The method as recited in claim 7, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.
12. The method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated.	11. The method as recited in claim 10, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated.
13. The method of claim 12, further comprising: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.	12. The method of claim 11, further comprising: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.
14. The method as recited in claim 8, further comprising:	13. The method as recited in claim 7, further comprising:

receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a second direction associated with the second starting point; selecting a second set of pixels extending in the second direction away from the second starting point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.	receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a second direction associated with the second starting point; selecting a second set of pixels extending in the second direction away from the second starting point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.
15. The method as recited in claim 14, wherein the first direction is different from	14. The method as recited in claim 13, wherein the first direction is different from

the second direction.	the second direction.
16. A method for automating the shifting of pixels within a digital image, comprising: accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receiving a first ending point through the user interface, wherein the first ending	15. A method for automating the shifting of pixels within a digital image, comprising: accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted; receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receiving a first ending point through the user interface, wherein the first ending

point is received through a user selection of a first ending portion of the user interface;	point is received through a user selection of a first ending portion of the user interface;
creating a first link between the first starting point and the first ending point, wherein the first link comprises:	creating a first link between the first starting point and the first ending point, wherein the first link comprises:
a first direction extending from the first starting point to the first ending point; and	a first direction extending from the first starting point to the first ending point; and
a first length between the first starting point and the first ending point;	a first length between the first starting point and the first ending point;
identifying a first set of pixels that lie between the first starting point and the first ending point; and	identifying a first set of pixels that lie between the first starting point and the first ending point; and
shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels	shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels

being shifted.	being shifted.
17. The method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.	15. identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted
18. The method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.	16. The method of claim 15, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.
19. The method of claim 17, further comprising: generating the mask, wherein generating the mask comprises: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within	17. The method of claim 15, further comprising: generating the mask, wherein generating the mask comprises: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within

the boundary.	the boundary.
20. The method of claim 16, further comprising: receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; creating a second link between the second starting point and the second ending point, wherein the second link comprises: a second direction extending from the second starting point to the second ending	18. The method of claim 15, further comprising: receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; creating a second link between the second starting point and the second ending point, wherein the second link comprises: a second direction extending from the second starting point to the second ending

point; and a second length between the second starting point and the second ending point; identifying a second set of pixels that lie between the second starting point and the second ending point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.	point; and a second length between the second starting point and the second ending point; identifying a second set of pixels that lie between the second starting point and the second ending point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103 as being unpatentable over Ohta (US 20150262327 A1) in view of Amirghodsi, etc. (US 20170140514 A1), further in view of “Palette Cycling” (by SCICompanion, March 6, 2016, hereinafter referred as SCICompanion).

Regarding **claim 1**, Ohta teaches that a computer system for automating the shifting of pixels within a digital image (See Ohta: Fig. 1, and [0038], “The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16”), comprising:

one or more processors (See Ohta: Fig. 1, and [0047], “Control of the above-described units is realized by a processing device such as a CPU executing control programs”); and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following (See Ohta: Fig. 1, and [0047], “Control of the above-described units is realized by a processing device such as a CPU executing control programs. Furthermore, the control function may also be realized by a field

programmable gate array (FPGA), an application specific integrated circuit (ASIC), or the like, or a combination thereof"):

access, from memory (See Ohta: Fig. 1, and [0038], "a memory 16"), a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image (See Ohta: Fig. 1, and [0039], "The image capturing unit 11 is a unit that captures an image, and typically includes an optical system, an image sensor, and an interface there between. The image capturing unit 11 may include any device as long as it can capture an image");

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points". The control points 01B may be corresponding to the first starting point);

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image (See Ohta: Fig. 4, and [0059], "Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the

image is morphed". The control points 402 may be corresponding to the first ending point);

create a first link between the first starting point and the first ending point, wherein the first link comprises (See Ohta: Fig. 5, and [0066], "First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained". The line between the control point 401B and the target point 402 may be corresponding to the link):

a first direction extending from the first starting point to the first ending point (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point"); and

a first length between the first starting point and the first ending point (See Ohta: Figs. 2 and 6, and [0067], "Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401B and the target point 402 may be corresponding to the length);

identify a first set of pixels that lie between the first starting point and the first ending point (See Ohta: Figs. 2 and 6-7, and [0070], “Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image”. The number of pixels between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

shift the first set of pixels in the first direction (See Ohta: Fig. 8, and [0074], “Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts”), wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, Ohta fails to explicitly disclose that access, from memory, a digital image file; and wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, Amirghodsi teaches that access, from memory, a digital image file (See Amirghodsi: Figs. 1-2, and [0020], “As depicted, sequence 100 begins at 102a with

digital image 104. Digital image 104 represents an image that is stored in a digital format. Such a digital format could be, for example, a Joint Photographic Experts Group (JPEG) format, a Bitmap (BMP) format, a Tagged Image File Format (TIFF), a Portable Networks Graphic (PNG) format, A Graphics Interchange Format (GIF), or any other suitable format").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was effectively filed to modify Ohta to have access, from memory, a digital image file as taught by Amirghodsi in order to modify the digital image to achieve a desired result (See Amirghodsi: [0001], "In some instances, these digital images do not capture the scene as desired. In such instances, digital image editing techniques can be employed to modify the digital image to achieve a desired result. Some of these digital image editing techniques utilize patch synthesis techniques that can be utilized to synthesize a region of the digital image"). Ohta teaches a system to edit digital image captured by the digital camera, while Amirghodsi teaches a system to edit digital image file. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to process digital image files. The motivation to modify Ohta by Amirghodsi is "Simple substitution of one known element for another to obtain predictable results".

However, Ohta, modified by Amirghodsi, fails to explicitly disclose that wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, SCICompanion teaches that wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted (See

SCICompanion: Section “An example using overlay”, “These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let’s just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image”. Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was effectively filed to modify Ohta to have wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted as taught by SCICompanion in order to give the appearance of movement an otherwise static background (See SCICompanion: Figure on First Page, “Palette cycling is an animation effect that was popular during the days of palettized graphics. It involves rotating the palette colors to give the appearance of movement an otherwise static background. It can be seen most obviously in SCI games in the title screen with the Sierra logo, but also shows up in other places”). Ohta teaches a system to edit digital image by shifting the pixels, while SCICompanion teaches a system to edit digital image by palette cycling to generate animation effects on a static image. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to palette cycling the pixels as taught by SCICompanion to generate the animation effects. The motivation to modify Ohta by SCICompanion is “Simple substitution of one known element for another to obtain predictable results”.

Regarding **claim 2**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 1 as outlined above. Further, Amirghodsi teaches that the

computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 3**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 2 as outlined above. Further, Amirghodsi teaches that the computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 4**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 2 as outlined above. Further, Amirghodsi teaches that the computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive"); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge").

Regarding **claim 5**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 1 as outlined above. Further, Ohta and SCICompanion teach that the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to:

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth

region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points". The control point, 401A may be corresponding to the second starting point);

receive a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface (See Ohta: Fig. 4, and [0059], "Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the image is morphed". The control points may be corresponding to the second ending point);

create a second link between the second starting point and the second ending point, wherein the second link comprises (See Ohta: Fig. 5, and [0066], "First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained". The line between the control point 401A and the target point 402 may be corresponding to the second link):

a second direction extending from the second starting point to the second ending point (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined

as the direction from the position of the pixel to the target point". Note: from the second starting point to the second ending point may be corresponding to the second direction); and

a second length between the second starting point and the second ending point (See Ohta: Figs. 2 and 6, and [0067], "Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401A and the target point 402 may be corresponding to the second length);

identify a second set of pixels that lie between the second starting point and the second ending point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels between the control point 401A and the target point 402 may be corresponding to the second set of pixels); and

shift the second set of pixels in the second direction (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is

performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"), wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted. Note that these limitations of the dependent claim5 are basically a repeated execution of the same steps as disclosed in the independent claim 1: it is just running the method again on another region of the image).

Regarding **claim 6**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 5 as outlined above. Further, Ohta teaches that the computer system of claim 5, wherein the first direction is different from the second direction (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point". The first direction is from point 401B to point 402, and it is different from the second direction that is from point 401A to point 402).

Regarding **claim 7**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 5 as outlined above. Further, Ohta teaches that the computer system of claim 5, wherein the magnitude of the shifting of the first set of pixels is

proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length (See Ohta: Figs. 2 and 7, and [0042], "FIG. 2 shows an example of a shift amount map that is stored in the shift amount map storage unit 13. A numerical value in each square of the grid of the map 201 is a value representing a pixel shift amount. In the first embodiment, a pixel value is used as a value that represents a pixel shift amount, but the pixel shift amount is not limited to a value in any specific unit. For example, a value that is proportional to a shift amount may also be used").

Regarding **claim 8**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 1 as outlined above. Further, Ohta, Amirghodsi, and SCICompanion teach that a method for automating the shifting of pixels within a digital image (See Ohta: Fig. 1, and [0038], "The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16"), comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points". The control points 401B may be corresponding to the first starting point);

receiving, through the user interface, a first direction associated with the first starting point (See Ohta: Fig. 2, and [0043], “Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point”);

selecting a first set of pixels extending in the first direction away from the first starting point (See Ohta: Figs. 2 and 6-7, and [0070], “Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image”. The number of pixels between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

shifting the first set of pixels in the first direction (See Ohta: Fig. 8, and [0074], “Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts”), wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted (See SCICompanion: Section “An example using overlay”, “These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let’s just briefly visualize the three ranges of indices that cycle separately. They

are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Regarding **claim 9**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 8 as outlined above. Further, Ohta teaches that the method as recited in claim 8, further comprising receiving an indication of an ending point through a user interface, wherein the ending point is received through a user selection of a different portion of the digital image (See Ohta: Fig. 4, and [0059], "Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the image is morphed". The control points 402 may be corresponding to the ending point).

Regarding **claim 10**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 9 as outlined above. Further, SCICompanion teaches that the method as recited in claim 9, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Regarding **claim 11**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 8 as outlined above. Further, Amirghodsi teaches that the method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 12**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 11 as outlined above. Further, Amirghodsi teaches that the method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 13**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 12 as outlined above. Further, Amirghodsi teaches that the method of claim 12, further comprising:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive"); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge").

Regarding **claim 14**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 8 as outlined above. Further, Ohta and SCICompanion teach that the method as recited in claim 8, further comprising:

receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an

organ, the control points may be located at the positions of the feature points". The control point, 401A may be corresponding to the second starting point);

receiving, through the user interface, a second direction associated with the second starting point See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point". Note: from the second starting point to the second ending point may be corresponding to the second direction);

selecting a second set of pixels extending in the second direction away from the second starting point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels between the control point 401A and the target point 402 may be corresponding to the second set of pixels); and

shifting the second set of pixels in the second direction (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"),

wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted (See SCICompanion: Section “An example using overlay”, “These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let’s just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image”. Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted. Note that these limitations of the dependent claim5 are basically a repeated execution of the same steps as disclosed in the independent claim 1: it is just running the method again on another region of the image).

Regarding **claim 15**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 14 as outlined above. Further, Ohta teaches that the method as recited in claim 14, wherein the first direction is different from the second direction (See Ohta: Fig. 2, and [0043], “Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point”. The first direction is from point 401B to point 402, and it is different from the second direction that is from point 401A to point 402).

Regarding **claim 16**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 1 as outlined above. Further, Ohta, Amirghodsi, and SCICompanion teach that a method for automating the shifting of pixels within a digital image (See Ohta: Fig. 1, and [0038], “The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16”), comprising:

accessing, from memory (See Ohta: Fig. 1, and [0038], “a memory 16”), a digital image file (See Amirghodsi: Figs. 1-2, and [0020], “As depicted, sequence 100 begins at 102a with digital image 104. Digital image 104 represents an image that is stored in a digital format. Such a digital format could be, for example, a Joint Photographic Experts Group (JPEG) format, a Bitmap (BMP) format, a Tagged Image File Format (TIFF), a Portable Networks Graphic (PNG) format, A Graphics Interchange Format (GIF), or any other suitable format”)., wherein the digital image file comprises information that corresponds to individual pixels within the digital image (See Ohta: Fig. 1, and [0039], “The image capturing unit 11 is a unit that captures an image, and typically includes an optical system, an image sensor, and an interface there between. The image capturing unit 11 may include any device as long as it can capture an image”);

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image (See Ohta: Fig. 4, and [0057], “FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points”. The control points 401 B may be corresponding to the first starting point);

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface (See Ohta: Fig. 4, and [0059], “Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when

the image is morphed". The control points 402 may be corresponding to the first ending point);

creating a first link between the first starting point and the first ending point, wherein the first link (See Ohta: Fig. 5, and [0066], "First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained". The line between the control point 401B and the target point 402 may be corresponding to the link): comprises:

a first direction extending from the first starting point to the first ending point (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point"); and

a first length between the first starting point and the first ending point (See Ohta: Figs. 2 and 6, and [0067], "Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401B and the target point 402 may be corresponding to the length);

identifying a first set of pixels that lie between the first starting point and the first ending point (See Ohta: Figs. 2 and 6-7, and [0070], “Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image”. The number of pixels between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

shifting the first set of pixels in the first direction (See Ohta: Fig. 8, and [0074], “Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts”), wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted (See SCICompanion: Section “An example using overlay”, “These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let’s just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image”. Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Regarding **claim 17**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 16 as outlined above. Further, Amirghodsi teaches that the method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 18**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 17 as outlined above. Further, Amirghodsi teaches that the method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 19**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 17 as outlined above. Further, Amirghodsi teaches that the method of claim 17, further comprising:

generating the mask (See Amirghodsi: Fig. 7, and [0056], “At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask”), wherein generating the mask comprises:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive”); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge”).

Regarding **claim 20**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 16 as outlined above. Further, Ohta and SCICompanion teach that the method of claim 16, further comprising:

receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image (See Ohta: Fig. 4, and [0057], “FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points”. The control point, 401A may be corresponding to the second starting point);

receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface (See Ohta: Fig. 4, and [0059], “Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the image is morphed”. The control points may be corresponding to the second ending point);

creating a second link between the second starting point and the second ending point, wherein the second link (See Ohta: Fig. 5, and [0066], “First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the

acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained". The line between the control point 401A and the target point 402 may be corresponding to the second link) comprises:

a second direction extending from the second starting point to the second ending point (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point". Note: from the second starting point to the second ending point may be corresponding to the second direction); and

a second length between the second starting point and the second ending point (See Ohta: Figs. 2 and 6, and [0067], "Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401A and the target point 402 may be corresponding to the second length);

identifying a second set of pixels that lie between the second starting point and the second ending point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method,

such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels between the control point 401A and the target point 402 may be corresponding to the second set of pixels); and

shifting the second set of pixels in the second direction (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"), wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted. Note that these limitations of the dependent claim5 are basically a repeated execution of the same steps as disclosed in the independent claim 1: it is just running the method again on another region of the image).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GORDON LIU whose telephone number is (571)270-0382. The examiner can normally be reached on IFS.

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, Ke Xiao can be reached on 571-272-7776. 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.

/GORDON LIU/
Examiner, Art Unit 2612

Notice of References Cited	Application/Control No. 16/102,055	Applicant(s)/Patent Under Reexamination PLOTA ET AL.	
	Examiner GORDON LIU	Art Unit 2612	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-2015/0262327 A1	09-2015	Ohta; Takashi	G06T3/0093	345/646
*	B	US-2017/0140514 A1	05-2017	Amirghodsi; Sohrab	G06T5/50	1/1
	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	SCICompanion, Palette Cycling, March 6, 2016. [Online], Retrieved on 9/21/2018, Retrieved from the Internet <URL: http://scicompanion.com/Documentation/palettecycling.html>
	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.	Applicant(s)/Patent Under Reexamination
	16102055	PLOTA ET AL.
	Examiner	Art Unit
	GORDON LIU	2612

CPC- SEARCHED		
Symbol	Date	Examiner
(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	9/21/2018	/G.L./

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
345	619	9/21/2018	/G.L./

* 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
Consulting QEM for 101 rejections,	9/20/2018	/G.L./
Google search: palette cycling and color cycling.	9/21/2018	/G.L./

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

/GORDON LIU/ Examiner.Art Unit 2612	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	"16102055"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:24
S2	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:25
S3	37994	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:27
S4	41651	S2 or S3	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:27
S5	76	S4 and shift same loop	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:28
S6	7	S5 and set with pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:28
S7	11	("20180032236" or "20160343152" or "20150262327" or "20160270648" or "20060129933" or "5818465" or "20040039934" or "20160163253" or "20150146119" or "8299413" or "20170213388").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:59
S8	121	color adj cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:10
S9	1	S8 and starting and ending with points	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:10
S10	46	S8 and animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:11
S11	2219	still adj image same animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:45
S12	163	S11 and transformation and motion	US-PGPUB; USPAT;	OR	OFF	2018/09/19 22:46

			EPO			
S13	0	S12 and color and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:46
S14	22	S12 and color and (cycling or loop)	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:46
S15	9181	motion with animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:51
S17	661	S15 and single adj image	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:51
S18	84	S17 and single adj image with animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:52
S19	4	S18 and shifting and pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:52
S20	5	("20150262327" or "20150022518" or "20100134505" or "20070019007" or "20110273583").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 23:21
S21	1	"20170140514".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 08:49
S22	7	("8520054" or "9906793" or "9300857" or "9414016").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 08:55
S23	1	"8831378".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 09:35
S24	1	"20080174795".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 09:51
S25	2	"20130140514"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 11:40

EAST Search History (Interference)

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Bibliographic Data

Application No: 16/102,055

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /GORDON G LIU/ Examiner's Signature | Initials

Title: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/13/2018	345	2612	20970.1.1.1.2
RULE			

APPLICANTS

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CONTINUING DATA

This application is a CON of 15660677 07/26/2017

15660677 has PRO of 62514703 06/02/2017

15660677 has PRO of 62368017 07/28/2016

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2018

** SMALL ENTITY **

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FILING FEE RECEIVED

$2,855

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16102055	PLOTA ET AL.
	Examiner	Art Unit
	GORDON LIU	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/21/2018								
	1	✓								
	2	✓								
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	19	✓								
	20	✓								

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	20070019007	25-Jan-2007	JUNG	
	2	20100134505	3-Jun-2010	ANDERSON	
	3	20110273583	10-Nov-2011	YOSHINO	
	4	20150022518	22-Jan-2015	JVC KENWOOD CORPORATION	

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	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 [1]
	5	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	6	15/660677	26-Sep-2018	Office Action

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	John C Stringham	Date	11/1/18
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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Verified

By: DPeterson On: 12 Oct 2017

DOCKETED

Atty JCS File# 20970.1.1.1a

By kplatt On 11 Oct 2017

Action Article 19 Amendments

Response Due 12/6/17

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JOHN C. STRINGHAM
60 EAST SOUTH TEMPLE
SUITE 1000
SALT LAKE CITY, UT 84111

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 06 OCT 2017
Applicant's or agent's file reference 20970-1-1-1A	**FOR FURTHER ACTION** See paragraphs 3 and 4 below
International application No. PCT/US2017/044256	International filing date *(day/month/year)* 27 July 2017
Applicant PLOTA, TROY	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **22 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2017)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 20970-1-1-1A	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2017/044258	International filing date *(day/month/year)* 27 July 2017	(Earliest) Priority Date *(day/month/year)* 28 July 2016
Applicant PLOTA, TROY		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 9 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the drawings to be published with the abstract is Figure No. 1

   ☐ as suggested by the applicant.

   ☒ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/044266

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06K 9/00; G06T 1/00; G09G 3/20; G09G 3/36; G09G 5/00 (2017.01)
CPC - G06T 15/20; H04N-001/60/77; H04N-009/73/5; H04N-013/02/6 (2017.08)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 345/419.000; 345/473.000; 348/223.100; 382/154.000 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- A	US 20150262327 A1 (OMRON CORPORATION) 17 September 2015 (17.09.2015) entire document	1-3, 7-17 --- 4-6, 18-20
Y --- A	US 20150022518 A1 (JVC KENWOOD CORPORATION) 22 January 2015 (22.01.2015) entire document	1-3, 10-12, 15-17 --- 4-6, 18-20
Y --- A	US 20100134505 A1 (ANDERSON) 03 June 2010 (03.06.2010) entire document	1-3, 7-17 --- 4-6, 18-20
A	US 20070019007 A1 (JUNG) 25 January 2007 (25.01.2007) entire document	1-20
A	US 20110273583 A1 (YOSHINO et al) 10 November 2011 (10.11.2011) entire document	1-20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 September 2017	06 OCT 2017
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

Verified

By: DPeterson On: 12 Oct 2017

DOCKETED

Atty JCS File# 20970.1.1.1a

By kplatt On 11 Oct 2017

Action Written Opinion

Response Due 12/6/17

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JOHN C. STRINGHAM
60 EAST SOUTH TEMPLE
SUITE 1000
SALT LAKE CITY, UT 84111

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	06 OCT 2017
Applicant's or agent's file reference: 20970-1-1-1A	FOR FURTHER ACTION: See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2017/044256	27 July 2017	28 July 2016

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06K 9/00; G06T 1/00; G09G 3/20; G09G 3/36; G09G 5/00 (2017.01)
CPC - G06T 15/20; H04N-001/60/77; H04N-009/73/5; H04N-013/02/6 (2017.08)

Applicant PLOTA, TROY

1. This opinion contains indications relating to the following items.

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	25 September 2017	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/044256

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing:

a. ☐ forming part of the international application as filed:

☐ in the form of an Annex C/ST.25 text file.

☐ on paper or in the form of an image file.

b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/US2017/044256

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	None	NO
Inventive step (IS)	Claims	4-6, 18-20	YES
	Claims	1-3, 7-17	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-3 and 15-17 lack an inventive step under PCT Article 33(3) as being obvious over OMRON CORPORATION (hereinafter OMRON) in view of JVC KENWOOD CORPORATION (hereinafter JVC) and ANDERSON.

Regarding Claim 1, OMRON teaches computer system (para [0037], system configuration of an image capturing apparatus) for automating the shifting of pixels within a digital image (para [0038] discloses image capture apparatus includes shift amount map, where, as further disclosed in para [0041]-[0044], pixels of an image are shifted),
comprising: one or more processors; and one or more computer-readable media having stored
thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following (para [0047] discloses processing device such as a CPU executing control programs. Also see para [0024], program for causing a computer to execute the image processing method):
access, from memory, a digital image file (para [0038] discloses images are captured [thus, the images will be stored in associated memory/storage for processing]. Also see para [0048]),
wherein the digital image file comprises information that corresponds to individual pixels
within the digital image (para [0041] discloses obtaining pixel shift amount map from storage [claimed information corresponding to pixels]); receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface (para [0046] discloses input/output unit 15 is a unit that receives an input operation by a user. Further, para [0096] discloses user inputs shift amount. Further as disclosed in Fig. 8, a shift amount begins at a starting pixel and shifts a determined distance to an ending point pixel); create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point (para [0091] discloses user inputs shift direction. Further, as disclosed in Fig. 8, a pixel distance from a starting point to an end/target point is determined with an associated direction for shifting the associated pixels. Also, see para [0061], user selects target point); and a first length between the first starting point and the first ending point (Fig. 8, pixel shift distance. Also see para [0096], pixel shift amount); identify a first set of pixels that lie between the first starting point and the first ending point (Fig. 8 discloses determining a pixel distance which is the amount of pixels to shift from a starting pixel to a target pixel); and shift the first set of pixels in the first direction (para [0091] and [0093] pixels are shifted based on pixel shift direction) and rendering the first set of pixels being shifted (para [0088], morphed image is generated and provided to user).
OMRON fails to disclose identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted, and wherein the first set of pixels comprises rendering and re-rendering in a loop.
However, JVC, in analogous art, teaches image processing (abstract). JVC further teaches identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (para [0086] discloses pixels of only the person region are shifted without shifting the pixels of the peripheral background region of the person region, where, as further disclosed in para [0071], masks are used to indicate the respective regions [thus, the mask will specific which regions to omit from the shifting procedure]).
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).
Furthermore, ANDERSON, in analogous art, teaches image processing (abstract). ANDERSON further teaches rendering and re-rendering in a loop (para [0025] discloses a rendering module which iteratively renders images on the display device [claimed rendering and re-rendering in a loop]. Also see para [0048]).
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of ANDERSON to incorporate rendering and re-rendering in the invention of OMRON in order to progressively monitor the quality of images as they are processed iteratively (para [0004], ANDERSON).

Regarding Claim 2, modified OMRON teaches wherein receiving an indication of a particular portion of the digital image comprises receiving through a user interface a selection of a particular pixel within the digital image (para [0061] discloses user can designate pixels directed to desired regions/portions of an image such as an organ).
OMRON fails to disclose generating a mask. However, JVC, in analogous art, teaches a mask (para [0071], masks are used to indicate the respective regions).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/044256

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding Claim 3, modified OMRON teaches the computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system (para [0047] discloses processing device such as a CPU executing control programs. Also see para [0024], program for causing a computer to execute the image processing method).
OMRON fails to disclose generate the mask by: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.
However, JVC, in analogous art, teaches generate the mask by: identifying one or more edges that form a boundary around the particular pixel (para [0098] discloses edge region of the mask); and generating the mask to cover area within the boundary (para [0071], masks are used to indicate the respective regions. Further, para [0141] discloses object boundary part of a mask).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

Regarding Claim 15, OMRON discloses a method (method for morphing a captured image) for automating the shifting of pixels within a digital image (para [0038] discloses image capture apparatus includes shift amount map, where, as further disclosed in para [0041]-[0044], pixels of an image are shifted),
comprising: accessing, from memory, a digital image file (para [0038] discloses images are captured [thus, the images will be stored in associated memory/storage for processing]. Also see para [0048]),
wherein the digital image file comprises information that corresponds to individual pixels
within the digital image (para [0041] discloses obtaining pixel shift amount map from storage [claimed information corresponding to pixels]); receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the user interface (para [0046] discloses input/output unit 15 is a unit that receives an input operation by a user. Further, para [0096] discloses user inputs shift amount. Further as disclosed in Fig. 8, a shift amount begins at a starting pixel and shifts a determined distance to an ending point pixel); create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point (para [0091] discloses user inputs shift direction. Further, as disclosed in Fig. 8, a pixel distance from a starting point to an end/target point is determined with an associated direction for shifting the associated pixels. Also, see para [0061], user selects target point); and a first length between the first starting point and the first ending point (Fig. 8, pixel shift distance. Also see para [0096], pixel shift amount); identifying a first set of pixels that lie between the first starting point and the first ending point (Fig. 8 discloses determining a pixel distance which is the amount of pixels to shift from a starting pixel to a target pixel); and shift the first set of pixels in the first direction (para [0091] and [0093] pixels are shifted based on pixel shift direction) and rendering the first set of pixels being shifted (para [0086], morphed image is generated and provided to user).
OMRON fails to disclose identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted; and wherein the first set of pixels comprises rendering and re-rendering in a loop.
However, JVC, in analogous art, teaches image processing (abstract). JVC further teaches identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (para [0086] discloses pixels of only the person region are shifted without shifting the pixels of the peripheral background region of the person region, where, as further disclosed in para [0071], masks are used to indicate the respective regions [thus, the mask will specific which regions to omit from the shifting procedure]).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).
Furthermore, ANDERSON, in analogous art, teaches image processing (abstract). ANDERSON further teaches rendering and re-rendering in a loop (para [0025] discloses a rendering module which iteratively renders images on the display device [claimed rendering and re-rendering in a loop]. Also see para [0048]).
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of ANDERSON to incorporate rendering and re-rendering in the invention of OMRON in order to progressively monitor the quality of images as they are processed iteratively (para [0004], ANDERSON).

Regarding Claim 16, modified OMRON teaches wherein receiving an indication of a particular portion of the digital image comprises receiving through a user interface a selection of a particular pixel within the digital image (para [0061] discloses user can designate pixels directed to desired regions/portions of an image such as an organ)
OMRON fails to disclose generating a mask. However, JVC, in analogous art, teaches a mask (para [0071], masks are used to indicate the respective regions).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

Regarding Claim 17, modified OMRON fails to disclose generate the mask by: identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.
However, JVC, in analogous art, teaches generate the mask by: identifying one or more edges that form a boundary around the particular pixel (para [0098] discloses edge region of the mask); and generating the mask to cover area within the boundary (para [0071], masks are used to indicate the respective regions. Further, para [0141] discloses object boundary part of a mask).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/044256

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 7-8, 13, and 14 lack an inventive step under PCT Article 33(3) as being obvious over OMRON CORPORATION (hereinafter OMRON) in view of ANDERSON.

Regarding Claim 7, OMRON teaches method (method for morphing a captured image) for automating the shifting of pixels within a digital image (para [0038] discloses image capture apparatus includes shift amount map, where, as further disclosed in para [0041]-[0044], pixels of an image are shifted), comprising: receiving a first indication of a first starting point through a user interface (para [0046] discloses input/output unit 15 is a unit that receives an input operation by a user. Further, para [0096] discloses user inputs shift amount. Further as disclosed in Fig. 8, a shift amount begins at a starting pixel and shifts a determined distance to an ending point pixel), wherein the first starting point is received through a user selection of a portion of the digital image (para [0061] discloses user can designate pixels directed to desired regions/portions of an image such as an organ); receiving, through the user interface, a first direction associated with the first starting point (para [0091] discloses user inputs shift direction. Further, as disclosed in Fig. 8, a pixel distance from a starting point to an end/target point is determined with an associated direction for shifting the associated pixels. Also, see para [0061], user selects target point); selecting a first set of pixels extending in the first direction away from the first starting point (Fig. 8 discloses determining a pixel distance which is the amount of pixels to shift from a starting pixel to a target pixel); and shifting the first set of pixels in the first direction (para [0091] and [0093] pixels are shifted based on pixel shift direction), wherein shifting the first set of pixels comprises rendering the first set of pixels being shifted (para [0086], morphed image is generated and provided to user).
OMRON fails to disclose wherein the first set of pixels comprises rendering and re-rendering in a loop.
However, ANDERSON, in analogous art, teaches rendering and re-rendering in a loop (para [0025] discloses a rendering module which iteratively renders images on the display device [claimed rendering and re-rendering in a loop]. Also see para [0048]).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of ANDERSON to incorporate rendering and re-rendering in the invention of OMRON in order to progressively monitor the quality of images as they are processed iteratively (para [0004], ANDERSON).

Regarding Claim 8, modified OMRON teaches the method as recited in claim 7, further comprising receiving an indication of an ending point through a user interface (para [0061] discloses target points are set by the user. Further, Fig. 8 discloses pixel are shifted from a starting point to the target point by a determined shift amount), wherein the ending point is received through a user selection of a different portion of the digital image (para [0061] discloses a user can designate only a desired organ, and control points and a target point are arranged only with respect to the designated organ).

Regarding Claim 9, modified OMRON teaches the method as recited in claim 8, further comprising when a pixel selected from the first set of pixels reaches the ending point (Fig. 8, pixels are shifted from a starting point to a target point and are shifted by a determined amount of pixels) and rendering the pixels being shifted from the first starting point to the ending point (para [0086], morphed image is generated and provided to user).
OMRON fails to disclose wherein the first set of pixels comprises rendering and re-rendering in a loop.
However, ANDERSON, in analogous art, teaches rendering and re-rendering in a loop (para [0025] discloses a rendering module which iteratively renders images on the display device [claimed rendering and re-rendering in a loop]. Also see para [0048]).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of ANDERSON to incorporate rendering and re-rendering in the invention of OMRON in order to progressively monitor the quality of images as they are processed iteratively (para [0004], ANDERSON).

Regarding Claim 13, modified OMRON teaches the method as recited in claim 7, further comprising: receiving a second indication of a second starting point through a user interface, wherein the second starting point is received through a user selection of a portion of the digital image; receiving, through the user interface, a second direction associated with the second starting point; selecting a second set of pixels extending in the second direction away from the second starting point; and shifting the second set of pixels in the second direction (para [0046] discloses input/output unit 15 is a unit that receives an input operation by a user. Further, para [0096] discloses user inputs shift amount. Further as disclosed in Fig. 8, a first and second shift amounts are designated where a respective shift amount begins at a starting pixel and shifts a determined distance to an target/ending point pixel), and rendering the first set of pixels being shifted (para [0086], morphed image is generated and provided to user).
OMRON fails to disclose rendering and re-rendering in a loop the second set of pixels being shifted.
OMRON fails to disclose wherein the first set of pixels comprises rendering and re-rendering in a loop.
However, ANDERSON, in analogous art, teaches rendering and re-rendering in a loop (para [0025] discloses a rendering module which iteratively renders images on the display device [claimed rendering and re-rendering in a loop]. Also see para [0048]).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of ANDERSON to incorporate rendering and re-rendering in the invention of OMRON in order to progressively monitor the quality of images as they are processed iteratively (para [0004], ANDERSON).

Regarding Claim 14, modified OMRON teaches the method as recited in claim 13, wherein the first direction is different from the second direction (Fig. 8 discloses a first and second direction for shifting pixels by a respective shift amount to a target point).

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/044256

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 10-12 lack an inventive step under PCT Article 33(3) as being obvious over OMRON CORPORATION (hereinafter OMRON) in view of ANDERSON and JVC KENWOOD CORPORATION (hereinafter JVC).

Regarding Claim 10, modified OMRON fail to disclose comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.
However, JVC, in analogous art, teaches receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting (para [0086] discloses pixels of only the person region are shifted without shifting the pixels of the peripheral background region of the person region, where, as further disclosed in para [0071], masks are used to indicate the respective regions (thus, the mask will specific which regions to omit from the shifting procedure)).
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

Regarding Claim 11, modified OMRON teaches the method as recited in claim 10, further comprising receiving through a user interface a selection of a particular pixel within the digital image (para [0061] discloses user can designate pixels directed to desired regions/portions of an image such as an organ).
OMRON fails to disclose selecting a mask. However, JVC, in analogous art, teaches generating a mask (para [0071], masks are used to indicate the respective regions). Furthermore, configuring processing of images is a practice well known in the art and the specifics (selecting a mask to generate) is a matter of design choice. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate generating desired masks to omit specified pixels from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

Regarding Claim 12, modified OMRON fails to disclose identifying one or more edges that form a boundary around the particular pixel; and generating the mask to cover area within the boundary.
However, JVC, in analogous art, teaches generate the mask by: identifying one or more edges that form a boundary around the particular pixel (para [0086] discloses edge region of the mask); and generating the mask to cover area within the boundary (para [0071], masks are used to indicate the respective regions. Further, para [0141] discloses object boundary part of a mask).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of JVC to incorporate masking pixels to omit from a shifting procedure in the invention of OMRON in order to enhance flexibility in processing images by selecting predefined regions to perform analysis and processing (para [0086], JVC).

Claims 4-6 and 18-20 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest:

Regarding claim 4, the prior art of record, individually or in combination, does not teach or fairly suggest the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to: receive a second starting point through the user interface, wherein the 10 second starting point is received through a user selection of a second beginning portion of the digital image; receive a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; 15 create a second link between the second starting point and the second ending point, wherein the second link comprises: a second direction extending from the second starting point to the second ending point; and a second length between the second starting point and the second 20 ending point; identify a second set of pixels that lie between the second starting point and the second ending point; and shift the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the 25 second set of pixels being shifted.

Claims 5 and 6 depend from claim 4, and therefore meet the criteria set out in PCT Article 33(2)-(3) for at least the same reasons as claim 4.

Regarding claim 5, the prior art of record, individually or in combination, does not teach or fairly suggest the computer system of claim 4, wherein the first direction is different from the second direction.

Regarding claim 6, the prior art of record, individually or in combination, does not teach or fairly suggest the computer system of claim 4, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the 30 shifting of the second set of pixels is proportionally related to the second length.

Regarding claim 18, the prior art of record, individually or in combination, does not teach or fairly suggest the method of claim 15, further comprising: receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second beginning portion of the digital image; 10 receiving a second ending point through the user interface, wherein the second ending point is received through a user selection of a second beginning portion of the user interface; creating a second link between the second starting point and the second ending point, wherein the second link comprises: 15 a second direction extending from the second starting point to the second ending point; and a second length between the second starting point and the second ending point; identifying a second set of pixels that lie between the second starting 20 point and the second ending point; and shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.

Claims 19 and 20 depend from claim 18, and therefore meet the criteria set out in PCT Article 33(2)-(3) for at least the same reasons as claim 18.

Regarding claim 19, the prior art of record, individually or in combination, does not teach or fairly suggest the method of claim 18, wherein the first direction is different from the second 25 direction.

Form PCT/ISA/237 (Supplemental Box) (January 2015)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2017/044256

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 20, the prior art of record, individually or in combination, does not teach or fairly suggest the method of claim 18, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

Electronic Patent Application Fee Transmittal

Application Number:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Thomas Conner
Attorney Docket Number:	20970.1.1.1.2

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt

EFS ID:	34204541
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Thomas Conner
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	03-NOV-2018
Filing Date:	13-AUG-2018
Time Stamp:	15:08:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$120
RAM confirmation Number	110518INTEFSW15093100
Deposit Account	233178
Authorized User	Thomas Conner
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1-2_2018-11-03_IDS.pdf	330877 c9018f181651c91406f9d17465f0c8d08972d5a0	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	International_Search_Report_PCT-US2017-044256_20171006.pdf	2198683 a26a0a9aae37ebba06a074f3e0ccf761df7b2648	no	10
Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	15660677_20180926_OA.pdf	2176258 6fc3201a82cdfa3fd3667dbe1cda94fe8e4f9b6f	no	59
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30510 a87a632458cab956a70aa56e6ec03fe85f5add46	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	4736328		

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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.

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Nov 14 2018

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s):
John C. Stringham

S-signature:
/John Stringham/

Registration Number:
40831

U.S. Application Number:
16102055

Confirmation Number:
1042

E-mail Address:
sheld@wnlaw.com

Phone Number:
8013218944

Proposed Time of Interview:
12-19-2018 4:00 PM ET

Prefered Interview Type:
Video Conference

I am the applicant or applicant's representative for this application.

Topic for Discussion:

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2

CONFIRMATION NO. 1042

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

PUBLICATION NOTICE

OC000000104267558

Title:AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Publication No.US-2018-0349000-A1
Publication Date:12/06/2018

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 publically 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 Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, 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 https://portal.uspto.gov/pair/PublicPair. 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 Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

TRANSMITTAL FOR AMENDMENT "A"
AND RESPONSE AFTER NON-FINAL

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

Dear Sir:

Transmitted herewith is an Amendment "A" and Response for entry in the above-identified application.

			SMALL ENTITY		LARGE ENTITY	
CLAIMS REMAINING AFTER	**HIGHEST NO. PREVIOUSLY PAID FOR**	**PRESENT EXTRA**	**RATE**	**ADDT'L FEE**	**RATE**	**ADDT'L FEE**
TOTAL 18	MINUS 20	= 0	X		X $80.00	00.00
INDEPENDENT 3	MINUS 3	= 0	X		X $420.00	00.00
1st PRESENTATION OF MULTIPLE DEPENDENT CLAIM			+_____=		+_____=	
			TOTAL		**TOTAL**	00.00

X The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to **Deposit Account No. 23-3178**: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to **Deposit Account No. 23-3178**.

Dated this 20th day of December, 2018.

Respectfully submitted,

/W. BRAD BARGER/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
Registration No. 69,566
WORKMAN | NYDEGGER
Attorneys for Applicant
Customer No. 22913

Electronic Acknowledgement Receipt

EFS ID:	34662370
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	William Brad Barger/Lindsey Gifford
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	20-DEC-2018
Filing Date:	13-AUG-2018
Time Stamp:	18:47:14
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	Amendment/Req. Reconsideration-After Non-Final Reject	20970-1-1-1-2_2018-12-20_Amendment-A.pdf	171215 2583f971f2a68c4bad0752412f14f808a728c359	no	16

Warnings:

Information:					
2	Transmittal Letter	20970-1-1-1-2_2018-12-20_Transmittal.pdf	134088 9b98d53914b14ce241411bad69d38d2ebf9f66b6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	305303		

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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.

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit) 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

AMENDMENT A AND RESPONSE

AFTER NON-FINAL

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

Dear Sir:

In response to the Office Action of October 2, 2018 ("*Office Action*"), (Paper No. 20180919), please amend and reconsider the above-identified application, in which:

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

Listing of Claims:

1. (Currently Amended) A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:

access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the ~~user interface~~digital image;

create a first link between the first starting point and the first ending point, wherein the first link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identify a first set of pixels that lie between the first starting point and the first ending point; ~~and~~

automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted;

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

select a second set of pixels intermediate the second starting point and the second ending point; and

automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

2. (Original) The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

3. (Original) The computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

4. (Original) The computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

5. (Cancelled)

6. (Currently Amended) The computer system of claim 1~~5~~, wherein the first direction is different from the second direction.

7. (Currently Amended) The computer system of claim 1~~5~~, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.

8. (Currently Amended) A method for automating the shifting of pixels within a digital image, comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a first starting portion of the digital image;

receiving, through the user interface, a first ~~direction~~ ending point associated with the first starting point, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

selecting a first set of pixels ~~extending in the first direction away from~~intermediate the first starting point and the first ending point; ~~and~~

automatically shifting the first set of pixels ~~in the first direction~~between the first starting point and the first ending point, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted;

receiving a second indication of a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

selecting a second set of pixels intermediate the second starting point and the second ending point;

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

9. (Cancelled)

10. (Currently Amended) The method as recited in claim 8~~9~~, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point.

11. (Original) The method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.

12. (Original) The method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated.

13. (Original) The method of claim 12, further comprising:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) A method for automating the shifting of pixels within a digital image, comprising:

accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the ~~user interface~~digital image;

creating a first link between the first starting point and the first ending point, wherein the first link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identifying a first set of pixels that lie between the first starting point and the first ending point; ~~and~~

automatically shifting the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted

receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

selecting a second set of pixels intermediate the second starting point and the second ending point; and

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

17. (Original) The method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

18. (Original) The method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

19. (Original) The method of claim 17, further comprising:

generating the mask, wherein generating the mask comprises:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

20. (Cancelled)

21. (New) The method of claim 8, further comprising:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.

22. (New) computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.

23. (New) The method of claim 17, further comprising:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed October 2, 2018, considered claims 1-20.

By this amendment claims 1, 6, 7, 8, 10, and 16 have been amended. Claims 5, 9, 14-15, and 20 are cancelled and new claim 21-23 are added. Accordingly, claims 1-8, 10-13, and 16-21 are pending, of which claims 1, 8, and 16 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims, including the disclosure presented in at Figure 3C and the accompanying description.

Telephonic Interview

Initially, Applicant thanks the Examiner for the courtesies extended during the recent Web-Ex interview held on December 19th. The claim amendments and arguments submitted in this paper are consistent with the amendments and arguments presented during the course of the interview. Accordingly, entry of this amendment and reconsideration of the pending claims is respectfully requested.

35 U.S.C. § 101 Rejection of Claims 1-20

The *Office Action* rejected claim(s) 1-20 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Applicants respectfully traverse this rejection for the reasons explained below.

As discussed during the telephonic interview, the claims now clarify that the shifting occurs "automatically." The automatic shifting necessarily requires the use of a computer and is not performed by hand. As such, in view of the amendments and discussion during the Web-Ex

interview, Applicants respectfully submit that the claims are directed towards patent-eligible subject matter and do not include the abstract idea of an "idea of itself."

Double Patenting Rejection of Claims 1-20

The *Office Action* rejected claim(s) 1-20 on the grounds of nonstatutory double patenting as being unpatentable over U.S. Application No. 15/660,677. Applicants note that independent claims 1, 8, and 16 have not been allowed. Accordingly, because each of the independent claims may not be in a non-finalized state, it remains to be seen whether the claims will be obvious over U.S. Application No. 15/660,677. Accordingly, Applicants respectfully request that this rejection be held in abeyance until the claims are allowed.

35 U.S.C. §103(a) Rejection of Claims 1-20

The *Office Action* rejected claim(s) 1-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2015/0262327 Ohta ("Ohta") in view of U.S. Patent Publication No. 2017/0140514 Amirghodsi ("Amirghodsi") in further view of "Palette Cycling" ("SCICompanion").

Applicants respectfully submit that the art of record fails to teach or suggestion the claims as originally filed. For example, the art of record to teach or suggest the following limitations of Independent Claim 1:

> receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, **the second starting portion being different than both the first starting portion and the first ending portion**;

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, **the second ending portion being different than both the first starting portion and the first ending portion**;

selecting a second set of pixels intermediate the second starting point and the second ending point; and

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted

(emphasis added)

The above limitations are similarly recited in Independent Claims 8 and 16.

The *Office Action* relies upon *Ohta* for teaching similar features that were previously recited in claims 5 and 14. The claims presented by this paper, however, clarify that the second starting is different than both the first starting portion and the first ending portion and the second ending portion is different than both the first starting portion and the first ending portion. In contrast, *Ohta* teaches a system for morphing images based upon morphing maps. It appears that a single morphing map is applied to an image and the image is then morphed in a single, non-repeated step. *Ohta* provides the example of morphing an image of a face to make a mouth appear smaller.

The teachings of *Ohta* do not provide the dynamic ability of the claims presented by this paper. For example, as outlined in the present claims a user is able to select multiple distinct beginning points and distinct ending points. The intermediate pixels are then shifted in a number

of different directions between a number of different beginning and ending points. The teachings of *Ohta* are much more limiting in that the morphing maps appear to require a single target point that the maps are able to morph into.

Accordingly, Applicants respectfully submit that the art of record fails to teach or suggest the above referenced limitations that are recited in Independent Claims 1, 8 and 16. In view of this deficiency, Applicants respectfully request that the present claims be allowed.

Conclusion

In view of the foregoing, Applicants respectfully submit that the remaining rejections of record are also now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that Applicants have not acquiesced to any of the purported teachings or assertions made in the Office Action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any official notice, explicitly or implicitly, Applicants specifically request that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event the Examiner finds any other issues that would need to be addressed before allowance, the Examiner is invited to contact Applicants' undersigned Attorneys directly.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and

reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 20th day of December, 2018.

Respectfully submitted,

/W. Brad Barger/

John C. Stringham
Registration No.: 40,831
W. Brad Barger
Registration No. 69,566
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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.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 12/27/2018

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
12/27/2018	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):

Docketing@wnlaw.com

Applicant-Initiated Interview Summary	Application No. 16/102,055	Applicant(s) Plota et al.	
	Examiner GORDON G LIU	Art Unit 2612	AIA Status Yes

All participants (applicant, applicants representative, PTO personnel):

(1) GORDON G. LIU.

(2) W. Brad Barger.

(3) John C. Stringham.

(4) _____.

Date of Interview: 19 December 2018.

Type: ☐ Telephonic ☑ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☑101 ☐112 ☐102 ☑103 ☑Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: Ohta (US20150262327 A1).

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

There was no general agreement reached during this WebEx interview. We discussed about ODP and the applicant said that they may determine how to deal with ODP rejections after resolving 101 and 103 rejections. The proposed amendments may overcome the 103 rejections, but may not overcome the prior arts on records. Further amendments may be proposed to overcome the 101 and 103 rejections. No further actions may be performed at Examiner side before the final version of the amendments are received. Examiner points that the specific way of pixel shifting, similar to circular buffer type of circular pixel shifting, as disclosed in the Fig. 5 of the specification, may be added in the claim to overcome the 103 rejections..

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 period 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

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.

☑ Attachment

/GORDON G LIU/ Examiner, Art Unit 2612	

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 examiners 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 applicants 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 applicants 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 examiners 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 examiners initials.

Please do not enter.
/Gordon Liu/
12/19/2018

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

EXAMINER INTERVIEW AGENDA

Enclosed are various exemplary claim amendments provided for the sake of discussion during our WebEx interview scheduled for Wednesday, December 19th, at 4 PM Eastern Time. We look forward to talking with you.

Dated this 18th day of December 2018

Respectfully submitted,

/W. Brad Barger, Reg. No. 69,566/

John C. Stringham
Registration No.: 40,831
W. Brad Barger
Registration No. 69,566
Attorneys for Applicant
Customer No. 22913

FOR DISCUSSION PURPOSES

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
Serial No.: 16/102,055
Docket No.: 20970.1.1.1.2
Examiner: Gordon G. Liu
Interview Date/Time: Wednesday, December 19th, at 4 PM Eastern Time

CLAIM

1. (Example Amendment For Discussion Purpose) A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:

access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the ~~user interface~~digital image;

create a first link between the first starting point and the first ending point, wherein the first link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending

FOR DISCUSSION PURPOSES

point;

identify a first set of pixels that lie between the first starting point and the first ending point; and

shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted,

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion,

receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

select a second set of pixels intermediate the second starting point and the second ending point; and

shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

FOR DISCUSSION PURPOSES

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

U.S. PATENT APPLICATIONS					
Examiner Initials*	Cite No.	Document Number	Filing Date	Name of Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	16/162206	16-Oct-2018	Plota et al.	

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2	20090189912	30-Jul-2009	Holtman	

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	3	16/162206	26-Dec-2018	Office Action

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Piota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178 regarding this Information Disclosure Statement

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	1/2/19
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Electronic Patent Application Fee Transmittal

Application Number:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Thomas Conner
Attorney Docket Number:	20970.1.1.1.2

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt

EFS ID:	34891464
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Thomas Conner
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	17-JAN-2019
Filing Date:	13-AUG-2018
Time Stamp:	18:20:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$120
RAM confirmation Number	011819INTEFSW18210100
Deposit Account	233178
Authorized User	Thomas Conner
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1-2_2019-01-17_IDS.pdf	215990 6f4c8f44587bab586cd8b146f35f1605babc4fa7	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	16162206_20181226_OA.pdf	1638336 ece26f28cb44fd002f35a453e3f10e9a2bd3b31f	no	49
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30509 cb67aa3fa3b1579eb043cf6393b2b4a8140bfad6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1884835		

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 01/18/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
01/18/2019	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):

Docketing@wnlaw.com

Office Action Summary	Application No. 16/102,055	Applicant(s) Plota et al.	
	Examiner GORDON G LIU	Art Unit 2612	AIA Status Yes

-- 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 12/27/2018.

☐ 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) 1-4,6-8,10-13,16-19 and 21-23 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) 1-4,6-8,10-13,16-19 and 21-23 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 8/13/2018 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

This Office Action is in response to the Applicants' communication filed on December 20, 2018, which amends the independent claims 1, 8, and 16, amends the dependent claims 2-7 and 10, cancels the dependent claim 5, 9, 14-15, and 20, adds new dependent claims 21-23, and presents arguments, is hereby acknowledged. **Claims 1-4, 6-8, 10-13, 16-19, and 21-23** are currently pending and have been examined.

Notice of Pre-AIA or AIA Status

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

Response to Amendment

Applicant's arguments filed on December 20, 2018, have been fully considered.

Applicant argues that by this response, "*The Office Action rejected claim(s) 1-20 on the grounds of nonstatutory double patenting as being unpatentable over U.S. Application No. 15/660,677. Applicants note that independent claims 1, 8, and 16 have not been allowed. Accordingly, because each of the independent claims may not be in a non-finalized state, it remains to be seen whether the claims will be obvious over U.S. Application No. 15/660,677. Accordingly, Applicants respectfully request that this rejection be held in abeyance until the claims are allowed*."

Examiner replies that both the instant application 16/102,055 and the sister case 15/660,677 are not in allowable condition currently, therefore, the ODP rejections to 16/102,055 and 15/660,677 are still valid under this Office action.

Applicant argues that by this response, the independent claims 1, 8, and 16, are hereby amended to add a new limitation "**automatically** shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted**; receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; select a second set of pixels intermediate the second starting point and the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.**" in order to overcome the 35 U.S.C. §101 and §103 rejection.

Examiner replies that the §101 rejections to claims 1-20 have been withdrawn.

Examiner further replies that the newly added limitations are mainly from the previous presented claim 5 with small modifications, and these newly added limitations are just a repeat process of the limitation claimed in the original independent claim 1. That is, the original claim 1 has limitation of specifying the first starting point and the first ending point, and shifting the pixels between the first staring point and the first ending pointing by rendering and re-rendering the pixels being shifted; the newly added limitations are specifying a second starting

point and a second ending point, the second starting point and the second ending point being different from the image portion where the first starting point and the first ending point are located, and shifting the pixels between the second starting point and the second ending point in a loop for the pixels being shifted. Applying the same animation process to a different portion of the image may not place the application in allowable condition, because almost every piece of software may be executed numerous times, and so the algorithm applied to one portion of image may be applied to another portion of the image.

Applicant argues that by this response, the prior arts on record do not teach the features of the newly added limitations, specifically, applicant argues that "*The teachings of Ohta do not provide the dynamic ability of the claims presented by this paper. For example, as outlined in the present claims a user is able to select multiple distinct beginning points and distinct ending points. The intermediate pixels are then shifted in a number of different directions between a number of different beginning and ending points. The teachings of Ohta are much more limiting in that the morphing maps appear to require a single target point that the maps are able to morph into.*"

Examiner replies that it is true that Ohta (See Ohta: Fig. 4, and [0057]) teaches one target point (ending point) and many control points (starting point), and this cited portion may not teach the newly added limitations that the second starting point and the second ending points are different from the first starting point and the first ending point. However, Ohta also teaches that the same process may be applied to the eye if the eye is detected in the image (See Ohta: [0060], "Furthermore, if feature points were extracted at the time of the determination of an organ, the position of the target point may also be determined based on

the position of the feature points. For example, when an eye is an organ to be detected, the target point may be set at the center of the pupil"). Therefore, the newly added limitation may overcome the cited portions of the prior arts, but they may not overcome the prior arts on record.

Examiner further replies that to speed up the execution of the application, a newly found art, Jaeger, etc. (US 20150095882 A1) teaches that receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; select a second set of pixels intermediate the second starting point and the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted (See Jaeger: Figs. 7A-7G, and [0308-0314], "The same process applies to EM 62, which also impinges picture 60. As a result, EM 62 calls forth PAO 2, 65, which automatically crops a segment 67, of picture 60, and generates a second motion media. Said second motion media vertically rotates said picture segment 67, at a rate and orientation set by the characteristics of PAO 2, 65"). That is, Jaeger teaches explicitly that the same animation algorithm may be applied to two different regions of the digital image:

the image portion selected may be rotated 360 degree from the starting position to the end position.

Examiner respectfully further replies that the Applicant's arguments have been fully considered and a new ground of rejections have been made. Accordingly, new grounds of rejection are set forth below. Since the new grounds of rejection are necessitated by Applicant's amendments to the claims, the present action is made ***final***.

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-8, 10-13, 16-19, and 21-23 are rejected under 35 U.S.C. 103 as being unpatentable over Ohta (US 20150262327 A1) in view of Amirghodsi, etc. (US 20170140514 A1), further in view of "Palette Cycling" (by SCICompanion, March 6, 2016, hereinafter referred as SCICompanion) and Jaeger, etc. (US 20150095882 A1).

Regarding **claim 1**, Ohta teaches that a computer system for automating the shifting of pixels within a digital image (See Ohta: Fig. 1, and [0038], "The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16"), comprising:

one or more processors (See Ohta: Fig. 1, and [0047], "Control of the above-described units is realized by a processing device such as a CPU executing control programs"); and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following (See Ohta: Fig. 1, and [0047], "Control of the above-described units is realized by a processing device such as a CPU executing control programs. Furthermore, the control function may also be realized by a field programmable gate array (FPGA), an application specific integrated circuit (ASIC), or the like, or a combination thereof"):

access, from memory (See Ohta: Fig. 1, and [0038], "a memory 16"), a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image (See Ohta: Fig. 1, and [0039], "The image capturing unit 11 is a unit that captures an image, and typically includes an optical system, an image sensor, and an interface there between. The image capturing unit 11 may include any device as long as it can capture an image");

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points". The control points 01B may be corresponding to the first starting point);

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image (See Ohta: Fig. 4, and [0059], “Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the image is morphed”. The control points 402 may be corresponding to the first ending point);

create a first link between the first starting point and the first ending point, wherein the first link comprises (See Ohta: Fig. 5, and [0066], “First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained”. The line between the control point 401B and the target point 402 may be corresponding to the link):

a first direction extending from the first starting point to the first ending point (See Ohta: Fig. 2, and [0043], “Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point”); and

a first length between the first starting point and the first ending point (See Ohta: Figs. 2 and 6, and [0067], “Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this

processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401B and the target point 402 may be corresponding to the length);

identify a first set of pixels that lie between the first starting point and the first ending point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

automatically shift the first set of pixels in the first direction (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"), wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, Ohta fails to explicitly disclose that access, from memory, a digital image file; and wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, Amirghodsi teaches that access, from memory, a digital image file (See Amirghodsi: Figs. 1-2, and [0020], "As depicted, sequence 100 begins at 102a with digital image 104. Digital image 104 represents an image that is stored in a digital format. Such a digital format could be, for example, a Joint Photographic Experts Group (JPEG) format, a Bitmap (BMP) format, a Tagged Image File Format (TIFF), a Portable Networks Graphic (PNG) format, A Graphics Interchange Format (GIF), or any other suitable format").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was effectively filed to modify Ohta to have access, from memory, a digital image file as taught by Amirghodsi in order to modify the digital image to achieve a desired result (See Amirghodsi: [0001], "In some instances, these digital images do not capture the scene as desired. In such instances, digital image editing techniques can be employed to modify the digital image to achieve a desired result. Some of these digital image editing techniques utilize patch synthesis techniques that can be utilized to synthesize a region of the digital image"). Ohta teaches a system to edit digital image captured by the digital camera, while Amirghodsi teaches a system to edit digital image file. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to process digital image files. The motivation to modify Ohta by Amirghodsi is "Simple substitution of one known element for another to obtain predictable results".

However, Ohta, modified by Amirghodsi, fails to explicitly disclose that wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.

However, SCICompanion teaches that wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted (See SCICompanion:

Section “An example using overlay”, “These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let’s just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image”. Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was effectively filed to modify Ohta to have wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted as taught by SCICompanion in order to give the appearance of movement an otherwise static background (See SCICompanion: Figure on First Page, “Palette cycling is an animation effect that was popular during the days of palettized graphics. It involves rotating the palette colors to give the appearance of movement an otherwise static background. It can be seen most obviously in SCI games in the title screen with the Sierra logo, but also shows up in other places”). Ohta teaches a system to edit digital image by shifting the pixels, while SCICompanion teaches a system to edit digital image by palette cycling to generate animation effects on a static image. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to palette cycling the pixels as taught by SCICompanion to generate the animation effects. The motivation to modify Ohta by SCICompanion is “Simple substitution of one known element for another to obtain predictable results”.

However, Ohta, modified by Amirghodsi and SCICompanion, may not teach exactly that receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second

starting portion being different than both the first starting portion and the first ending portion; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; select a second set of pixels intermediate the second starting point and the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted. (Note that these limitations are basically a repeated execution of the same steps as the first set of pixels: it is just running the method again on another region of the image. The primary reference, Ohta also teaches that the same process may be applied to the eye if the eye is detected in the image, and this may be corresponding to second set of pixels animated as the first set pixels, and the second set pixels are related to the eye while the first set pixels are related to the mouth. To speed up the execution of the application, a new art is found).

However, Jaeger teaches that receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0297], “Referring now to FIG. 7C, a second PAO 2, 65, is assigned to a second invisible gesture object, 62. As described in FIG. 7A, line object 68A, extends from object 65, to object 62. Upon the software's validation of the assignment of object 65, to object, 62, an assignment is completed. In the

example of FIG. 7C, PAO 2, 65, is assigned to invisible gesture object 62. FIG. 7D illustrates assigned-to object 62, with its assignment (PAO 2, 65) hidden");

receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0311], "Action 3: An input is required to determine the orientation of said 360 degree rotation of cropped picture segment, 66. Therefore the software waits for an input that presents an angle of orientation. Let's say that a characteristic of PAO 2, 64, determines that there can be only two orientations: vertical or horizontal. Let's say the orientation "horizontal" is input to the software. [Note: There are many possible inputs that would define a rotation orientation for object 66. This includes: user input, context, pre-programmed input, input according to a configure setting, input according to timed or sequential data]");

select a second set of pixels intermediate the second starting point and the second ending point (See Jaeger: Figs. 7A-7G, and [0298], "Referring now to FIG. 7E, Environment Media, 59, contains a picture, 60. In FIG. 7F, a hand 63, is moved in two gestures to form two shapes, a vertical ellipse and a horizontal ellipse". The second ellipse may be corresponding to the second set of pixels); and

automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted (See Jaeger: Figs. 7A-7G, and [0308-0314], "The same process applies to EM 62, which also impinges picture 60. As a result, EM 62 calls forth PAO 2, 65,

which automatically crops a segment 67, of picture 60, and generates a second motion media. Said second motion media vertically rotates said picture segment 67, at a rate and orientation set by the characteristics of PAO 2, 65". Note that Jaeger teaches explicitly that the same animation algorithm may be applied to two different regions of the digital image: the image portion selected may be rotated 360 degree from the starting position to the end position).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was effectively filed to modify Ohta to have receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; select a second set of pixels intermediate the second starting point and the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted as taught by Jaeger in order be viewed like a video (See Jaeger: Fig. 60A, and [0911], "The advantage of motion media is that it can be viewed like a video, but when stopped at any point in time, any object being presented by a motion media can be interacted with, as a live software object. Referring again to FIG. 60A, the changes to object 392B, which were derived by software from an analysis of changes to image 392A in video 385, can be a motion media. Video 385 is a view only media. But the

presentation of change to object 392B in environment media 391 is a dynamic, user-definable, fully interactive software environment. At any time an input can be used to alter any change that the software is making to object 392B. By this means, a user can change any characteristic of image 392B and thereby alter image 392A on any frame in video 385"). Ohta teaches a system to edit digital image by shifting the pixels, while Jaeger teaches a system and method to animate images in different regions with the simple inputs. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to select and animate a second set of pixels as taught by Jaeger to generate the animation effects in different regions of the image. The motivation to modify Ohta by Jaeger is "Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results".

Regarding **claim 2**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Amirghodsi teaches that the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 3**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 2 as outlined above. Further, Amirghodsi teaches that the computer

system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 4**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 2 as outlined above. Further, Amirghodsi teaches that the computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive"); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of

the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge").

Regarding **claim 6**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Ohta teaches that the computer system of claim 1, wherein the first direction is different from the second direction (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point". The first direction is from point 401B to point 402, and it is different from the second direction that is from point 401A to point 402).

Regarding **claim 7**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Ohta teaches that the computer system of claim 1, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length (See Ohta: Figs. 2 and 7, and [0042], "FIG. 2 shows an example of a shift amount map that is stored in the shift amount map storage unit 13. A numerical value in each square of the grid of the map 201 is a value representing a pixel shift amount. In the first embodiment, a pixel value is used as a value that represents a pixel shift amount, but the pixel shift amount is not limited to a value in any specific unit. For example, a value that is proportional to a shift amount may also be used").

Regarding **claim 8**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Ohta, Amirghodsi, SCICompanion, and Jaeger teach that a method for automating the shifting of pixels within a digital image (See

Ohta: Fig. 1, and [0038], "The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16"), comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a portion of the digital image (See Ohta: Fig. 4, and [0057], "FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points". The control points 401B may be corresponding to the first starting point);

receiving, through the user interface, a first ending point associated with the first starting point, where the first ending point is received through a user selection of a first ending portion of the digital image (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point");

selecting a first set of pixels intermediate the first starting point and the first ending point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels

between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

automatically shifting the first set of pixels between the first starting point and the first ending point (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"), wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted);

receiving a second indication of a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0297], "Referring now to FIG. 7C, a second PAO 2, 65, is assigned to a second invisible gesture object, 62. As described in FIG. 7A, line object 68A, extends from object 65, to object 62. Upon the software's validation of the assignment of object 65, to object, 62, an assignment is completed. In the example of FIG. 7C, PAO 2, 65, is assigned to invisible gesture object 62. FIG. 7D illustrates assigned-to object 62, with its assignment (PAO 2, 65) hidden");

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0311], “Action 3: An input is required to determine the orientation of said 360 degree rotation of cropped picture segment, 66. Therefore the software waits for an input that presents an angle of orientation. Let's say that a characteristic of PAO 2, 64, determines that there can be only two orientations: vertical or horizontal. Let's say the orientation "horizontal" is input to the software. [Note: There are many possible inputs that would define a rotation orientation for object 66. This includes: user input, context, pre-programmed input, input according to a configure setting, input according to timed or sequential data]”);

selecting a second set of pixels intermediate the second starting point and the second ending point (See Jaeger: Figs. 7A-7G, and [0298], “Referring now to FIG. 7E, Environment Media, 59, contains a picture, 60. In FIG. 7F, a hand 63, is moved in two gestures to form two shapes, a vertical ellipse and a horizontal ellipse”. The second ellipse may be corresponding to the second set of pixels);

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted (See Jaeger: Figs. 7A-7G, and [0308-0314], “The same process applies to EM 62, which also impinges picture 60. As a result, EM 62 calls forth PAO 2, 65, which automatically crops a segment 67, of picture 60, and generates a second motion media. Said second motion media vertically rotates said picture segment 67, at a rate and

orientation set by the characteristics of PAO 2, 65". Note that Jaeger teaches explicitly that the same animation algorithm may be applied to two different regions of the digital image: the image portion selected may be rotated 360 degree from the starting position to the end position).

Regarding **claim 10**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 8 as outlined above. Further, SCICompanion teaches that the method as recited in claim 8, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted).

Regarding **claim 11**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 8 as outlined above. Further, Amirghodsi teaches that the method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 12**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 11 as outlined above. Further, Amirghodsi teaches that the method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 13**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 12 as outlined above. Further, Amirghodsi teaches that the method of claim 12, further comprising:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive"); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to

erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge").

Regarding **claim 16**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Ohta, Amirghodsi, SCICompanion, and Jaeger teach that a method for automating the shifting of pixels within a digital image (See Ohta: Fig. 1, and [0038], "The image capturing apparatus 10 includes an image capturing unit 11, an extracting unit 12, a shift amount map storage unit 13, an image morphing unit 14, an input/output unit 15, and a memory 16"), comprising:

accessing, from memory (See Ohta: Fig. 1, and [0038], "a memory 16"), a digital image file (See Amirghodsi: Figs. 1-2, and [0020], "As depicted, sequence 100 begins at 102a with digital image 104. Digital image 104 represents an image that is stored in a digital format. Such a digital format could be, for example, a Joint Photographic Experts Group (JPEG) format, a Bitmap (BMP) format, a Tagged Image File Format (TIFF), a Portable Networks Graphic (PNG) format, A Graphics Interchange Format (GIF), or any other suitable format")., wherein the digital image file comprises information that corresponds to individual pixels within the digital image (See Ohta: Fig. 1, and [0039], "The image capturing unit 11 is a unit that captures an image, and typically includes an optical system, an image sensor, and an interface there between. The image capturing unit 11 may include any device as long as it can capture an image");

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image (See Ohta: Fig. 4, and [0057], “FIG. 4 is an enlarged view of the mouth region 302. Here, it is assumed that control points 401A to 401D shown in FIG. 4 are arranged. Note that if feature points were extracted at the time of the detection of an organ, the control points may be located at the positions of the feature points”. The control points 401 B may be corresponding to the first starting point);

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image (See Ohta: Fig. 4, and [0059], “Then, the extracting unit 12 arranges a target point on the image. "Target point" refers to a point that represents shift directions of pixels when the image is morphed”. The control points 402 may be corresponding to the first ending point);

creating a first link between the first starting point and the first ending point, wherein the first link (See Ohta: Fig. 5, and [0066], “First, an ellipse whose perimeter overlaps all of the arranged control points is generated. In the case of the example of FIG. 4, an ellipse 501 whose perimeter overlaps the control points 401A to 401D is generated as shown in FIG. 5. Then, a long diameter L.sub.X and a short diameter L.sub.Y of the generated ellipse are obtained, and the respective ratios of the acquired long diameter L.sub.X and the short diameter L.sub.Y to the diameter (defined as D.sub.p) of the shift amount peaks 202 of the map 201 are obtained”. The line between the control point 401B and the target point 402 may be corresponding to the link): comprises:

a first direction extending from the first starting point to the first ending point (See Ohta: Fig. 2, and [0043], "Specifically, direction of each pixel is determined as the direction from the position of the pixel to the target point"); and

a first length between the first starting point and the first ending point (See Ohta: Figs. 2 and 6, and [0067], "Then, the size of the map 201 is reduced in the X and Y directions based on the obtained ratios. For example, when L.sub.X/D.sub.p is 0.9 and L.sub.Y/D.sub.p is 0.6, the size of the map 201 is reduced to 90% in the X direction and to 60% in the Y direction. With this processing, the map 201 has a shape such as that of a map 601 shown in FIG. 6". The size between the control point 401B and the target point 402 may be corresponding to the length);

identifying a first set of pixels that lie between the first starting point and the first ending point (See Ohta: Figs. 2 and 6-7, and [0070], "Then, the morphed shift amount map and the image to be morphed are aligned. Specifically, the coordinates of a target point of the map 601 are matched with the coordinates of the target point set on the image, and the resolution of the map 601 is matched with the resolution of the image. The resolution may be changed using a well-known method, such as bilinear sampling, nearest neighbor sampling, or liner interpolation, for example. FIG. 7 shows an example of a map that is obtained after the resolution of the map 601 is matched with the resolution of the image". The number of pixels between the control point 401B and the target point 402 may be corresponding to the first set of pixels); and

automatically shifting the first set of pixels in the first direction (See Ohta: Fig. 8, and [0074], "Then, processing for shifting the pixels of the image to be morphed is performed using the shift amount map. Specifically, it is determined whether or not shift amounts have been

assigned in the shift amount map for the respective pixels of the image to be morphed, and the pixel shifting is performed based on the shift amounts"), wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted (See SCICompanion: Section "An example using overlay", "These roughly correspond to the three different shades (light, medium, and dark) of the waterfall and lake. Let's just briefly visualize the three ranges of indices that cycle separately. They are highlighted in red, yellow and blue in this image". Note that the palette cycling may be corresponding to the rendering and re-rendering in a loop the first set of pixels being shifted);

receiving a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0297], "Referring now to FIG. 7C, a second PAO 2, 65, is assigned to a second invisible gesture object, 62. As described in FIG. 7A, line object 68A, extends from object 65, to object 62. Upon the software's validation of the assignment of object 65, to object, 62, an assignment is completed. In the example of FIG. 7C, PAO 2, 65, is assigned to invisible gesture object 62. FIG. 7D illustrates assigned-to object 62, with its assignment (PAO 2, 65) hidden");

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion (See Jaeger: Figs. 7A-7G, and [0311], "Action 3: An input is required to determine the orientation of said 360 degree rotation of cropped

picture segment, 66. Therefore the software waits for an input that presents an angle of orientation. Let's say that a characteristic of PAO 2, 64, determines that there can be only two orientations: vertical or horizontal. Let's say the orientation "horizontal" is input to the software. [Note: There are many possible inputs that would define a rotation orientation for object 66. This includes: user input, context, pre-programmed input, input according to a configure setting, input according to timed or sequential data]");

selecting a second set of pixels intermediate the second starting point and the second ending point (See Jaeger: Figs. 7A-7G, and [0298], "Referring now to FIG. 7E, Environment Media, 59, contains a picture, 60. In FIG. 7F, a hand 63, is moved in two gestures to form two shapes, a vertical ellipse and a horizontal ellipse". The second ellipse may be corresponding to the second set of pixels);

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted (See Jaeger: Figs. 7A-7G, and [0308-0314], "The same process applies to EM 62, which also impinges picture 60. As a result, EM 62 calls forth PAO 2, 65, which automatically crops a segment 67, of picture 60, and generates a second motion media. Said second motion media vertically rotates said picture segment 67, at a rate and orientation set by the characteristics of PAO 2, 65". Note that Jaeger teaches explicitly that the same animation algorithm may be applied to two different regions of the digital image: the image portion selected may be rotated 360 degree from the starting position to the end position).

Regarding **claim 17**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 16 as outlined above. Further, Amirghodsi teaches that the method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask").

Regarding **claim 18**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 17 as outlined above. Further, Amirghodsi teaches that the method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image (See Amirghodsi: Fig. 1, and [0023], "In an effort to prevent at least some of this repetitive processing of these converged portions in the patch synthesis technique, at 102c an active mask 112 is generated. Active mask 112 identifies groupings of pixels that have been determined to have converged as inactive regions 116a-116d. Determining pixels that have converged is discussed in greater detail below, in reference to FIGS. 2, 3, and 5. The remainder of active mask 112 identifies active region 114. The patch synthesis technique can be configured to take advantage of active mask 112 and no longer process those groupings of pixels that are identified within active mask 112 as lying within inactive regions 116a-116d").

Regarding **claim 19**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 17 as outlined above. Further, Amirghodsi teaches that the method of claim 17, further comprising:

generating the mask (See Amirghodsi: Fig. 7, and [0056], "At 718, a voting process, such as that described elsewhere herein, is performed on those pixels that are indicated as active in the active mask. As such, those pixels that are indicated as inactive in the active mask are not processed in the voting process and, therefore, the processing time is reduced utilizing the active mask"), wherein generating the mask comprises:

identifying one or more edges that form a boundary around the particular pixel (See Amirghodsi: Figs. 2 and 5-6, and [0035], "It will be appreciated that the above examples are merely meant to be illustrative. There are numerous ways to establish whether a pixel is active or inactive, and this disclosure should not be limited based on the manner in which a pixel is determined to be active or inactive"); and

generating the mask to cover area within the boundary (See Amirghodsi: Figs. 2 and 5-6, and [0036], "In some embodiments, active mask module 218 can be further configured to erode the inactive regions, or dilate the active regions, by marking those pixels at the edge of the inactive regions within the active mask as active. In such embodiments, the size of the patch of the patch synthesis technique can be utilized to determine the distance in pixels to erode from the edge").

Regarding **claim 21**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 8 as outlined above. Further, Jaeger teaches that the method of claim 8, further comprising:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) … ". The source object may be corresponding to the first visual indication);

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) to a graphic 361, (the target object) which represents an invisible elliptical shaped gesture". The target object may be corresponding to the second visual indication); and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point (See Jaeger: Fig. 52, and [0796], "The software analyzes the transaction of line object 359, to determine if the transaction of said line object, 359, is valid for invisible objects 357 and 362". The line 359 may be corresponding to the link).

Regarding **claim 22**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 1 as outlined above. Further, Jaeger teaches teach that the computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) … ". The source object may be corresponding to the first visual indication);

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) to a graphic 361, (the target object) which represents an invisible elliptical shaped gesture". The target object may be corresponding to the second visual indication); and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point (See Jaeger: Fig. 52, and [0796], "The software analyzes the transaction of line object 359, to determine if the transaction of said line object, 359, is valid for invisible objects 357 and 362". The line 359 may be corresponding to the link).

Regarding **claim 23**, Ohta, Amirghodsi, SCICompanion, and Jaeger teach all the features with respect to claim 17 as outlined above. Further, Jaeger teaches that the method of claim 17, further comprising:

rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) … ". The source object may be corresponding to the first visual indication);

rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image (See Jaeger: Fig. 52, and [0796], "Invisible PAO 2, 357, is impinged by a line object, 359, that extends from object 357, (the source object) to a graphic 361, (the target object) which represents an invisible elliptical shaped gesture". The target object may be corresponding to the second visual indication); and

rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point (See Jaeger: Fig. 52, and [0796], "The software analyzes the transaction of line object 359, to determine if the transaction of said line object, 359, is valid for invisible objects 357 and 362". The line 359 may be corresponding to the link).

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 GORDON G LIU whose telephone number is (571)270-0382. The examiner can normally be reached on Monday - Friday 8:00-5:00.

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, Ke Xiao can be reached on 571-272-7776. 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.

/GORDON G LIU/
Examiner, Art Unit 2612

Notice of References Cited	Application/Control No. 16/102,055	Applicant(s)/Patent Under Reexamination	
	Examiner GORDON G LIU	Art Unit 2612	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-20150095882-A1	04-2015	Jaeger; Denny	G06F8/34	717/109
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

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	
	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.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	Art Unit
	GORDON G LIU	2612

CPC - Searched*		
Symbol	Date	Examiner
(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	9/21/2018	/G.L./
Updated the above class search.	01/13/2019	/G.L./

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
345	619	9/21/2018	/G.L./
	Updated the above class search	01/13/2019	/G.L./

* 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
Consulting QEM for 101 rejections,	9/20/2018	/G.L./
Google search: palette cycling and color cycling.	9/21/2018	/G.L./
Consulting QEM for overcoming 101 (yes, amendments overcome 101 rejection).	01/10/2019	/G.L./

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

	/GORDON LIU/ Examiner.Art Unit 2612

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	Art Unit
	GORDON G LIU	2612

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/21/2018	01/13/2019							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	-							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	-							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	-							
	15	✓	-							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	-							
	21		✓							
	22		✓							
	23		✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S34	11	pixel adj walking	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/11 08:25
S33	5	S32 and color and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:25
S32	62	S30 and palette and swapping	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:25
S31	0	S30 and palette adj swapping	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S30	42823	S29	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S29	42823	S27 or S28	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S28	39161	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S27	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24

EAST Search History (Interference)

< This search history is empty>

1/ 13/ 2019 12:52:28 PM
C:\ Users\ gliu\ Documents\ EAST\ Workspaces\ Case322_16102055.wsp

Bibliographic Data

Application No: 16/102,055

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /GORDON G LIU/ Examiner's Signature | Initials

Title: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/13/2018	345	2612	20970.1.1.1.2
RULE			

APPLICANTS

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CONTINUING DATA

This application is a CON of 15660677 07/26/2017

15660677 has PRO of 62514703 06/02/2017

15660677 has PRO of 62368017 07/28/2016

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

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Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111
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FILING FEE RECEIVED

$2,855

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	20070019007	25-Jan-2007	JUNG	
	2	20100134505	3-Jun-2010	ANDERSON	
	3	20110273583	10-Nov-2011	YOSHINO	
	4	20150022518	22-Jan-2015	JVC KENWOOD CORPORATION	

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	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 [1]
	5	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	6	15/660677	26-Sep-2018	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	01/10/2019

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John C Stringham/	Date	11/1/18
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

38009510_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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	16102055	Filing Date	2018-08-13	Docket Number (if applicable)	20970.1.1.1.2	Art Unit	2612
First Named Inventor	Troy Plota			Examiner Name	Gordon G. Liu		

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, 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 _____

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 233178

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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	/W. Brad Barger/	Date (YYYY-MM-DD)	2019-03-22
Name	W. Brad Barger	Registration Number	69566

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.

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 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:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	William Brad Barger/Lindsey Gifford
Attorney Docket Number:	20970.1.1.1.2

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($)
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
		Total in USD ($)		**650**

Electronic Acknowledgement Receipt

EFS ID:	35502812
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	William Brad Barger/Lindsey Gifford
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	22-MAR-2019
Filing Date:	13-AUG-2018
Time Stamp:	14:16:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$650
RAM confirmation Number	032519INTEFSW14171300
Deposit Account	233178
Authorized User	Lindsey Gifford

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Response After Final Action	20970-1-1-1-2_2019-03-22_Amendment-B-and-Response.pdf	183069 876955df1b244722abdd05661e42b506213b8299	no	18
Warnings:					
Information:					
2	Transmittal Letter	20970-1-1-1-2_2019-03-22_Transmittal.pdf	136005 d919d18510e03a19222035942d42202cd488dab8	no	2
Warnings:					
Information:					
3	Request for Continued Examination (RCE)	20970-1-1-1-2_2019-03-22_RCE.pdf	1364892 e979a40129963fe5f45684e1f1f5d02c0779538a	no	3
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30593 329ac9e0a5401beb83255a23fd9229c75cc66427	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1714559		

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
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

TRANSMITTAL FOR AMENDMENT "B"
AND RESPONSE AFTER FINAL WITH RCE

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

Dear Sir:

Transmitted herewith is an Amendment "B" and Response for entry in the above-identified application.

_X_ To render the transmitted Amendment "B" and Response timely filed enclosed are the following:

_X_ Request for Continued Examination ($650.00).

The fee has been calculated as follows:

			SMALL ENTITY		LARGE ENTITY	
CLAIMS REMAINING AFTER	**HIGHEST NO. PREVIOUSLY PAID FOR**	**PRESENT EXTRA**	**RATE**	**ADDT'L FEE**	**RATE**	**ADDT'L FEE**
TOTAL 18	MINUS 20	= 0	X		X $80.00	00.00
INDEPENDENT 3	MINUS 3	= 0	X		X $420.00	00.00
1st PRESENTATION OF MULTIPLE DEPENDENT CLAIM			+_____=		+_____=	
			TOTAL		**TOTAL**	00.00

__X__ Payment in the amount of $650 using the Credit Card payment option in E-Filer with RAM will be used to cover the payment of the fees with respect to this RCE and Extension of Time.

__X__ The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to **Deposit Account No. 23-3178**: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to **Deposit Account No. 23-3178**.

Dated this 22nd day of March, 2019.

Respectfully submitted,

/W. BRAD BARGER/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
Registration No. 69,566
WORKMAN | NYDEGGER
Attorneys for Applicant
Customer No. 22913

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit) 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

AMENDMENT B AND RESPONSE

AFTER FINAL WITH RCE

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

Dear Sir:

In response to the Office Action of January 18, 2019 ("*Office Action*"), (Paper No. 20190110), please amend and reconsider the above-identified application, in which:

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

Remarks/Arguments begin on page 14 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:

access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

render a first visual indication of the first starting point on the user interface;

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

render a second visual indication of the first ending point on the user interface;

~~create~~ render, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first rendered link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identify a first set of pixels that are:

parallel to the first rendered link,

within a user-defined threshold distance from the first rendered link, and

extending from the first starting point to the first ending point~~lie between the first starting point and the first ending point~~;

automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted;

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

render a third visual indication of the second starting point on the user interface;

receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

render a fourth visual indication of the second end point on the user interface;

render, on the user interface, a second link between the second starting point and the second ending point;

~~select a second set of pixels intermediate the second starting point and the second ending point~~identify a second set of pixels that are:

parallel to the second rendered link,

within the user-defined threshold distance from the first rendered link, and

extending from the second starting point to the second ending point; and

automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

2. (Original) The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

3. (Original) The computer system of claim 2, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

4. (Original) The computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

5. (Cancelled)

6. (Previously Presented) The computer system of claim 1, wherein the first direction is different from the second direction.

7. (Previously Presented) The computer system of claim 1, wherein the magnitude of the shifting of the first set of pixels is proportionally related to the first length and the magnitude of the shifting of the second set of pixels is proportionally related to the second length.

8. (Currently Amended) A method for automating the shifting of pixels within a digital image, comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a first starting portion of the digital image;

render a first visual indication of the first starting point on the user interface;

receiving, through the user interface, a first ending point associated with the first starting point, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

render a second visual indication of the first ending point on the user interface;

render, on the user interface, a first rendered link between the first starting point and the first ending point;

selecting a first set of pixels ~~intermediate the first starting point and the first ending point~~that intersect with the first rendered link;

automatically shifting the first set of pixels along the first rendered link between the first starting point and the first ending point, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted;

receiving a second indication of a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

render a third visual indication of the second starting point on the user interface;

receiving, through the user interface, a second ending point associated with the

second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

render a fourth visual indication of the second end point on the user interface;

render, on the user interface, a second rendered link between the second starting point and the second ending point;

selecting a second set of pixels that intersect with the second rendered link~~intermediate the second starting point and the second ending point~~;

automatically shifting the second set of pixels along the second rendered link between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

9. (Cancelled)

10. (Previously Presented) The method as recited in claim 8, further comprising when a pixel selected from the first set of pixels reaches the ending point, rendering and re-rendering in the loop the pixel being shifted from the first starting point to the ending point.

11. (Original) The method as recited in claim 8, further comprising receiving an indication to generate a mask over a portion of the digital image, wherein pixels under the mask are prevented from shifting.

12. (Original) The method as recited in claim 11, further comprising receiving through a user interface a selection of a particular pixel within the digital image from which the mask should be generated.

13. (Original) The method of claim 12, further comprising:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) A method for automating the shifting of pixels within a digital image, comprising:

accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

rendering a first visual indication of the first starting point on the user interface;

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

rendering a second visual indication of the first ending point on the user interface;

~~creating~~ rendering, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first link comprises:

~~a first direction extending from the first starting point to the first ending point~~a non-linear pathway extending between the first starting point and the first ending point; and

a first length ~~between the first starting point and the first ending point~~extending along the non-linear pathway;

identifying a first set of pixels that lie ~~between the first starting point and the first ending point~~along the first rendered link;

automatically shifting the first set of pixels ~~in the first direction~~along the non-linear pathway, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted

receiving a second starting point through the user interface, wherein the second

starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

rendering a third visual indication of the second starting point on the user interface;

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

rendering a fourth visual indication of the second end point on the user interface;

rendering, on the user interface, a second link between the second starting point and the second ending point;

selecting a second set of pixels along the send link ~~intermediate the second starting point and the second ending point~~; and

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

17. (Original) The method of claim 16, further comprising identifying a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted.

18. (Original) The method of claim 17, wherein receiving an indication of a particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.

19. (Original) The method of claim 17, further comprising:

generating the mask, wherein generating the mask comprises:

identifying one or more edges that form a boundary around the particular pixel; and

generating the mask to cover area within the boundary.

20. (Cancelled)

21. (Currently Amended) The method of claim 8, ~~further comprising~~wherein:

the first set of pixels further comprise:

pixels that are parallel to the first rendered link,

within a user-defined threshold distance from the first rendered link, and

that extend from the first starting point to the first ending point; and

the first rendered link comprises a non-linear pathway extending between the first starting point and the first ending point.

~~rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;~~

~~rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and~~

~~rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.~~

22. (Currently Amended) The computer system of claim 1, wherein:

the first set of pixels comprise pixels that intersect the first rendered link; and

the first rendered link comprises a non-linear pathway extending between the first starting point and the first ending point.

~~the executable instructions include instructions that are executable to configure the computer system to:~~

~~rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;~~

~~rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and~~

~~rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.~~

23. (Currently Amended) The method of claim 17, wherein:

the first set of pixels further comprise:

pixels that are parallel to the first rendered link,

within a user-defined threshold distance from the first rendered link, and

that extend from the first starting point to the first ending point.

~~further comprising:~~

~~rendering on the user interface a first visual indication of the first starting point positioned at the first starting portion of the digital image;~~

~~rendering on the user interface a second visual indication of the first ending point positioned at the first ending portion of the digital image; and~~

~~rendering on the user interface a link extending between the first starting point and the first ending point, wherein the link comprises a visual indication of direction from the first starting point to the first ending point.~~

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed January 28, 2019, considered Claims 1-4, 6-8, 10-13, 16-19 and 21-23.

By this amendment Claims 1, 8, 16, and 21-23 have been amended. No claims have been cancelled or added. Accordingly, Claims 1-4, 6-8, 10-13, 16-19 and 21-23 are pending, of which Claims 1, 8, and 16 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims, including paragraphs [0044], [0057], and the disclosure presented in at Figure 3C and the accompanying description as published in U.S. Publication No 2018/0032236.

35 U.S.C. §103(a) Rejection of Claims 1-4, 6-8, 10-13, 16-19 and 21-23

The *Office Action* rejected claim(s) 1-4, 6-8, 10-13, 16-19 and 21-23 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2015/0262327 Ohta ("Ohta") in view of U.S. Patent Publication No. 2017/0140514 Amirghodsi ("Amirghodsi") further in view of "Palette Cycling" SCICompanion ("SCICompanion") and U.S. Patent Publication No. 2015/0095882 Jaeger ("Jaeger"). Applicants respectfully traverse.

Regarding *Ohta* Applicants respectfully submit that while *Ohta* teaches that the morphing algorithm may be used on mouths, eyes, or other organs, there is no teaching in *Ohta* that multiple organs can be simultaneously morphed within the same image. To the contrary, the examples in *Ohta* are limited to a single instance of morphing per image. As such, *Ohta* fails to clearly teach that multiple distinct beginning points, ending points, and links can be created within a single image and that pixels can be shifted in different direction based upon those links.

Regarding *Jaeger*, Applicants respectfully submit that the teachings of *Jaeger* are very different than those in the present case. The cited portions of *Jaeger* teach a method for assigning

a programming action object (PAO) to an invisible gesture. *See, Jaeger ¶[0294]. Jaeger* provides an example of the results of such an assignment:

> For instance, let's say a user moves their finger in an elliptical shape in free space. This finger movement could be detected by a camera recognition system or a capacitive touch screen, or a proximity detector, or a heat detector, or a motion sensor or a host of other detection and/or recognition systems. Once detected the shape of the finger movement (gesture 61, in FIG. 7B) could be recognized by software. In the example of FIG. 7B the gestural shape is an ellipse. The recognition of gesture 61 could cause the activation of gesture 61 and could therefore activate PAO 2, 64, which has been assigned to gesture object 61. *See, Jaeger ¶[0295].*

Jaeger, however, is deficient for teaching several of the features alleged by the *Office Action*. For example, the *Office Action* cites various portions throughout *Jaeger* that are generally included within paragraphs [0293-0314]. The *Office Action* appears to assert that the PAOs are equivalent to the "second starting point" recited in the claims and that an input for an orientation of rotation is the "second ending point" recited in the claims. Such assertions are incorrect.

Within paragraphs [0293-0314], *Jaeger* does not teach or suggest that the either the PAOs or the invisible gesture objects are positioned by a user. Instead, the PAOs appear to only be provided for the sake of example illustrating connections between software objects. It is further not taught or suggested that a user draws the line object between the PAO and the invisible gesture objects. As such the art of record fails to teach at least the following limitations:

receive a second starting point **through the user interface**, wherein the second starting point **is received through a user selection of a second starting portion of the digital image**, the second starting portion being different than both the first starting portion and the first ending portion; and

receive, **through the user interface**, a second ending point associated with the second starting point, wherein the second ending point **is received through a user selection of a second ending portion of the digital image**, the second ending portion being different than both the first starting portion and the first ending portion

Because *Jaeger* fails to teach above limitations, Independent Claim 1 is allowable over the art of record. Further, Independent Claims 8 and 16 are also allowable for similar reasons. Accordingly, the Independent Claims and their associated dependent claims are in condition for allowance.

Despite the allowability of the present claims over the art of record, Applicants have further clarified the Independent Claims in view of the art. For example, Independent Claim 1 now recites:

identify a first set of pixels that are:

parallel to the first rendered link,

within a user-defined threshold distance from the first rendered link, and

extend from the first starting point to the first ending point

Independent Claim 8 now recites:

selecting a first set of pixels that intersect with the first rendered link

Independent Claim 16 now recites:

rendering, on the user interface, a first rendered link between the first starting

point and the first ending point, wherein the first link comprises:

a non-linear pathway extending between the first starting point and the first ending point; and

a first length extending along the non-linear pathway;

Each of the above recited limitations are absent from the art of record. In view of these deficiencies, Applicants respectfully submit that Independent Claims 1, and 16, and their associated dependent claims are in condition for allowance.

Conclusion

In view of the foregoing, Applicants respectfully submit that the remaining rejections of record are also now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that Applicants have not acquiesced to any of the purported teachings or assertions made in the Office Action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any official notice, explicitly or implicitly, Applicants specifically request that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event the Examiner finds any other issues that would need to be addressed before allowance, the Examiner is invited to contact Applicants' undersigned Attorneys directly.

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account

No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 22nd day of March, 2019.

Respectfully submitted,

/W. Brad Barger/

John C. Stringham
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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/102,055	Filing Date 08/13/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) 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 $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $230 =	
☐ 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	03/22/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	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 $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ 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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ANTHONY L WILLIAMS/
*** 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.	

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.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 03/26/2019

Workman Nydegger
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EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
03/26/2019	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):

Docketing@wnlaw.com

Applicant-Initiated Interview Summary	**Application No.** 16/102,055	**Applicant(s)** Plota et al.	
	Examiner GORDON G LIU	**Art Unit** 2612	**AIA (FITF) Status** Yes

All participants (applicant, applicants representative, PTO personnel):

(1) GORDON G. LIU.

(2) John Stringham.

(3) Brad Barger.

(4) _____.

Date of Interview: 20 March 2019.

Type: ☐ Telephonic ☑ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☑103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: Jaeger, etc. (US 20150095882 A1).

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

There was no general agreement reached during this WebEx interview. The proposed amendments may overcome the current rejections, but the patentability of the instant application needs further search. The feature of shifting pixels based on threshold distance to the user, intersection of the shifting path, or non-linear path, is a good forward movement for this application..

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 period 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

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.

☑ Attachment

/GORDON G LIU/ Examiner, Art Unit 2612	

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 examiners 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 applicants 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 applicants 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 examiners 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 examiners initials.

Please do not enter.
/Gordon Liu/
3/20/2019

PATENT APPLICATION
Docket No. 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/102,055	) Art Unit 2612
Confirmation No.:	1042	)
Filed:	August 13, 2018	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

EXAMINER INTERVIEW AGENDA

Enclosed are various exemplary claim amendments provided for the sake of discussion during our WebEx interview scheduled for Wednesday, December 20th, at 4 PM Eastern Time. We look forward to talking with you.

Dated this 19th day of March 2019

Respectfully submitted,

/W. Brad Barger, Reg. No. 69,566/

John C. Stringham
Registration No.: 40,831
W. Brad Barger
Registration No. 69,566
Attorneys for Applicant
Customer No. 22913

FOR DISCUSSION PURPOSES

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
Serial No.: 16/102,055
Docket No.: 20970.1.1.1.2
Examiner: Gordon G. Liu
Interview Date/Time: Wednesday, December 20th, at 4 PM Eastern Time

CLAIM

1. (Example Amendment For Discussion Purpose) A computer system for automating the shifting of pixels within a digital image, comprising:

one or more processors; and

one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following:

access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

render a first visual indication of the first starting point on the user interface;

receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

render a second visual indication of the first ending point on the user interface;

FOR DISCUSSION PURPOSES

~~create~~ render, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first rendered link comprises:

a first direction extending from the first starting point to the first ending point; and

a first length between the first starting point and the first ending point;

identify a first set of pixels that are:

parallel to the first rendered link,

within a user-defined threshold distance from the first rendered link, and

extend from the first starting point to the first ending point~~lie between the first starting point and the first ending point~~;

automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted;

receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

render a third visual indication of the second starting point on the user interface;

receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being

FOR DISCUSSION PURPOSES

different than both the first starting portion and the first ending portion;

render a fourth visual indication of the second end point on the user interface;

render, on the user interface, a second link between the second starting point and the second ending point;

~~select a second set of pixels intermediate the second starting point and the second ending point~~identify a second set of pixels that are:

parallel to the second rendered link,

within the user-defined threshold distance from the first rendered link, and

extend from the second starting point to the second ending point; and

automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

FOR DISCUSSION PURPOSES

2. (Example Amendment For Discussion Purpose) A method for automating the shifting of pixels within a digital image, comprising:

receiving a first indication of a first starting point through a user interface, wherein the first starting point is received through a user selection of a first starting portion of the digital image;

render a first visual indication of the first starting point on the user interface;

receiving, through the user interface, a first ending point associated with the first starting point, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

render a second visual indication of the first ending point on the user interface;

render, on the user interface, a first rendered link between the first starting point and the first ending point;

selecting a first set of pixels ~~intermediate the first starting point and the first ending point~~that intersect with the first rendered link;

automatically shifting the first set of pixels along the first rendered link between the first starting point and the first ending point, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted;

receiving a second indication of a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

render a third visual indication of the second starting point on the user interface;

receiving, through the user interface, a second ending point associated with the

FOR DISCUSSION PURPOSES

second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

render a fourth visual indication of the second end point on the user interface;

render, on the user interface, a second rendered link between the second starting point and the second ending point;

selecting a second set of pixels that intersect with the second rendered link~~intermediate the second starting point and the second ending point~~;

automatically shifting the second set of pixels along the second rendered link between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

FOR DISCUSSION PURPOSES

3. (Example Amendment For Discussion Purpose) A method for automating the shifting of pixels within a digital image, comprising:

accessing, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image;

receiving a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image;

rendering a first visual indication of the first starting point on the user interface;

receiving a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image;

rendering a second visual indication of the first ending point on the user interface;

~~creating~~ rendering, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first link comprises:

~~a first direction extending from the first starting point to the first ending point~~a non-linear pathway extending between the first starting point and the first ending point; and

a first length ~~between the first starting point and the first ending point~~extending along the non-linear pathway;

identifying a first set of pixels that lie ~~between the first starting point and the first ending point~~along the first rendered link;

automatically shifting the first set of pixels ~~in the first direction~~along the non-linear pathway, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted

receiving a second starting point through the user interface, wherein the second

FOR DISCUSSION PURPOSES

starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion;

rendering a third visual indication of the second starting point on the user interface;

receiving, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion;

rendering a fourth visual indication of the second end point on the user interface;

rendering, on the user interface, a second link between the second starting point and the second ending point;

selecting a second set of pixels along the send link ~~intermediate the second starting point and the second ending point~~; and

automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

FOR DISCUSSION PURPOSES

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NOTICE OF ALLOWANCE AND FEE(S) DUE

22913 7590 04/17/2019

Workman Nydegger
60 East South Temple
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Salt Lake City, UT 84111

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 04/17/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

TITLE OF INVENTION: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

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	07/17/2019

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

22913 7590 04/17/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

TITLE OF INVENTION: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

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	07/17/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LIU, GORDON G	2612	345-619000

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 03-09 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 _____

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 04/17/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER	
LIU, GORDON G	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 04/17/2019

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.

Notice Requiring Inventor's Oath or Declaration	Application No. 16/102,055	Applicant(s) Troy Plota	
	Examiner LIU, GORDON G	Art Unit 2612	

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): **Troy Plota** and **Sascha Connelly**.
  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 30 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. 16/102,055	Applicant(s) Plota et al.	
	Examiner GORDON G LIU	Art Unit 2612	AIA (FITF) Status Yes

-- 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 3/22/2019.
   ☐ 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)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/GORDON G LIU/
Examiner, Art Unit 2612

Continuation of 3. The allowed claim(s) is/are: 1-4,6-8,10-13,16-19 and 21-23

DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA. **Claims 1-4, 6-8, 10-13, 16-19, and 21-23** are allowed.

Allowable Subject Matter

Claims 1-4, 6-8, 10-13, 16-19, and 21-23 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 1-4, 6-8, 10-13, 16-19, and 21-23 were carefully reviewed and a search with regards to independent **claims 1, 8, and 16** has been made. Accordingly, those claims are believed to be distinct from the prior art searched.

Regarding **Claims 1-4, 6-8, 10-13, 16-19, and 21-23,** specifically independent **claims 1, 8, and 16,** the prior art searched was found to neither anticipate nor suggest a computer system for automating the shifting of pixels within a digital image, comprising: one or more processors; and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following: access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; render a first visual indication of the first starting point on the user interface; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image; render a second visual indication of the first ending point on the

user interface; render, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first rendered link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that are: parallel to the first rendered link, within a user-defined threshold distance from the first rendered link, and extending from the first starting point to the first ending point; automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted; receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; render a third visual indication of the second starting point on the user interface; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; render a fourth visual indication of the second end point on the user interface; render, on the user interface, a second link between the second starting point and the second ending point; identify a second set of pixels that are: parallel to the second rendered link, within the user-defined threshold distance from the first rendered link, and extending from the second starting point to the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted.

Ohta (US 20150262327 A1), modified by Amirghodsi, etc. (US 20170140514 A1), "Palette Cycling" (by SCICompanion, March 6, 2016, hereinafter referred as SCICompanion), and Jaeger, etc. (US 20150095882 A1), teaches that a computer system for automating the shifting of pixels within a digital image, comprising: one or more processors; and one or more computer-readable media having stored thereon executable instructions that when executed by the one or more processors configure the computer system to perform at least the following: access, from memory, a digital image file, wherein the digital image file comprises information that corresponds to individual pixels within the digital image; receive a first starting point through a user interface, wherein the first starting point is received through a user selection of a first beginning portion of the digital image; receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image; create a first link between the first starting point and the first ending point, wherein the first link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that lie between the first starting point and the first ending point; and automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted; receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; receive, through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user

selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; select a second set of pixels intermediate the second starting point and the second ending point; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted. However, Ohta, modified by Amirghodsi, SCICompanion), and Jaeger, does not teaches every claimed limitation, especially the claimed limitation of "**render a first visual indication of the first starting point on the user interface;** receive a first ending point through the user interface, wherein the first ending point is received through a user selection of a first ending portion of the digital image; **render a second visual indication of the first ending point on the user interface**; **render, on the user interface, a first rendered link** between the first starting point and the first ending point, wherein the first rendered link comprises: a first direction extending from the first starting point to the first ending point; and a first length between the first starting point and the first ending point; identify a first set of pixels that are: **parallel to the first rendered link, within a user-defined threshold distance from the first rendered link, and extending from the first starting point to the first ending point**; automatically shift the first set of pixels in the first direction, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted; receive a second starting point through the user interface, wherein the second starting point is received through a user selection of a second starting portion of the digital image, the second starting portion being different than both the first starting portion and the first ending portion; **render a third visual indication of the second starting point on the user interface**; receive,

through the user interface, a second ending point associated with the second starting point, wherein the second ending point is received through a user selection of a second ending portion of the digital image, the second ending portion being different than both the first starting portion and the first ending portion; **render a fourth visual indication of the second end point on the user interface; render, on the user interface, a second link between the second starting point and the second ending point; identify a second set of pixels that are: parallel to the second rendered link, within the user-defined threshold distance from the first rendered link, and extending from the second starting point to the second ending point**; and automatically shift the second set of pixels between the second starting point and the second ending point, wherein shifting the second set of pixels comprises rendering in a loop the second set of pixels being shifted" (emphasis added).

It is viewed that any of the previously cited references or any of the prior art searched, in part or in whole, cannot be combined in such a way to render the claimed invention obvious.

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 GORDON G LIU whose telephone number is (571)270-0382. The examiner can normally be reached on Monday - Friday 8:00-5:00.

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, Ke Xiao can be reached on 571-272-7776. 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.

/GORDON G LIU/
Examiner, Art Unit 2612

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	Art Unit
	GORDON G LIU	2612

CPC - Searched*		
Symbol	**Date**	**Examiner**
(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	9/21/2018	/G.L./
Updated the above class search.	01/13/2019	/G.L./
Updated the above class search.	04/12/2019	/G.L./

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
345	619	9/21/2018	/G.L./
	Updated the above class search	01/13/2019	/G.L./
	Updated the above class search.	04/12/2019	/G.L./

* 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**
Consulting QEM for 101 rejections,	9/20/2018	/G.L./
Google search: palette cycling and color cycling.	9/21/2018	/G.L./
Consulting QEM for overcoming 101 (yes, amendments overcome 101 rejection).	01/10/2019	/G.L./
Google search: pixel shift based on the distance threshold.	04/12/2019	/G.L./

	/GORDON LIU/ Examiner.Art Unit 2612

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	Art Unit
	GORDON G LIU	2612

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	04/12/2019	/G.L./
345	619	04/12/2019	/G.L./
	(Plota and Troy or Connelly and Sascha).in.	04/12/2019	/G.L./
	(Plota and Troy or Connelly and Sascha).as.	04/12/2019	/G.L./
	@pd>"20190101"	04/12/2019	/G.L./

	/GORDON LIU/ Examiner.Art Unit 2612

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	**Art Unit**
	GORDON G LIU	2612

CPC							
Symbol						**Type**	**Version**
G06F	/	3	/	04845		F	2013-01-01
G06F	/	3	/	04812		I	2013-01-01
G06T	/	11	/	60		I	2013-01-01
G06T	/	13	/	80		I	2013-01-01
G06F	/	3	/	0484		I	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/GORDON G LIU/ Primary Examiner, Art Unit 2612	12 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20190412

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	**Art Unit**
	GORDON G LIU	2612

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G09G	/	5	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
345	619

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/GORDON G LIU/ Primary Examiner, Art Unit 2612	12 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office

Part of Paper No.: 20190412

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/102,055	Plota et al.
	Examiner	**Art Unit**
	GORDON G LIU	2612

☐ 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	9	10	17	19										
2	2	10	11	-	20										
3	3	11	12	13	21										
4	4	12	13	7	22										
-	5	-	14	18	23										
5	6	-	15												
6	7	14	16												
8	8	15	17												
-	9	16	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/GORDON G LIU/ Primary Examiner, Art Unit 2612	12 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Bibliographic Data

Application No: 16/102,055

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☑ Met After Allowance

Verified and Acknowledged: /GORDON G LIU/ (Examiner's Signature) G.G.L (Initials)

Title: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/13/2018	345	2612	20970.1.1.1.2
RULE			

APPLICANTS

INVENTORS

Troy Plota Santa Barbara, CA, UNITED STATES

Sascha Connelly Santa Barbara, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 15660677 07/26/2017

15660677 has PRO of 62514703 06/02/2017

15660677 has PRO of 62368017 07/28/2016

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/30/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111
UNITED STATES

FILING FEE RECEIVED

$2,855

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	"16102055"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:24
S2	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:25
S3	37994	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:27
S4	41651	S2 or S3	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:27
S5	76	S4 and shift same loop	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:28
S6	7	S5 and set with pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:28
S7	11	("20180032236" or "20160343152" or "20150262327" or "20160270648" or "20060129933" or "5818465" or "20040039934" or "20160163253" or "20150146119" or "8299413" or "20170213388").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 20:59
S8	121	color adj cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:10
S9	1	S8 and starting and ending with points	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:10
S10	46	S8 and animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/18 23:11
S11	2219	still adj image same animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:45
S12	163	S11 and transformation and motion	US-PGPUB; USPAT;	OR	OFF	2018/09/19 22:46

			EPO			
S13	0	S12 and color and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:46
S14	22	S12 and color and (cycling or loop)	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/19 22:46
S15	9181	motion with animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:51
S17	661	S15 and single adj image	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:51
S18	84	S17 and single adj image with animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:52
S19	4	S18 and shifting and pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 09:52
S20	5	("20150262327" or "20150022518" or "20100134505" or "20070019007" or "20110273583").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/20 23:21
S21	1	"20170140514".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 08:49
S22	7	("8520054" or "9906793" or "9300857" or "9414016").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 08:55
S23	1	"8831378".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 09:35
S24	1	"20080174795".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 09:51
S25	2	"20130140514"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/21 11:40
S26	2	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2018/12/19 09:34
S27	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S28	39161	(G06T11/60 or G06T19/00 or G06T11/00 or	US-	OR	OFF	2019/01/10

		G06F9/4443 or G06F3/0481).cpc.	PGPUB; USPAT; EPO			15:24
S29	42823	S27 or S28	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S30	42823	S29	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S31	0	S30 and palette adj swapping	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:24
S32	62	S30 and palette and swapping	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:25
S33	5	S32 and color and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/10 15:25
S34	11	pixel adj walking	US-PGPUB; USPAT; EPO	OR	OFF	2019/01/11 08:25
S35	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:12
S36	39987	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:12
S37	43651	S35 or S36	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:12
S38	78	S37 and shift same loop	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:12
S39	78	S38	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:12
S40	78	S39 and shift same loop	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:13
S41	37	S40 and threshold	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/12 17:13
S47	1	("20090189912").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:20

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S42	4525	345/619.ccls.	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:14
S43	39987	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:14
S44	43650	S42 or S43	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:14
S45	78	S44 and shift same loop	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:14
S46	37	S45 and threshold	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:14
S48	1	"16102055"	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:16
S49	3	(Plota and Troy or Connelly and Sascha).in.	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:17
S50	0	(Plota and Troy or Connelly and Sascha).as.	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:18
S51	203675	@pd>"20190101"	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:22
S52	550	S51 and shift same loop	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:22
S53	251	S52 and threshold	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:22
S54	5	S53 and animation	US-PGPUB; USPAT	OR	OFF	2019/04/12 17:22

4/12/2019 9:36:46 PM
C:\Users\gliu\Documents\EAST\Workspaces\Case375_16102055_RCE.wsp

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

U.S. PATENT APPLICATIONS

Examiner Initials*	Cite No.	Document Number	Filing Date	Name of Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	16/162206	16-Oct-2018	Plota et al.	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2	20090189912	30-Jul-2009	Holtman	

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS

Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	3	16/162206	26-Dec-2018	Office Action

EXAMINER SIGNATURE

Examiner Signature	/GORDON G LIU/	Date Considered	04/12/2019

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Piota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178 regarding this Information Disclosure Statement

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John C. Stringham/	Date	1/17/19
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

36824999_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

DocuSign Envelope ID: AA576F70-CD82-4CB0-941A-51A7C74D50CA

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
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 displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Sascha Connelly

☑ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Sascha Connelly 235F810892EF4C4...	Date (Optional)	12/8/2017
Name	Sascha Connelly		
Title			

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

DocuSign Envelope ID: AA576F70-CD82-4CB0-941A-51A7C74D50CA

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
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 displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Troy Plota

☑ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Troy Plota (DocuSigned by: 88C990E98E73468...)	Date (Optional)	12/8/2017
Name	Troy Plota		
Title			

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

Electronic Acknowledgement Receipt

EFS ID:	35827744
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Rachelle Turner
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	25-APR-2019
Filing Date:	13-AUG-2018
Time Stamp:	11:41:19
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	Power of Attorney	20970-POA-Sascha.pdf	524060 80dd1aa26f2893453d4eb64161563e3b04106d03	no	1

Warnings:

Information:					
2	Power of Attorney	20970_POA-Troy.pdf	516190 ff06163ef0e4f475003f6567758ad1d237930769	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	1040250		

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.

CORRECTED ADS FORM

Application Number	16102055
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number	1	
Name	Troy Plota	
Residence Information		
Residency	us-residency	
City	~~Santa Barbara~~	Kihei
State	~~CA~~	HI
Country of Residence	US	
Mailing Address of Inventor		
Address 1	c/o PLOTAGRAPH, INC.	
Address 2	~~2987 Arriba Way~~	1215 S. Kihei Road, Suite O #1074
City,State/Province, Postal Code	~~Santa Barbara CA 93105~~	Kihei HI 96753
Country	US	

	Data of Record	Updated Data
Order Number	2	
Name	Sascha Connelly	
Residence Information		
Residency	us-residency	
City	~~Santa Barbara~~	Kihei
State	~~CA~~	HI
Country of Residence	US	
Mailing Address of Inventor		
Address 1	c/o PLOTAGRAPH, INC.	
Address 2	~~2987 Arriba Way~~	1215 S. Kihei Road, Suite O #1074
City,State/Province, Postal Code	~~Santa Barbara CA 93105~~	Kihei HI 96753
Country	US	

Application Information

	Data of Record	Updated Data
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	
Attorney Docket Number	20970.1.1.1.2	
Entity Type	Small	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S. C. 119(e) or 120, and 37 CFR 1.78(a).

		Data of Record	Updated Data
	Prior Application Status		
	Application Number		
	Continuity Type		
	Prior Application Number		
	Filing Date (YYYY-MM-DD)		
	Patent Number		
	Issue Date (YYYY-MM-DD)		

Foreign Priority Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****
Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

	Data of Record	Updated Data
Applicant Type		

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		
Applicant is an Organization		
Name		
Organization Name		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		

Organization Name		

Mailing Address

Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

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	/John C. Stringham, 40831/	Registration Number	40831
First Name	John C.	Last Name	Stringham

Electronic Acknowledgement Receipt

EFS ID:	35827821
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	
Customer Number:	22913
Filer:	John C. Stringham/Rachelle Turner
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	25-APR-2019
Filing Date:	13-AUG-2018
Time Stamp:	11:45:54
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	Application Data Sheet to update/ correct info	CorrectedADS.pdf	75887 98786da3b965b25c0eb3bf3aa555f25199483914	no	5

Warnings:

Information:	
Total Files Size (in bytes):	75887

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

7590 04/25/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER	
LIU, GORDON G	
ART UNIT	PAPER NUMBER
2612	
NOTIFICATION DATE	DELIVERY MODE
04/25/2019	ELECTRONIC

Letter Withdrawing a Notice Requiring Inventor's Oath or Declaration

The Notice Requiring Inventor's Oath or Declaration mailed on 4/17/19 was sent in error, and is hereby withdrawn. The time period set forth in the Notice of Allowance and Fee(s) Due to file a reply and pay the required fees continues to run from the mailing date of the Notice of Allowance and Fee(s) Due. Any time period set forth in the Notice of Allowability continues to run from the mailing date of the Notice of Allowability.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

M. Brun

(571)-272-4200 or 1(888)-786-0101
Patent Publication Branch
Office of Data Management

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2

CONFIRMATION NO. 1042

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

POA ACCEPTANCE LETTER

OC000000107772603

Date Mailed: 04/30/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/25/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/qtran/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/102,055	08/13/2018	2612	945	20970.1.1.1.2	20	3

CONFIRMATION NO. 1042

REPLACEMENT FILING RECEIPT

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

OC000000107772602

Date Mailed: 04/30/2019

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Troy Plota, Kihei, HI;
Sascha Connelly, Kihei, HI;

Applicant(s)

Troy Plota, Kihei, HI;
Sascha Connelly, Kihei, HI;

Power of Attorney: The patent practitioners associated with Customer Number 22913

Domestic Priority data as claimed by applicant

This application is a CON of 15/660,677 07/26/2017
which claims benefit of 62/514,703 06/02/2017
and claims benefit of 62/368,017 07/28/2016

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 Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/30/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/102,055**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

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 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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Piota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	15/660677	6-May-2019	Final Office Action
	2	16/162206	3-May-2019	Final Office Action

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

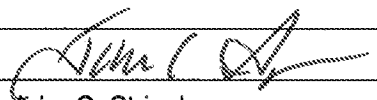
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178 regarding this Information Disclosure Statement

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	5/16/19
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Electronic Patent Application Fee Transmittal

Application Number:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Thomas Conner
Attorney Docket Number:	20970.1.1.1.2

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt

EFS ID:	36034919
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Thomas Conner
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	16-MAY-2019
Filing Date:	13-AUG-2018
Time Stamp:	15:55:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$120
RAM confirmation Number	051719INTEFSW15553300
Deposit Account	233178
Authorized User	Thomas Conner

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1-2_2019-05-16_IDS.pdf	190569 437289bcd33adbb504074d36a7d9210bb732a766	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	15660677_20190506_OA.pdf	674195 0af5778f5fdefa878e51b548d27ec6cf1b787776	no	24
Warnings:					
Information:					
3	Other Reference-Patent/App/Search documents	16162206_20190503_OA.pdf	488040 52aafa164681c36d77f99c1eeea7f17bc0e39f65	no	17
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30509 7f6c50382bafc639835aa63fceb3b61cf292f579	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1383313		

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.

Via E-File

PATENT APPLICATON
Docket No: 20970.1.1.1.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:		)
		)
	Troy Plota	)
		)
Serial No:	16/102,055	) Art Unit
		) 2612
Filed:	August 13, 2018	)
		)
Confirmation No.:	1042	)
		)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
		)
Examiner:	Gordon G. Liu	)
		)
Customer No.:	22913	)

TRANSMITTAL OF ISSUE FEE PAYMENT

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice of Allowance and Fee(s) Due dated April 17, 2019, please find enclosed herewith the following items for filing in the United States Patent and Trademark Office in connection with the above identified patent application:

X Fee(s) Transmittal (PTOL-85) submitted pursuant to 37 C.F.R. § 1.311.

___ A Supplemental Declaration executed by the inventor(s) is submitted pursuant to 37 C.F.R. § 1.67.

___ Pursuant to the request for submission of formal drawings, enclosed are the following:

___ A Letter to the Official Draftsperson;

___ A set of _____ (___) sheets of formal drawings to replace the corresponding drawings originally filed with the subject application.

___ A duplicate set of the _____ (___) sheets of formal drawings with the changes therein highlighted in red.

___ Petition to Excuse Error in Small Entity Status is enclosed.

___ Form PTO-2038 submitting Credit Card Payment in the amount of $_____ is enclosed to cover the fee deficiency for the Petition to Excuse Error.

X Payment by credit card using the payment option in E-Filer with RAM will be used to cover the payment of the fees as follows:

X The $500.00 government issue fee pursuant to 37 C.F.R. § 1.18.

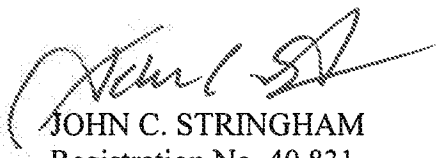
___ The $_____ government publication fee pursuant to 37 C.F.R. § 1.18.(d)

X The Commission is hereby authorized to charge payment of any additional fees or credit any overpayment to Deposit Account No. 23-3178.

Please address all future correspondence in connection with the above-identified patent application to the attention of the undersigned.

Dated this 16th day of May, 2019.

Respectfully submitted,



JOHN C. STRINGHAM
Registration No. 40,831
WORKMAN NYDEGGER
Attorneys for Applicant
Customer No. 022913
Telephone No. 801.533.9800
jstringham@wnlaw.com

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

22913 7590 04/17/2019
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

TITLE OF INVENTION: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

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	07/17/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LIU, GORDON G	2612	345-619000

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 03-09 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 Workman Nydegger
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 23-3178

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 [signature] Date May 16, 2019

Typed or printed name John C. Stringham Registration No. 40,831

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	16102055
Filing Date:	13-Aug-2018
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Sue Held
Attorney Docket Number:	20970.1.1.1.2

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:	36041417
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Sue Held
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	17-MAY-2019
Filing Date:	13-AUG-2018
Time Stamp:	11:29:41
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	051719INTEFSW11303700
Deposit Account	233178
Authorized User	Sue Held

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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 Letter	20970_1_1_1_2_Transmittal_of_Issue_Fee.pdf	54222 1e608473f5da2838941b15e6e6c23baa2ffd9f30	no	2
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
2	Issue Fee Payment (PTO-85B)	20970_1_1_1_2_Fees_Transmittal.pdf	104302 6dd2eb259354798640a2a4f585371e48934ca1b8	no	1
Warnings:					
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Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30276 10904b365ac66e507a433ebf67647b251a598c80	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	188800		

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.

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2	1042

22913 7590 05/23/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
05/23/2019	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):

Docketing@wnlaw.com

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
16/102,055	08/13/2018	Plota et al.	20970.1.1.1.2

	EXAMINER	
Workman Nydegger 60 East South Temple Suite 1000 Salt Lake City, UT 84111	GORDON G LIU	
	ART UNIT	PAPER
	2612	20190518

DATE MAILED: _____

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

Commissioner for Patents

IDS fined on 5/16/2019 has been considered and initialized. The application is still allowable.

/GORDON G LIU/
Examiner, Art Unit 2612

PTO-90C (Rev.04-03)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Piota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1.2

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	15/660677	6-May-2019	Final Office Action
	2	16/162206	3-May-2019	Final Office Action

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	05/18/2019

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	16/102,055
				Filing Date	August 13, 2018
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1.2

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

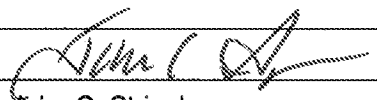
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 23-3178 regarding this Information Disclosure Statement

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	5/16/19
Name/Print	John C. Stringham	Registration Number	40,831

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

41554002_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

Change(s) applied to document, /J.E.B./ 5/20/2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16/102,055
Filing Date	August 13, 2018
First Named Inventor	Troy Plota
Art Unit	2612
Examiner Name	Gordon G. Liu
Attorney Docket Number	20970.1.1.1.2

Sheet 1 Of 2

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	20070019007	25-Jan-2007	JUNG	
	2	20100134505	3-Jun-2010	ANDERSON	
	3	20110273583	10-Nov-2011	YOSHINO	
	4	20150022518	22-Jan-2015	~~JVC~~ KENWOOD CORPORATION	Takeshita

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.	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 [1]
	5	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS

Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	6	15/660677	26-Sep-2018	Office Action

EXAMINER SIGNATURE

Examiner Signature	/GORDON G LIU/	Date Considered	01/10/2019

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

[1] Applicant is to place a check mark here if the reference is accompanied by a translation into English or if a concise explanation of the relevance, as presently understood by the undersigned attorney of record, of each listed reference that is not in the English language and is unaccompanied by a translation into English is provided with the reference.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/102,055	07/09/2019	10346017	20970.1.1.1.2	1042

22913 7590 06/19/2019

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

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 0 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):

Troy Plota, Kihei, HI;
Sascha Connelly, Kihei, HI;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PTO/AIA/82A (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	16/102,055
Filing Date	August 13, 2018
First Named Inventor	Troy Plota
Title	Automated Pixel Shifting Within a Digital Image
Art Unit	2612
Examiner Name	LIU, GORDON G
Attorney Docket Number	20970.1.1.1.2

SIGNATURE of Applicant or Patent Practitioner

Signature	/John C. Stringham/	Date (Optional)	2/10/2020
Name	John C. Stringham	Registration Number	40831
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

DocuSign Envelope ID: AA576F70-CD82-4CB0-941A-51A7C74D50CA

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Sascha Connelly

☑ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Sascha Connelly 235F810892EF4C4...	Date (Optional)	12/8/2017
Name	Sascha Connelly		
Title			

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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.

DocuSign Envelope ID: AA576F70-CD82-4CB0-941A-51A7C74D50CA

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
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 displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Troy Plota

☑ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Troy Plota 88C990E98E73468...	Date (Optional)	12/8/2017
Name	Troy Plota		
Title			

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 3 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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Electronic Acknowledgement Receipt

EFS ID:	38538498
Application Number:	16102055
International Application Number:	
Confirmation Number:	1042
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Rebecca Reil
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1.2
Receipt Date:	10-FEB-2020
Filing Date:	13-AUG-2018
Time Stamp:	13:28:04
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	Power of Attorney	20970-1-1-1-2_2020-02-10_Powers-of-Attorney.pdf	1429746 4fd0f56a1dc77b59e8c43c721d39e19c54f63756	no	3
Warnings:					

Information:	
Total Files Size (in bytes):	1429746

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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.
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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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/102,055	08/13/2018	Troy Plota	20970.1.1.1.2

CONFIRMATION NO. 1042

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

POA ACCEPTANCE LETTER

OC000000114733282

Date Mailed: 02/14/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/10/2020.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/