VIA eFILE

PATENT APPLICATION
Docket No. 20970.1.1.1

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 NON-PROVISIONAL 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 Data Sheet (8 pages)

X Application (38 pages)

X Drawing Sheets (9 pages)

The fees have been calculated as follows:

X Payment in the amount of $800.00 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 Provisional Application.

X Non-Provisional Patent Application Filing fee in the amount of $800.

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 26th day of July, 2017.

Respectfully submitted,

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

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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

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	70	70
UTILITY SEARCH FEE	2111	1	300	300
UTILITY EXAMINATION FEE	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	70	70
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**800**

Electronic Acknowledgement Receipt

EFS ID:	29899408
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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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
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Filing Date:	
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Application Type:	Utility under 35 USC 111(a)

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Authorized User	Willilam Barger

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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_2017-07-26_Application.pdf	227372 5e8b377c6432c4895ac00b59e27d546c510b43d0	yes	38

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

Warnings:

Information:

2	Drawings-only black and white line drawings	20970-1-1-1_2017-07-26_Figures.pdf	1473110 c07b61e0f465eed4aa7855b4a0423b48ffcd7709	no	9

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Information:

3	Application Data Sheet	20970-1-1-1_2017-07-26_ADS.PDF	1814535 7fee1700c4b2f8029bd17dbf0728dc36ff9f05f5	no	8

Warnings:

Information:

4	Transmittal of New Application	20970-1-1-1_2017-07-26_Application-Transmittal.pdf	98908 df4ceae9fca6c2138aa3fc0b607e6978c809244a	no	2

Warnings:

Information:

5	Fee Worksheet (SB06)	fee-info.pdf	36756 dabbc58e16a5693e3347f50ecacce23e8db2000e	no	2

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Total Files Size (in bytes):	3650681

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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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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 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. Additional, 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

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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 received 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 1430(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,

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) point 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 detections 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 embodiments, methods other than generating a mask are used to prevent portions of a digital 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 generate 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 comprise starting points. 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 pixel 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 point 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

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 embodiments, 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 use 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 give 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 use 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 follow 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 comprises a step 810 of accessing a digital file. Act 810 includes accessing, from

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 820. 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 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. 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 create a

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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 comprises 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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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;

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 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

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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 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.

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.

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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;

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.

5. The computer system of claim 4, wherein the first direction is different from the second direction.

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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.

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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 and re-rendering in a loop the first set of pixels being shifted.

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.

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.

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.

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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.

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.

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.

14. The method as recited in claim 13, wherein the first direction is different from the second direction.

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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;

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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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.

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.

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

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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.

19. The method of claim 18, wherein the first direction is different from the second direction.

20. 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.

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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.

workman nydegger

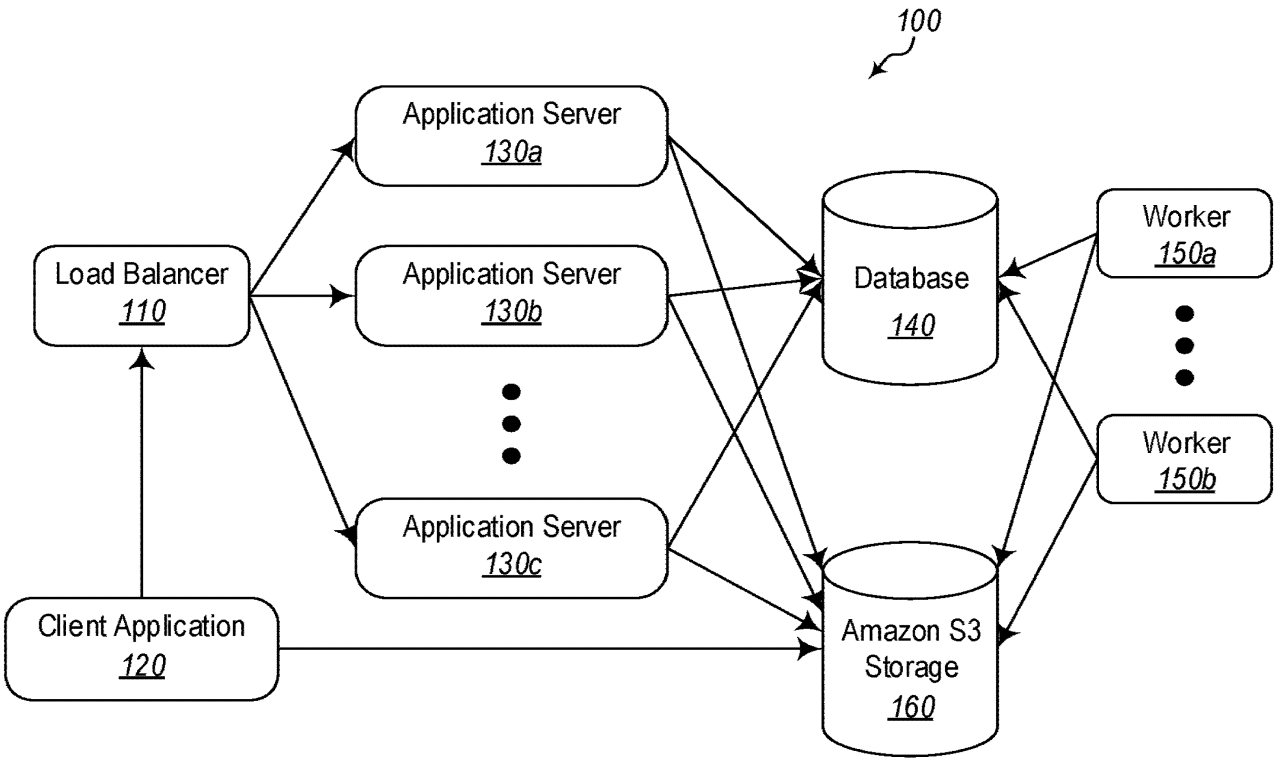

100
Application Server
130a
Load Balancer
110
Application Server
130b
Application Server
130c
Client Application
120
Database
140
Amazon S3
Storage
160
Worker
150a
Worker
150b

Fig. 1

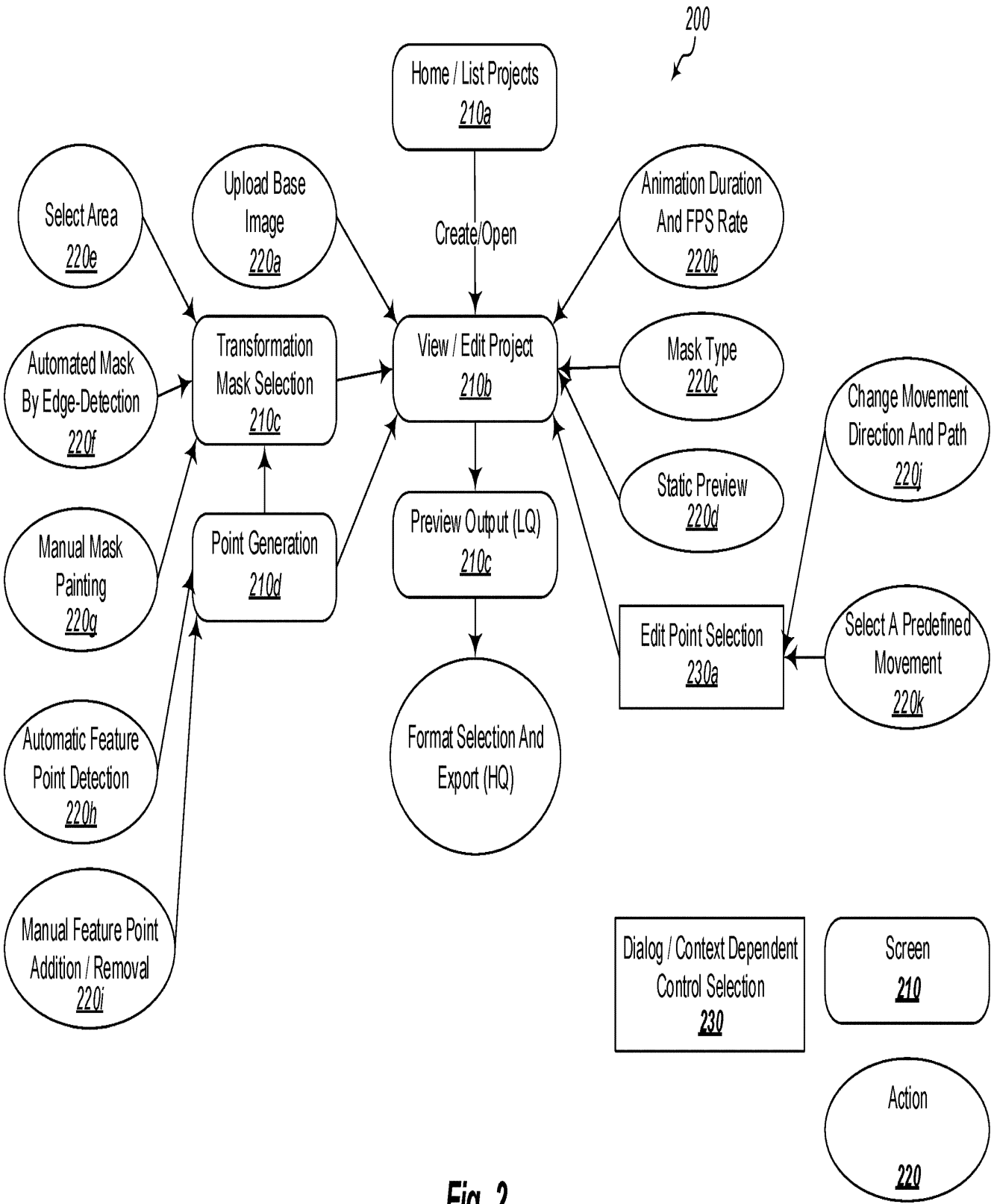

200
Home / List Projects
210a
Select Area
220e
Upload Base Image
220a
Create/Open
Animation Duration And FPS Rate
220b
Automated Mask By Edge-Detection
220f
Transformation Mask Selection
210c
View / Edit Project
210b
Mask Type
220c
Change Movement Direction And Path
220j
Static Preview
220d
Manual Mask 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

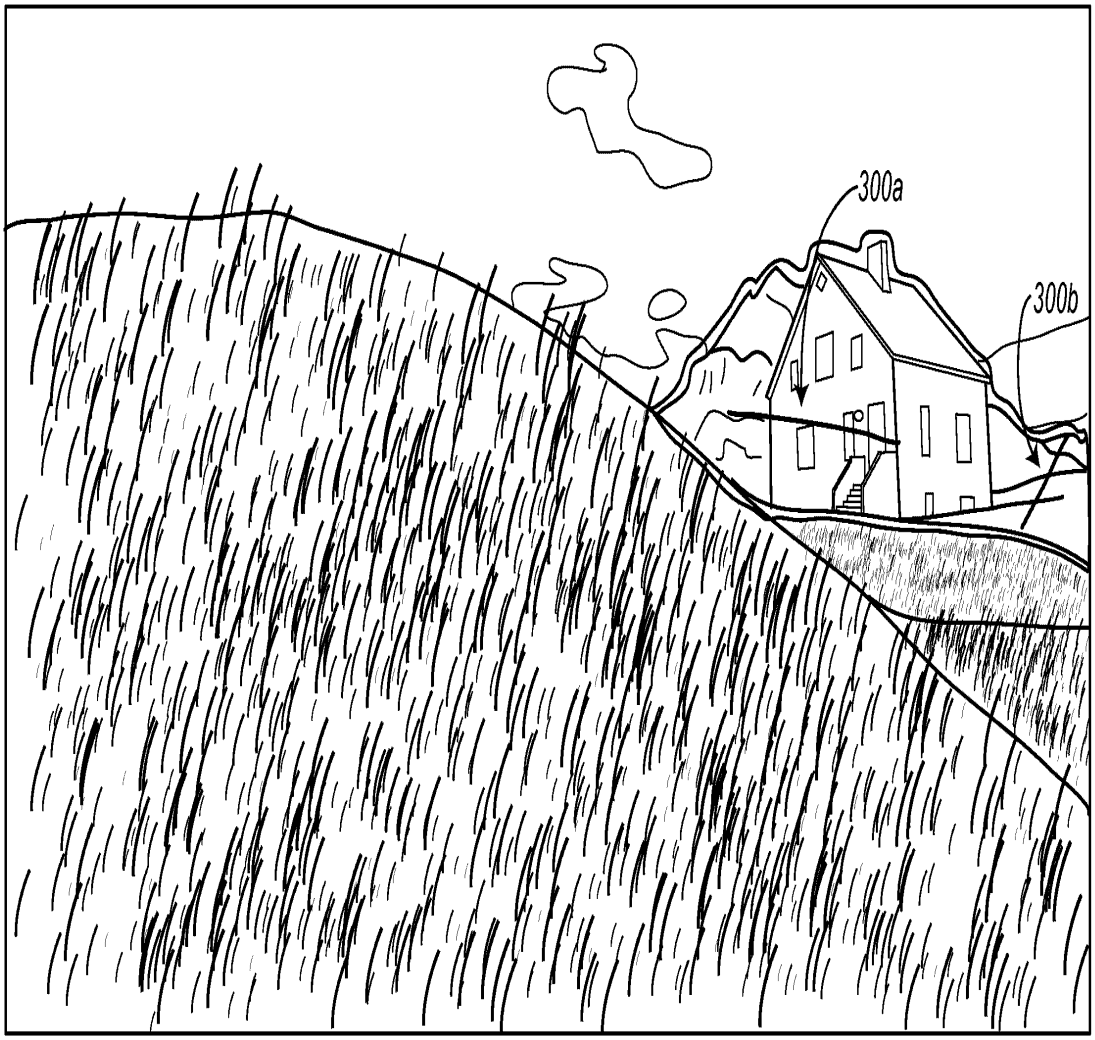


Fig. 3A

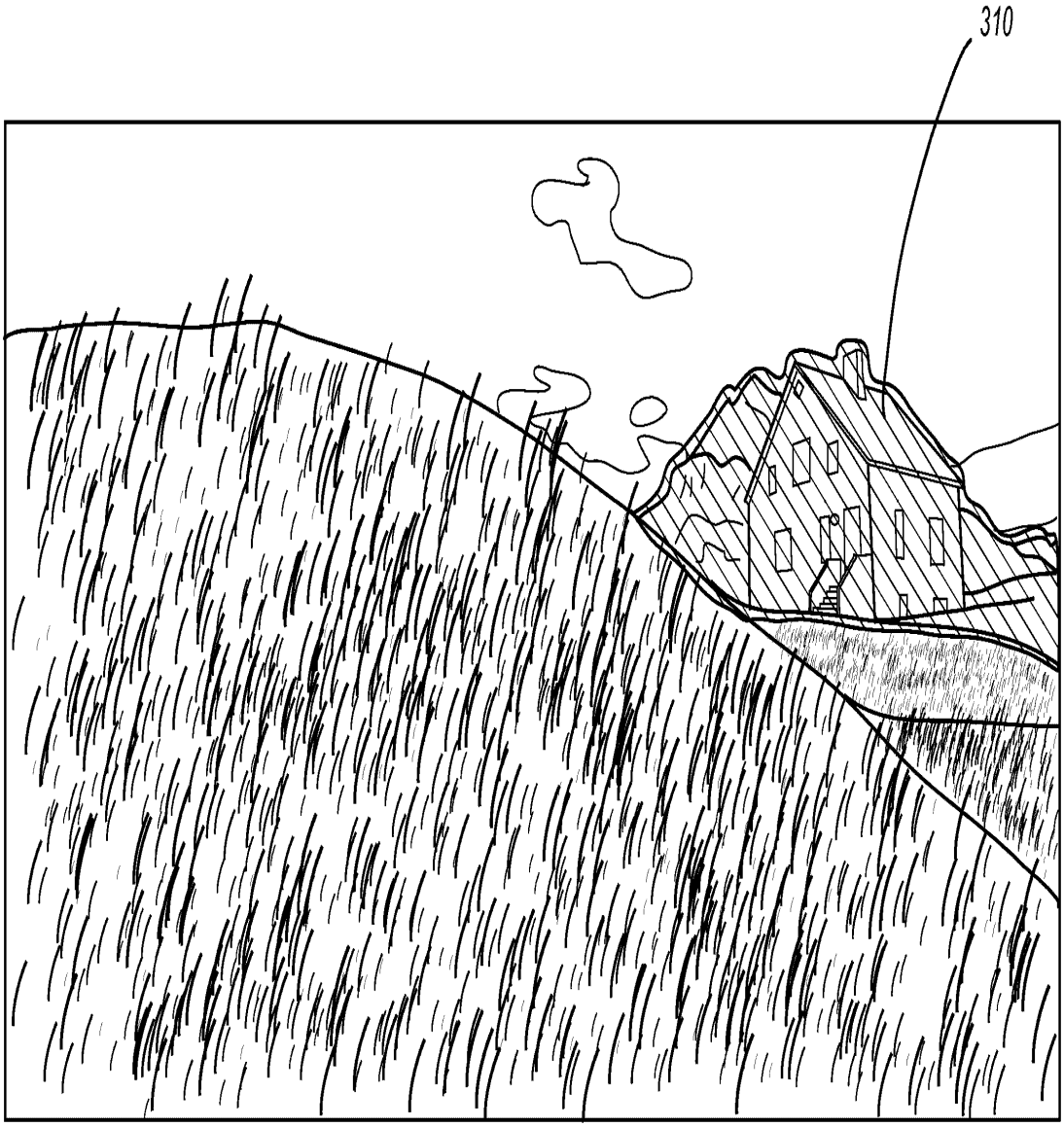


Fig. 3B

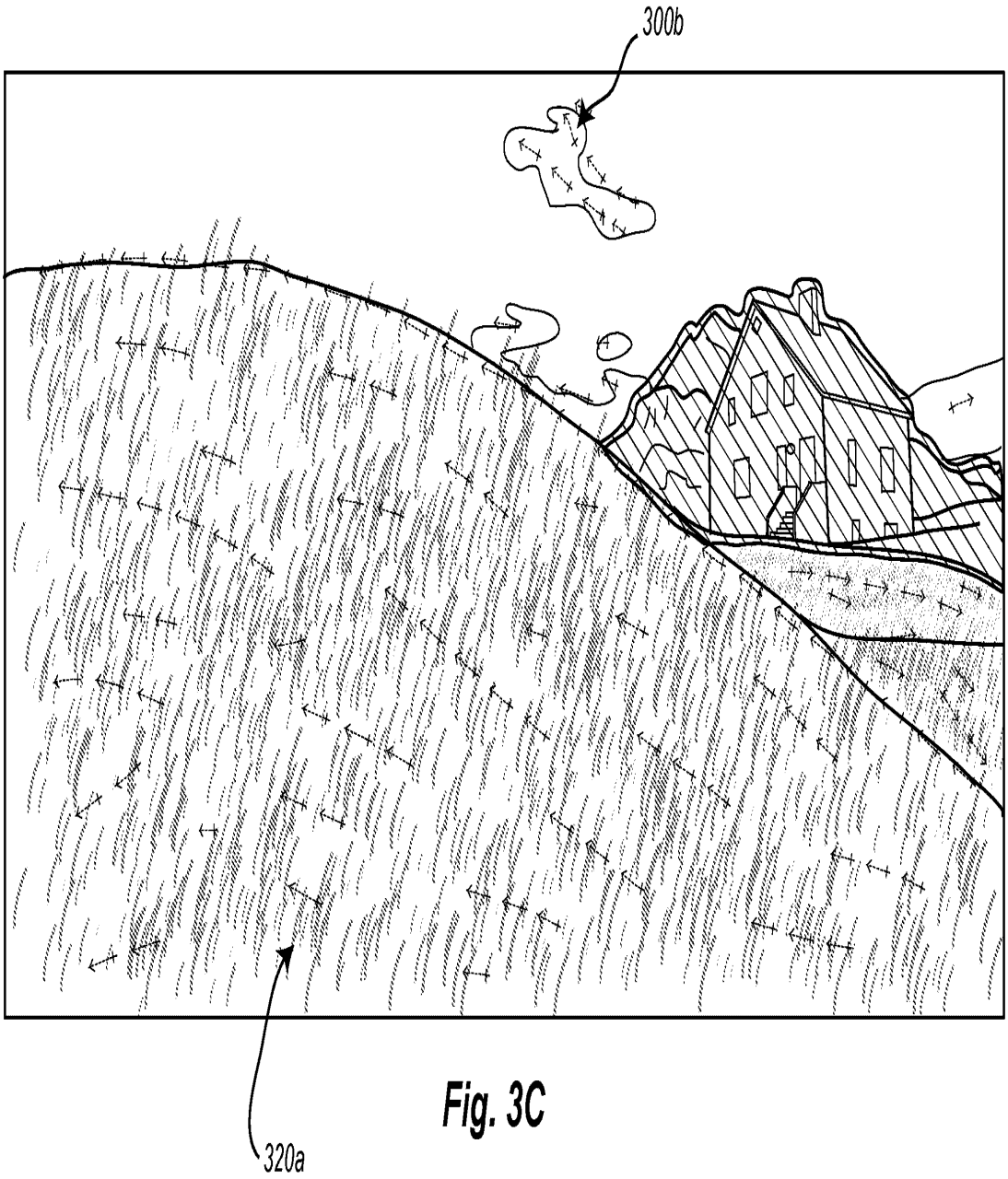


Fig. 3C

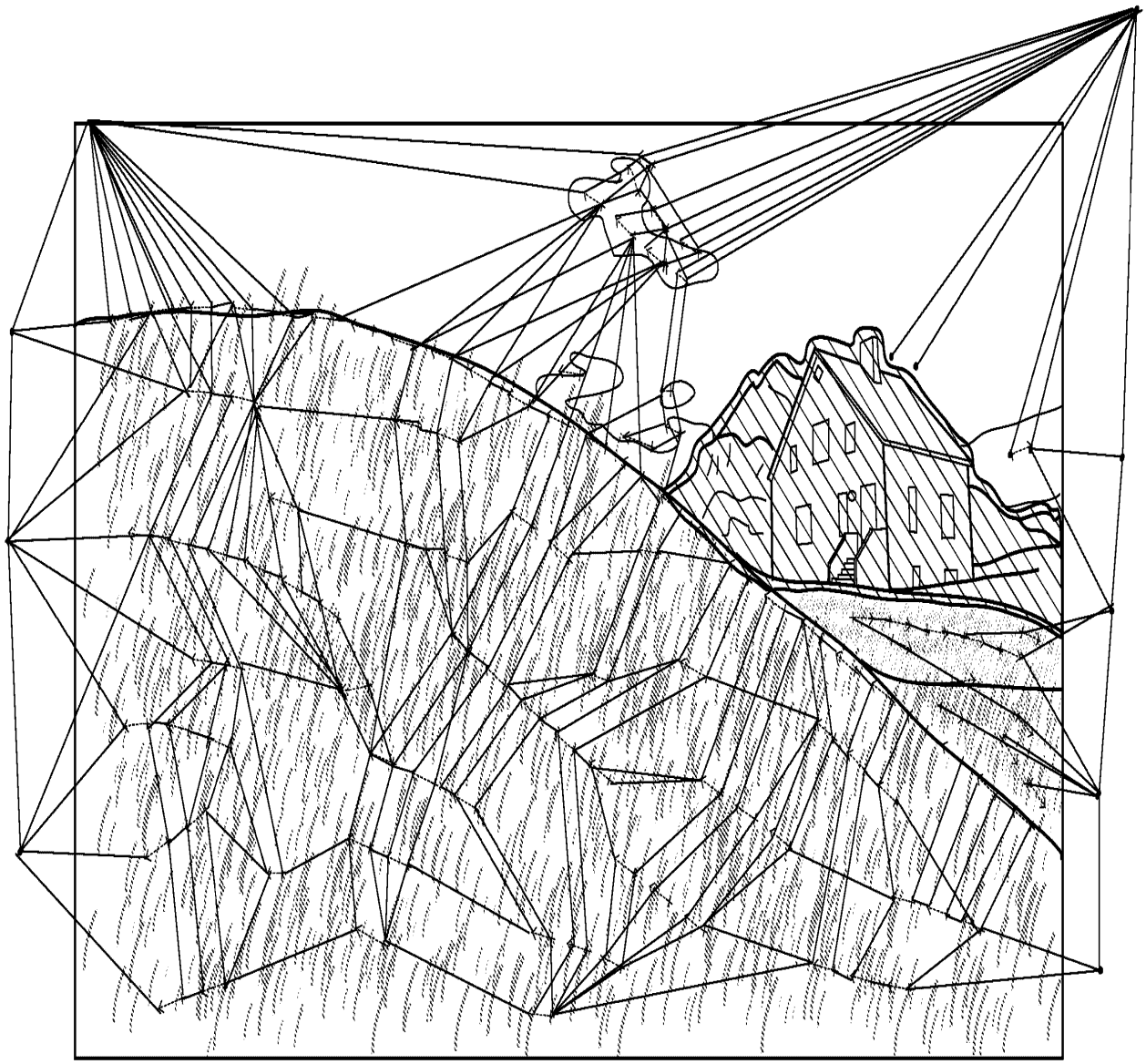


Fig. 4

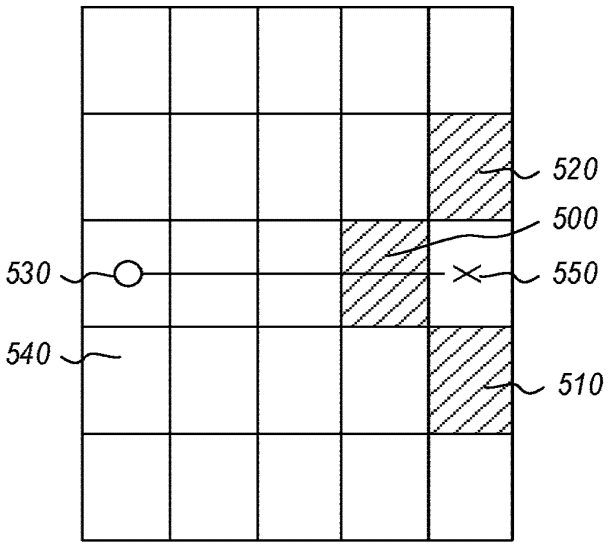


Fig. 5A

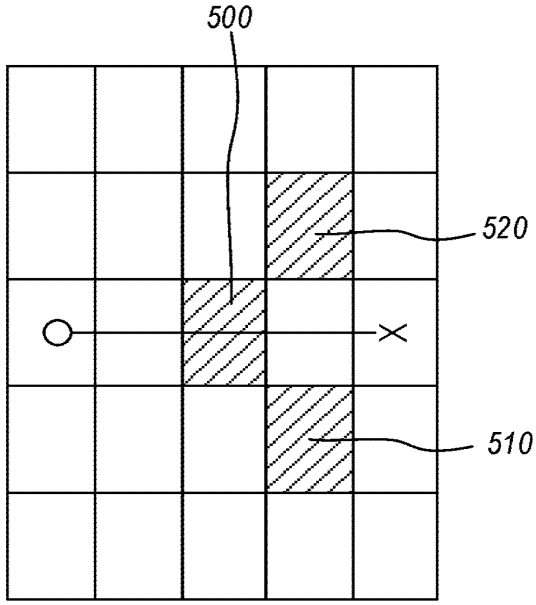


Fig. 5B

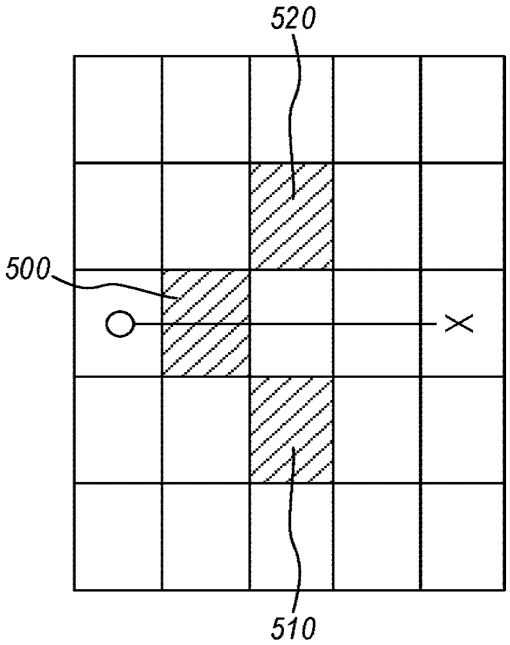


Fig. 5C

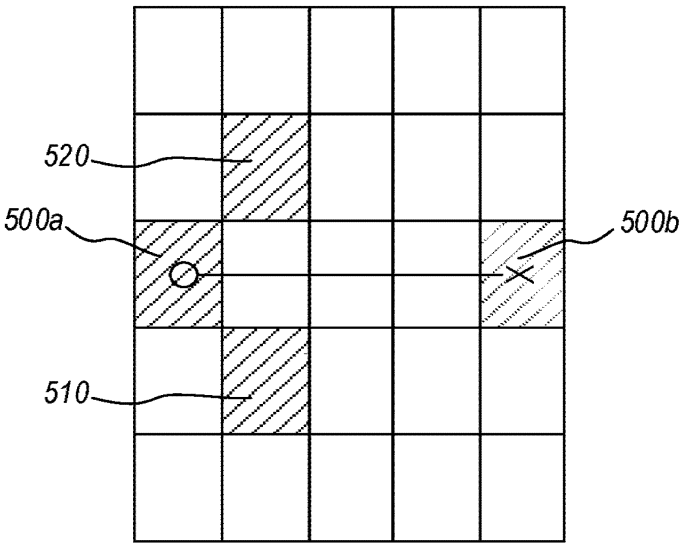


Fig. 5D

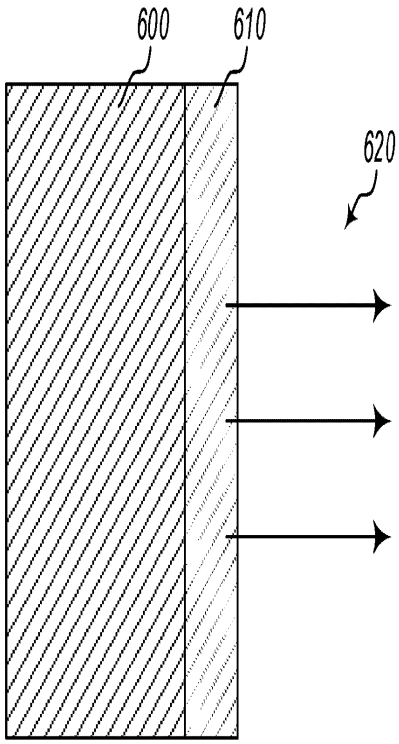


Fig. 6A

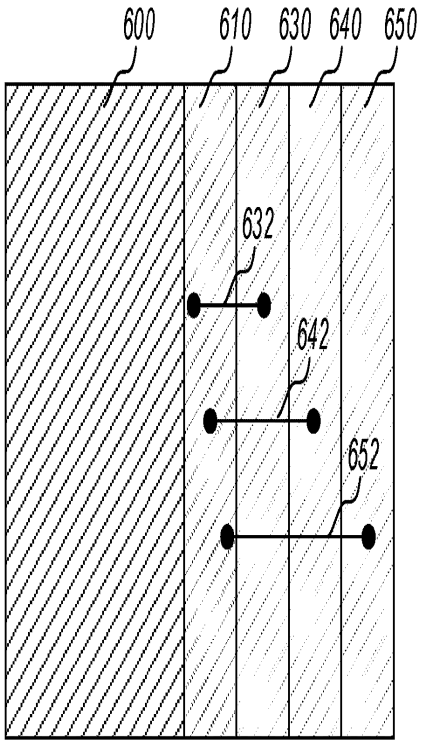


Fig. 6B

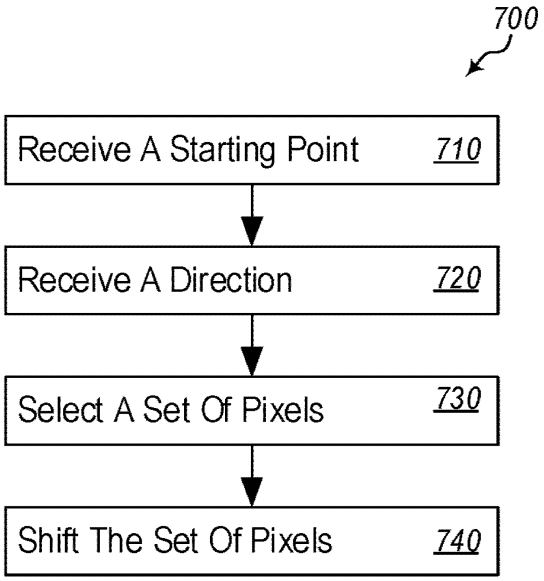

700
Receive A Starting Point 710
Receive A Direction 720
Select A Set Of Pixels 730
Shift The Set Of Pixels 740

Fig. 7

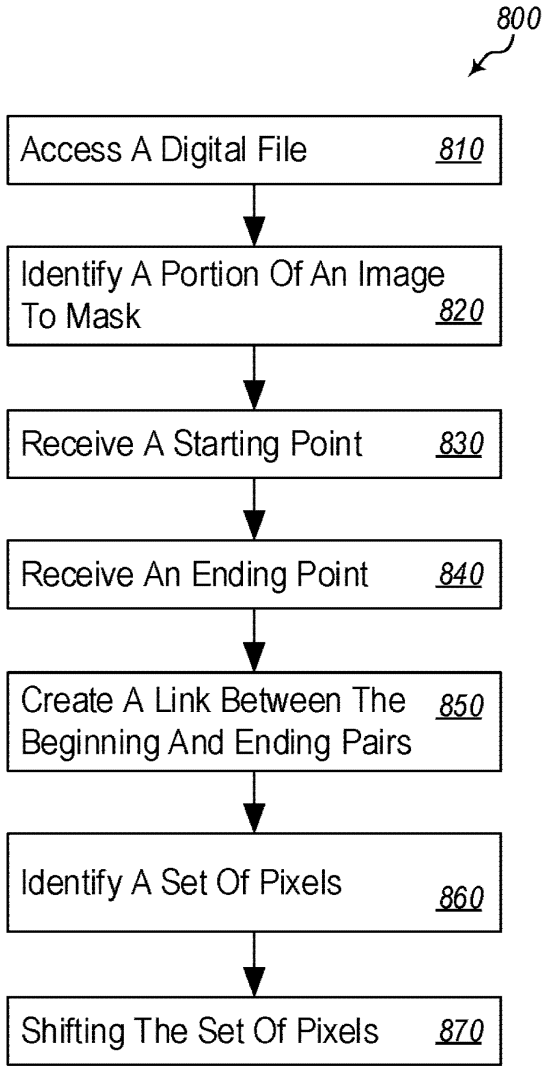

800
Access A Digital File 810
Identify A Portion Of An Image To Mask 820
Receive A Starting Point 830
Receive An Ending Point 840
Create A Link Between The Beginning And Ending Pairs 850
Identify A Set Of Pixels 860
Shifting The Set Of Pixels 870

Fig. 8

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1
	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
	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	022913		
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	**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
	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)
	Claims benefit of provisional	62/514703	2017-06-02
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	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[i] (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

☐ 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
	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.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20970.1.1.1
	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. ☒

Organization Name	PLOTAGRAPH, Inc		
Mailing Address Information For Applicant:			
Address 1	2987 Arriba Way		
Address 2			
City	Santa Barbara	**State/Province**	CA
Country	US	Postal Code	93105
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
	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)	2017-07-26
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
	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.

CORRECTED ADS FORM

Application Number	15660677
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		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Application Information

	Data of Record	Updated Data
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	
Attorney Docket Number	20970.1.1.1	
Entity Type	Regular Undiscounted	

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	~~PPA~~	
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	~~Yes~~	
Name		
Organization Name	~~PLOTAGRAPH, Inc~~	
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:	29914853
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	27-JUL-2017
Filing Date:	
Time Stamp:	20:58:28
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	66019 e03c306a7bdef465cbf4baccea654aad75624769	no	5

Warnings:

Information:	
Total Files Size (in bytes):	66019

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/660,677

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE($)	FEE($)		RATE($)	FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	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	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
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)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	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
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
15/660,677	07/26/2017	2422	800	20970.1.1.1	20	3

CONFIRMATION NO. 7610

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

FILING RECEIPT

OC000000093782081

Date Mailed: 08/03/2017

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 appln 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: 08/02/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/660,677**

Projected Publication Date: 02/01/2018

Non-Publication Request: No

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

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Preliminary Class

348

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.

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
15/660,677	07/26/2017	Troy Plota	20970.1.1.1

CONFIRMATION NO. 7610

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

INFORMAL NOTICE

OC000000093182062

Date Mailed: 08/03/2017

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**.

/kgebremichael/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15660677
	Filing Date	2017-07-26
	First Named Inventor	Troy Plota
	Art Unit	2611
	Examiner Name	Kee M. Tung
	Attorney Docket Number	20970.1.1.1

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	20150262327	17-Sep-2015	OMRON CORPORATION	
	2	20150022518	22-Jan-2015	JVC KENWOOD CORPORATION	
	3	20100134505	3-Jun-2010	ANDERSON	
	4	20070019007	25-Jan-2007	JUNG	
	5	20110273583	10-Nov-2011	YOSHINO	

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]
	6	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

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 English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15660677
Filing Date	2017-07-26
First Named Inventor	Troy Plota
Art Unit	2611
Examiner Name	Kee M. Tung
Attorney Docket Number	20970.1.1.1

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.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

☒ 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; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

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	10/ley/17
Name/Print	John C. Stringham	Registration Number	40831

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.**

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 1 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)

RECEIVED
OCT 11 2017
WORKMAN NYDEGGER

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/US2017/044256	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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/044256

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
25 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 [0086], 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).

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 [0096] 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 [0096] 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).

Supplemental Box

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

Claims 7-9, 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 [0036] 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).

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 [0096] 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.

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 Acknowledgement Receipt

EFS ID:	30756326
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Sarah Warcup
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1
Receipt Date:	25-OCT-2017
Filing Date:	26-JUL-2017
Time Stamp:	13:51:30
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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1_2017-10-25_IDS.pdf	712081 827834283401f9a2e7e66a44cac441d754dea217	no	2

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/660,677	07/26/2017	Troy Plota	20970.1.1.1

CONFIRMATION NO. 7610

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

PUBLICATION NOTICE

OC000000097111774

Title:AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Publication No.US-2018-0032236-A1
Publication Date:02/01/2018

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

22913 7590 09/26/2018

Workman Nydegger
60 East South Temple
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EXAMINER	
LIU, GORDON G	

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
09/26/2018	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. 15/660,677	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 *7/26/2017*.

☐ 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 *7/26/2017* 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 2-6; Claim 7,** and its dependent **claims 8-14**; **Claim 15**, and its dependent **claims 16-20**; 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 7** and **15**, 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; 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 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; 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 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; 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 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; identify a mask image region; 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 identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted. This limitation is broad: it can be an arbitrary image region where the image pixel values are not changeable, or a region in the image that has fixed pixel values during the image processing. Thus, this limitation is broad and does 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 7 and 15**, 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 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 3 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 4 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 5 adds the new limitation of the computer system of claim 4, 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 6 adds the new limitation of 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. This also does not teach that the invention is more than just an abstract idea.

Claim 8 adds the new limitation of 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. 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 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 10 adds the new limitation of 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. 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 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. This also does not teach that the invention is more than just an abstract idea.

Claim 12 adds the new limitation of 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. This also does not teach that the invention is more than just an abstract idea.

Claim 13 adds the new limitation of 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. 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 14 adds the new limitation of the method as recited in claim 13, 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 16 adds the new limitation of 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.. 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 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. 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 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. These limitations are a repeat of the same steps, 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 18, 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 20 adds the new limitation of 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. 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 1-18 are rejected on the ground of nonstatutory double patenting as being unpatentable over **Claims 1-20** of the US Patent Application No.16/102,055. Although the claims at issue are not identical, they are not patentably distinct from each other, see the following mapping table.

Application No. 15/660,677 (Instant Application)	Application No. 16/102,055
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	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;	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;	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.
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 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;	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.	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 receiving an indication of a	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.	particular portion of the digital image to mask comprises receiving through a user interface a selection of a particular pixel within the digital image.
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.	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.
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	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;	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;	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:	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	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.	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.
5. The computer system of claim 4, wherein the first direction is different from the second direction.	6. The computer system of claim 5, wherein the first direction is different from the second direction.
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.	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.
7. A method for automating the shifting of pixels within a digital image, comprising: receiving a first indication of a first starting	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 and re-rendering in a loop the first set of pixels being shifted.	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.
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	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.	received through a user selection of a different portion of the digital image.
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.	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.
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.	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.
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..	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.
12. The method of claim 11, further comprising: identifying one or more edges that form a	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.	boundary around the particular pixel; and generating the mask
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	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.	second direction, wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted.
14. The method as recited in claim 13, wherein the first direction is different from the second direction.	15. The method as recited in claim 14, wherein the first direction is different from the second direction.
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	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; 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. 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;	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;	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:	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	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.	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.
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.	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.
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	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.	generating the mask to cover area within the boundary.
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:	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 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.	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.

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

However, Ohta fails to explicitly disclose that access, from memory, a digital image file; identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted; 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"); and

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").

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; and identify a particular portion of the digital image to mask, wherein the mask prevents pixels covered by the mask from being shifted as taught by Amirghodsi in order to modify the digital image to achieve a desired result and to improve the processing speed (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"; and [0023], "Consequently, the impact of the active mask on processing speed and resources in

later iterations of the patch synthesis technique may be magnified"). Ohta teaches a system to edit digital image captured by the digital camera, while Amirghodsi teaches a system to edit digital image file and to mask a portion of images that is inactive and should not be modify in order to improve the processing speed. Therefore, it is obvious to one of ordinary skill in the art to modify Ohta to process digital image files and mask some image portions that do not need to process in order to increase the processing speed. The motivation to modify Ohta by Amirghodsi is "Use of known technique to improve similar devices (methods, or products) in the same way".

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 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 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 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 4**, 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 5**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 4 as outlined above. Further, Ohta teaches that the computer system of claim 4, 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 6**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 4 as outlined above. Further, Ohta teaches that 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 (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 7**, 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 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 8**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 7 as outlined above. Further, Ohta teaches that 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 (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 9**, Ohta, Amirghodsi, and SCICompanion 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 10**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 7 as outlined above. Further, Amirghodsi teaches that 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 (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 11**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 10 as outlined above. Further, Amirghodsi teaches that 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 (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 12**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 11 as outlined above. Further, Amirghodsi teaches that the method of claim 11, 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 13**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 7 as outlined above. Further, Ohta and SCICompanion teach that 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 (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 14**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 13 as outlined above. Further, Ohta teaches that the method as recited in claim 13, 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 15**, 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, a digital image file (See Ohta: Fig. 1, and [0038], “a memory 16”), wherein the 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”) 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”);

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”);

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 16**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 15 as outlined above. Further, Amirghodsi teaches that 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 (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 17**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 15 as outlined above. Further, Amirghodsi teaches that the method of claim 15, 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 18**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 15 as outlined above. Further, Ohta and SCICompanion teach that 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 (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: 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), wherein shifting the second set of pixels comprises rendering and re-rendering in a loop the second set of pixels being shifted (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).

Regarding **claim 19**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 18 as outlined above. Further, Ohta teaches that the method of claim 18, 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 20**, Ohta, Amirghodsi, and SCICompanion teach all the features with respect to claim 18 as outlined above. Further, Ohta teaches that 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 (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").

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. 15/660,677	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.

Bibliographic Data

Application No: 15/660,677

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.
07/26/2017	345	2612	20970.1.1.1
RULE			

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CONTINUING DATA

This application has PRO of 62514703 06/02/2017

This application has PRO of 62368017 07/28/2016

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/02/2017

** SMALL ENTITY **

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FILING FEE RECEIVED

$800

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15660677	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	09/24/2018								
	1	✓								
	2	✓								
	3	✓								
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	19	✓								
	20	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15660677	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.	9/24/2018	/G.L./

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
345	619	9/24/2018	/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
Google search: color cycling, palette cycling.	9/24/2018	/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
S2	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:48
S3	37754	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S4	41412	S2 or S3	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S5	317	S4 and shift with pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S6	5	S5 and mask with boundary	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S7	0	("2018/0032236").URPN.	USPAT	OR	OFF	2018/09/02 00:52
S8	5	("20070019007" | "20100134505" | "20110273583" | "20150022518" | "20150262327").PN.	US-PGPUB; USPAT	OR	OFF	2018/09/02 01:04
S9	2	cycle same shifting and pixel adj strip	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 01:09
S10	2	("20170236028" or "20160270648").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 01:37
S11	0	circular adj shift$3 adj pixels	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/03 23:33
S12	1	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/03 23:35
S13	2	("9536461" or "20030034992").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:32
S14	121	color adj cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:52
S15	31	S14 and mask	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:52
S18	78	pixel adj rotating	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:32
S19	0	S18 and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:33

S20	14	S18 and shift	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:33
S21	1263	pixel adj shifting	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:03
S22	30	S21 and animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:03
S23	1	"8299413".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:06
S24	2	("20150262327" or "20170140514").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/23 21:08

EAST Search History (Interference)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15660677
	Filing Date	2017-07-26
	First Named Inventor	Troy Plota
	Art Unit	2611
	Examiner Name	Kee M. Tung
	Attorney Docket Number	20970.1.1.1

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	20150262327	17-Sep-2015	OMRON CORPORATION	
	2	20150022518	22-Jan-2015	JVC KENWOOD CORPORATION	
	3	20100134505	3-Jun-2010	ANDERSON	
	4	20070019007	25-Jan-2007	JUNG	
	5	20110273583	10-Nov-2011	YOSHINO	

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]
	6	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

EXAMINER SIGNATURE

Examiner Signature	/GORDON G LIU/	Date Considered	09/02/2018

*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 English language translation is attached.

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	15660677
	Filing Date	2017-07-26
	First Named Inventor	Troy Plota
	Art Unit	2611
	Examiner Name	Kee M. Tung
	Attorney Docket Number	20970.1.1.1

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.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

☒ 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; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

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	10/25/17
Name/Print	John C. Stringham	Registration Number	40831

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.**

2113423_1.DOC

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.T./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	2-Oct-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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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☐ 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		Date	4/1/18
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.**

38009509_1

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
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

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:	34204547
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	03-NOV-2018
Filing Date:	26-JUL-2017
Time Stamp:	15:15:24
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	110518INTEFSW15160400
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_2018-11-03_IDS.pdf	178673 88a52f305a54756ee713abf220bcd640d6dc70cb	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	16102055_20181002_OA.pdf	2123966 4cb7e067e48a9de61572e5c165cefe86a256f5bc	no	58
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30407 3e8883ebc6cfeca4d752de127070e9894f41b2a6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2333046		

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

CERTIFICATION STATEMENT

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

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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	7/12/19
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.**

38824957_1

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
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

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:	34891832
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	17-JAN-2019
Filing Date:	26-JUL-2017
Time Stamp:	18:41:53
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	011819INTEFSW18422300
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_2019-01-17_IDS.pdf	214179 442f030359f25e9f9b4d8b5d91353078c7713687	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	30408 df00d69e5a28f1bd4f76502558d4f21c512cbcde	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1882923		

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

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New International Application Filed with the USPTO as a Receiving Office

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

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	20150095882	2-Apr-2015	Jaeger et al.	

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	2	16/102055	18-Jan-2019	Final Office Action

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Piota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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☐ 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.

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Signature		Date	1/31/19
Name/Print	John C. Stringham	Registration Number	40,831

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39231711_1

Electronic Acknowledgement Receipt

EFS ID:	35021180
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	31-JAN-2019
Filing Date:	26-JUL-2017
Time Stamp:	14:58:04
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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1_2019-01-31_IDS.pdf	196786 10942c94e57c04756e4e65cd64ab56564f73ebc5	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	16102055_20190118_OA.pdf	1266397 93bb4a84989725ba4134c4fef12fc41c3a0c63b4	no	35
Warnings:					
Information:					
			Total Files Size (in bytes):	1463183	

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

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New International Application Filed with the USPTO as a Receiving Office

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UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Mar 8 2019

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:
15660677

Confirmation Number:
7610

E-mail Address:
sheld@wnlaw.com

Phone Number:
+1 8015339800

Proposed Time of Interview:
3-20-2019 4:00 PM ET

Prefered Interview Type:
Video Conference

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

Topic for Discussion:
Pending Office Action dated 9/26/2018

PATENT APPLICATION
Docket No. 20970.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	15/660,677	) Art Unit) 2612
Confirmation No.:	7610	)
Filed:	July 26, 2017	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

TRANSMITTAL FOR AMENDMENT "A"
AND RESPONSE AFTER NON-FINAL WITH EXTENSION OF TIME

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.

__X__ To render the transmitted Amendment "A" and Response timely filed enclosed are the following:

__X__ Petition for Three Month Extension of Time ($700.00).

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 20	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 $700 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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	15/660,677	) Art Unit) 2612
Confirmation No.:	7610	)
Filed:	July 26, 2017	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

PETITION FOR EXTENSION OF TIME

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

Sir:

Pursuant to 37 C.F.R. § 1.136(a), it is respectfully requested that the shortened statutory period which was set for responding to the Office Action dated September 26, 2018 (paper no. 20180902), be extended for Three Month(s) until March 26, 2019.

Payment in the amount of $700 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 extension of time.

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

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
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

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
			Total in USD ($)	**700**

Electronic Acknowledgement Receipt

EFS ID:	35502706
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	22-MAR-2019
Filing Date:	26-JUL-2017
Time Stamp:	14:15:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$700
RAM confirmation Number	032519INTEFSW14154500
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	Amendment/Req. Reconsideration-After Non-Final Reject	20970-1-1-1_2019-03-22_Amendment-A-and-Response.pdf	241053 747165ad5d40f72281f8f688c62dde9ba4152391	no	19
Warnings:					
Information:					
2	Transmittal Letter	20970-1-1-1_2019-03-22_Transmittal.pdf	156065 8ca52f1332befe7ba1f5aa82bc06c046c8f48119	no	2
Warnings:					
Information:					
3	Extension of Time	20970-1-1-1_2019-03-22_Petition-for-EOT.pdf	145020 89e138a7e527e15d568acf1f8b0023e4af373752	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30705 45fcb0c426f6c6da11aced30802b4a8f58b55459	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	572843		

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/660,677	Filing Date 07/26/2017	☐ 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 $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ 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))	* 20	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.

PATENT APPLICATION
Docket No. 20970.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	15/660,677	) Art Unit) 2612
Confirmation No.:	7610	)
Filed:	July 26, 2017	)
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 September 26, 2018 ("*Office Action*"), (Paper No. 20180902), 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;

~~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 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 non-linear pathway extending between the first starting point

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

a first length extending along the non-linear pathway between the first starting point and the first ending point;

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

shift the first set of pixels ~~in the first direction~~along the first length of 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.

2. (Currently Amended) 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, and

~~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.

3. (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.

4. (Currently Amended) 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 and the second beginning portion of the digital image is different than the first 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 and the second ending portion of the digital image is different than the first ending portion of the digital image;

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.

5. (Currently Amended) The computer system of claim 4, wherein the ~~first direction~~non-linear pathway is different from the second direction.

6. (Currently Amended) 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~~ first ending portion of the user interface is outside the edges of the digital image.

7. (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 portion of the digital image;

receiving, through the user interface, an indication of a non-linear pathway extending away from ~~first direction associated with~~ the first starting point;

selecting a first set of pixels extending ~~in the first direction~~along the length of the non-linear pathway and away from the first starting point; and

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.

8. (Original) 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.

9. (Original) 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.

10. (Original) 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.

11. (Original) 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.

12. (Original) 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.

13. (Original) 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.

14. (Currently Amended) The method as recited in claim 13, wherein the ~~first direction~~non-linear pathway is different from the second direction.

15. (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;

~~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;

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

a first length extending along the non-linear pathway between the first starting point and the first ending point;

identifying a first set of pixels that lie along the first length of the non-linear pathway between the first starting point and the first ending point; and

shifting the first set of pixels~~in the first direction~~ along the first length of 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.

16. (Currently Amended) The method of claim 15, further comprising:

identifying a particular portion of the digital image to mask, wherein: the mask prevents pixels covered by the mask from being shifted, and

~~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.

17. (Original) 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.

18. (Currently Amended) 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 and the second beginning portion of the digital image is different than the first 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 and the second ending portion of the digital image is different than the first

ending portion of the digital image;

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.

19. (Currently Amended) The method of claim 18, wherein the ~~first direction~~non-linear pathway is different from the second direction.

20. (Currently Amended) The method of claim 18, wherein the first ending portion of the user interface is outside the edges of the digital image~~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~~.

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed September 26, 2018, considered Claims 1-20.

By this amendment Claims 1, 2, 4-7, 14-16, and 18-20 have been amended. No claims have been cancelled or added. Accordingly, Claims 1-20 are pending, of which Claims 1, 7, and 15 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 least paragraphs [0042], [0057] and Figures 5A-5D.

Telephonic Interview

Initially, Applicant thanks the Examiner for the courtesies extended during the recent telephonic interview held on March 20th, 2019. 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, 7 and 15

The *Office Action* rejected claim(s) 1-20 under 35 U.S.C. § 101 alleging that the claimed invention is directed to non-statutory subject matter. Applicants respectfully traverse this rejection in view of the recently published 2019 Revised Patent Subject Matter Eligibility Guidance[1]. Applicants respectfully note that subsequent to the issuance of the present *Office*

[1] See, Federal Register, Vol. 84, No. 4, page 50.

Action, the USPTO has released updated guidance for applying 35 U.S.C. §101. This updated guidance went into effect on January 7, 2019 and significantly clarifies the framework for rejection under 35 U.S.C. §101. Further, in view of these new guidelines, Applicants respectfully submit that the present claims are patent eligible and should be allowed to issue.

As an initial matter, Applicants, as well as the USPTO in the recent guidelines, note the tremendous lack of clarity and consistency that has thus far permeated legal determinations based upon *Alice v. CLS Bank*. To add clarity and consistency back into those legal determinations the USPTO's latest guidance directs:

> To address these and other concerns, the USPTO is revising its examination procedure with respect to the first step of the Alice/Mayo test 3 (Step 2A of the USPTO's Subject Matter Eligibility Guidance as incorporated into the Manual of Patent Examining Procedure ("MPEP") 2106) 4 by: (1) Providing groupings of subject matter that is considered an abstract idea; and (2) clarifying that a claim is not "directed to" a judicial exception if the judicial exception is integrated into a practical application of that exception.

The present *Office Action* does not conform with the steps outlined in the new guidance.

First, the new guidelines simplify the identification of an abstract idea. The guidelines now require that abstract ideas be identified as belonging to one of the three following categories:

> (a) Mathematical concepts – mathematical relationships, mathematical formulas or equations, mathematical calculations;
>
> (b) Certain methods of organizing human activity – fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions

(including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and

(c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

Applicants respectfully submit that the present claims do not fall within one of the identified classes of abstract ideas. In particular, the *Office Action* appears to have simply copied-and-pasted the claims as the identified abstract idea. In particular, the *Office Action* asserts that the claims are directed towards the 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; 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 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]

As such, the *Office Action* failed to "(a) [i]dentify the **specific** limitation(s) in the claim under examination (individually or in combination) that the examiner believes recites an abstract idea; and (b) **determine whether the identified limitation(s) falls within the subject matter groupings of abstract ideas enumerated in Section I of the 2019 Revised Patent Subject Matter Eligibility Guidance**." Further, Applicants submit that the claims are their face **do not** fall within one of the three identified categories of abstract ideas. Per the recently updated guidance, "[i]f the claim does not recite a judicial exception (a law of nature, natural phenomenon, or subject matter within the enumerated groupings of abstract ideas in Section I), then the claim is eligible at Prong One of revised Step 2A. This concludes the eligibility analysis..."[3] As such, because the present claims do not fall within an identified category of abstract ideas, "the claim[s] [are] eligible" and should be allowed.

Further, applicants respectfully submit that even if the *Office Action* were to allege that the present claims fall within one of the three above identified categories, the claims are still directed towards patent-eligible subject matter under the second step (USPTO Step 2A) outlined

[2] See, *Office Action*, pages 2-3
[3] See, Federal Register, Vol. 84, No. 4, page 54.

in the new guidance. In particular, the new guidelines outline the following regarding the application of this step:

> Under the procedure, if a claim recites a judicial exception (a law of nature, a natural phenomenon, or an abstract idea as grouped in Section I, above), it must then be analyzed to determine whether the recited judicial exception is integrated into a practical application of that exception. **A claim is not "directed to" a judicial exception, and thus is patent eligible, if the claim as a whole integrates the recited judicial exception into a practical application of that exception.** A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception. (emphasis added)

Accordingly, a claim that "integrates" the recited judicial exception into a practical application and that does not attempt to monopolize that exception is deemed patent eligible.

Applicants respectfully submit that the present claims are directed towards "**a practical application.**" In particular, the present claims are in fact directed to specific systems and methods for manipulating wholly digital images within a wholly digital platform. Per the new guidelines "[a] claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception. **When the exception is so integrated, then the claim is not directed to a judicial exception (Step 2A: NO) and is eligible**." (emphasis added).

In view of the new guidelines and the above remarks, Applicants respectfully submit that the present claims are directed towards patent eligible subject matter and are in condition for allowance.

Nonstatutory Double Patenting Rejection of Claims 1-18

In the Office Action, the Examiner rejects claims 1-18 under the judicially created doctrine of nonstatutory double patenting in view of Application Serial No. 16/102,055. Applicants note that Independent Claims 1, 7, and 15 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") further in view of "Palette Cycling" ("SCICompanion").

Applicants respectfully submit that the art of record fails to teach or suggest at least:

> create a first 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 between the first starting point and the first ending point;

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

shift the first set of pixels along the first length of 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

as recited in Independent Claim 1 and similarly recited in Independent Claims 7 and 15. For example, the art of record fails to teach or suggest the receipt of a non-linear pathway along which pixels are then shifted. In view of this deficiency, Applicants respectfully submit that Independent Claims 1, 7, and 15, 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
Registration No.: 40,831
W. Brad Barger
Registration No. 69,566
Attorneys for Applicant
Customer No. 22913

WORKMAN NYDEGGER
60 East South Temple
Suite 1000
Salt Lake City, UT 84111
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Fax: 801-328-1707

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.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

22913 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

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.** 15/660,677	**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 features of shifting points based on threshold distance to the user, intersection of the shifting path, or non-linear path, is a good forward movement for the 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

PTOI-413A (08-03)
Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 15/660,677 First Named Applicant: Troy Plota
Examiner: Gordon G. Liu Art Unit: 2612 Status of Application: Pending OA

Tentative Participants:
(1) John Stringham (2) Brad Barger

Proposed Date of Interview: March 20, 2019 **Proposed Time:** 4:00 PM ET

Type of Interview Requested:
(1) [ ] Telephonic (2) [ ] Personal (3) [X] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES [X] NO
If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) Rej.	Claims 1-20	Ohta 20150262327	[ ]	[ ]	[ ]
(2)		Amirghodsi 20170140514	[ ]	[ ]	[ ]
(3)		Palette Cycling	[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[X] We will discuss independent claims, scope of the invention, distinctions between the claims and the cited art, as well as proposed amendments that are still being worked on.

[ ] Continuation Sheet Attached

Brief Description of Arguments to be Presented:

(1) Attorney to present brief summary of invention (2) Attorney to discuss rejected claims and cited art, including the independent claims (3) Attorney to present proposed amended claims and discuss how proposed amended claims overcome rejections and distinguish from art of record. A copy of the proposed amended claims will be made available to the Examiner at the Interview (4) Attorney to discuss any formal matters.

NOTE:
This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

/John C. Stringham, Reg. No. 40831/ _____
(Applicant/Applicant's Representative Signature) (Examiner/SPE Signature)

This collection of information is required by 37 CFR 1.133. 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 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.

If you need assistance in completing the form, call1-800-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):

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	35827659
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	25-APR-2019
Filing Date:	26-JUL-2017
Time Stamp:	11:37:15
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	15660677
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	
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:	35827898
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	25-APR-2019
Filing Date:	26-JUL-2017
Time Stamp:	11:49:29
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 e542fa7dcc31d6f3b1d04af5fa1da85a30c6ef5a	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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	17-Apr-2019	Notice of Allowance

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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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	4/30/19
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.**

41244391_1

Electronic Acknowledgement Receipt

EFS ID:	35879468
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	30-APR-2019
Filing Date:	26-JUL-2017
Time Stamp:	16:49:56
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	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1_2019-04-30_IDS.pdf	188424 48e329762590e3d5c20a583ab0af8db4eb6b3d5c	no	2

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	16102055_20190417_NOA.pdf	604889 5f31981dda79bc241fb1f39ee1fc020cbd2f369e	no	14
Warnings:					
Information:					
			Total Files Size (in bytes):	793313	

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

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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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/660,677	07/26/2017	Troy Plota	20970.1.1.1

CONFIRMATION NO. 7610

POA ACCEPTANCE LETTER

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

OC000000107786836

Date Mailed: 05/01/2019

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**.

/cnguyen/

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
15/660,677	07/26/2017	2612	800	20970.1.1.1	20	3

CONFIRMATION NO. 7610

CORRECTED FILING RECEIPT

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

OC000000107786873

Date Mailed: 05/01/2019

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 appln 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: 08/02/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/660,677**

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.

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.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

22913 7590 05/06/2019

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
05/06/2019	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. 15/660,677	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 --

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 3/22/2019.

☐ 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) 1-5 and 7-19 is/are rejected.

8) ☑ Claim(s) 6 and 20 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 7/26/2017 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 March 22, 2019, which amends the independent claims 1, 7, and 15, amends the dependent claims 2, 4-6, 14, 16, and 18-20, and presents arguments, is hereby acknowledged. **Claims 1-20** are currently pending and have been examined.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

Applicant's arguments filed on March 22, 2019, have been fully considered.

Applicant argues that by this response, the independent claims 1, 7, and 15 are hereby amended to add a new limitation "**identify a first set of pixels that are: parallel to the first digital link, within a user-defined threshold distance from the first digital link, and extending from the first starting point to the first ending point; and** shift the first set of pixels in the first direction" in order to overcome the 35 U.S.C. §101 and §103 rejection.

Examiner replies that the 35 U.S.C. §101 and §103 rejections for claims 1-20 have been withdrawn. The ODP rejections among these three cases 16/102,055, 16/162,206 and the instant application 15/660, 677 are still valid.

Examiner respectfully further replies that the Applicant's arguments have been fully considered and the ODP rejections are still valid. The present action is made ***final***.

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 Langi, 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(1)(1) - 706.02(1)(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 on line 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 1–5 and 7-19 are rejected on the ground of nonstatutory double patenting as being unpatentable over **Claims 1–4, 6-8, 10-13, and 16-19** of the US Patent Application No.16/102,055. Although the claims at issue are not identical, they are not patentably distinct from each other, see the following mapping table.

Application No. 15/660, 677 (instant application)	Application No. 16/102,055
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	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:	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;
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 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 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 a first link between the first starting point and the first ending point, wherein the first link comprises:	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,
a non-linear pathway extending between the first starting point and the first ending point; and	within a user-defined threshold distance from the first rendered link, and

a first length extending along the non-linear pathway between the first starting point and the first ending point; identify a first set of pixels that lie along the link between the first starting point and the first ending point; and shift the first set of pixels along the first length of 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.	extending from the first starting point to the first ending point; (identify a first set of pixels that are:) 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;
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, and	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.

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.	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.
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.	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.
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 and the second beginning portion of the digital image is different than the first beginning portion of the digital image;	1. 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 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 and the second ending portion of the digital image is different than the first ending portion of the digital image;	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;

create a second link between the second starting point and the second ending point, wherein the second link comprises:	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:
a second direction extending from the second starting point to the second ending point; and	parallel to the second rendered link, within the user-defined threshold distance from the first rendered link, and
a second length between the second starting point and the second ending point;	extending from the second starting point to the second ending point; and
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 are:)
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.	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.

5. The computer system of claim 4, wherein the non-linear pathway is different from the second direction.	6. The computer system of claim 1, wherein the first direction is different from the second direction.
7. A method for automating the shifting of pixels within a digital image, comprising:	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; 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; rendering, on the user interface, a first rendered link between the first starting point and the first ending point, wherein the first link comprises:
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, an indication of a non-linear pathway extending away from the first starting point; selecting a first set of pixels extending along the length of the non-linear pathway and away from the first starting point; and	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; identifying a first set of pixels that lie along the first rendered link;

shifting the first set of pixels 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.	automatically shifting the first set of pixels along the nonlinear pathway, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.
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.	8. 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;
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.	10. 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.
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.	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.

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.	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.
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.	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.
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;	8. 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;

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.	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; 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.
14. The method as recited in claim 13, wherein the non-linear pathway is different from the second direction.	6. The computer system of claim 1, wherein the first direction is different from the second direction.
15. A method for automating the shifting of pixels within a digital image, comprising:	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;	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 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 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 a first link between the first starting point and the first ending point, wherein the first link comprises:	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 non-linear pathway extending between the first starting point and the first ending point; and
a first length extending along the non-linear pathway between the first starting point and the first ending point;	a first length extending along the non-linear pathway;
identifying a first set of pixels that lie along the first length of the non-linear pathway between the first starting point and the first ending point; and	identifying a first set of pixels that lie along the first rendered link;
shifting the first set of pixels along the first length of the nonlinear pathway, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted.	automatically shifting the first set of pixels along the nonlinear pathway, wherein shifting the first set of pixels comprises rendering and re-rendering in a loop the first set of pixels being shifted;

16. The method of claim 15, further comprising: identifying a particular portion of the digital image to mask, wherein: the mask prevents pixels covered by the mask from being shifted, and 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.	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.
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	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.	generating the mask to cover area within the boundary.
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 and the second beginning portion of the digital image is different than the first 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 and the second ending portion of	16. 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

the digital image is different than the first ending portion of the digital image;	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;
creating a second link between the second starting point and the second ending point, wherein the second link comprises:	rendering, on the user interface, a second link between the second starting point and the second ending point;
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	selecting a second set of pixels along the send link; and
shifting the second set of pixels in the second direction, wherein shifting the second set of pixels comprises rendering and re-rendering	automatically shifting the second set of pixels between the second starting point and the second ending point, wherein shifting the

in a loop the second set of pixels being shifted.	second set of pixels comprises rendering in a loop the second set of pixels being shifted.
19. The method of claim 18, wherein the non-linear pathway is different from the second direction.	6. The computer system of claim 1, wherein the first direction is different from the second direction.

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

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

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	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.	9/24/2018	/G.L./
Updated the above class search.	05/02/2019	/G.L./

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
345	619	9/24/2018	/G.L./
	Updated the above class search.	05/02/2019	/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
Google search: color cycling, palette cycling.	9/24/2018	/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
	15/660,677	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	04/30/2019								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	O								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	O								

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	2-Oct-2018	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	05/01/2019

*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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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.

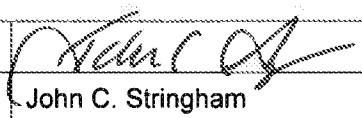
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ 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		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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Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

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	20150095882	2-Apr-2015	Jaeger et al.	

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	2	16/102055	18-Jan-2019	Final Office Action

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	05/01/2019

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☐ 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

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Signature	/John C. Stringham/	Date	1/31/19
Name/Print	John C. Stringham	Registration Number	40,831

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39231711_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S33	34	S32 and shift$3	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:51
S32	42	S31 and pathway	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S31	1953	S30 and non-linear	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S30	43899	S29	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S29	43899	S27 or S28	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S28	40235	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S27	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S26	3	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/17 23:24

EAST Search History (Interference)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
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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	05/01/2019

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[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.

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				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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.

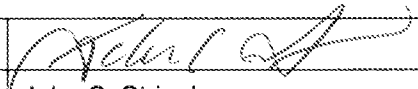
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ 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	1/17/19
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.**

38824957_1

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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	17-Apr-2019	Notice of Allowance

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	05/01/2019

*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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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OR

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☐ 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	4/30/19
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.**

41244391_1

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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	17-Apr-2019	Notice of Allowance
	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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

CERTIFICATION STATEMENT

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☐ 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.

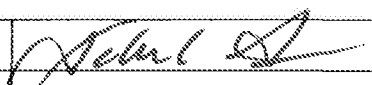
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ 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.**

41244391_1

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
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

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:	36034981
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	16-MAY-2019
Filing Date:	26-JUL-2017
Time Stamp:	15:57:23
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	051719INTEFSW15575800
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_2019-05-16_IDS.pdf	183275 5b6ed0e88523a62d0a7a1650af6a0a5c2d4fb8b0	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Other Reference-Patent/App/Search documents	16102055_20190417_NOA.pdf	604889 5f31981dda79bc241fb1f39ee1fc020cbd2f369e	no	14
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	30408 046fbd7478395b6d87df68c53d5b59ecb41e73ab	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1306612		

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.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	15660677
Filing Date	26-Jul-2017
First Named Inventor	Troy Plota
Attorney Docket Number	20970.1.1.1
Title of Invention	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Troy Plota	50 %
Sascha Scheider	50 %

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

10346017

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

(●) Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

( ) I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

(●) Small Entity

( ) Micro Entity

( ) Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

(●) An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 69566

( ) A sole inventor

( ) A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

( ) A joint inventor; all of whom are signing this request

Signature	/W. Brad Barger/
Name	W. Brad Barger

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	William Brad Barger/Gabrielle Price
Attorney Docket Number:	20970.1.1.1

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15660677

Filing Date: 26-Jul-2017

Applicant/Patent under Reexamination: Plota

Electronic Terminal Disclaimer filed on September 20, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	37226131
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	William Brad Barger/Gabrielle Price
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20970.1.1.1
Receipt Date:	20-SEP-2019
Filing Date:	26-JUL-2017
Time Stamp:	16:38:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E20199JG38368430
Deposit Account	233178
Authorized User	Gabrielle Price

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	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	34716 36b88f5a25213f146f7c7012797f49e3baacb5fc	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30696 4fce8316413944585 9bb4c5385e8a8f66269f927	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	65412		

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

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

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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.

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	15660677	Filing Date	2017-07-26	Docket Number (if applicable)	20970.1.1.1	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)	2019-09-20
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.

PATENT APPLICATION
Docket No. 20970.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	15/660,677	) Art Unit 2612
Confirmation No.:	7610	)
Filed:	July 26, 2017	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)

TRANSMITTAL FOR AMENDMENT "B"
AND RESPONSE AFTER FINAL WITH RCE AND EXTENSION OF TIME

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).

__X__ Terminal Disclaimer relative to U.S. Patent Application No. 16/102,055 (now U.S. Patent No. 10,346,017) ($160.00)

__X__ Petition for Two Month Extension of Time ($300.00).

__X__ Payment in the amount of $1,110 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 20th day of September, 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

Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	William Brad Barger/Gabrielle Price
Attorney Docket Number:	20970.1.1.1

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	2252	1	300	300
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt

EFS ID:	37226443
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	William Brad Barger/Gabrielle Price
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20970.1.1.1
Receipt Date:	20-SEP-2019
Filing Date:	26-JUL-2017
Time Stamp:	16:40:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$950
RAM confirmation Number	E20199JG41088476
Deposit Account	233178
Authorized User	Gabrielle Price

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	Amendment Submitted/Entered with Filing of CPA/RCE	20970-1-1-1_AmendmentB.pdf	206145 f8b25267e5aca83447a23ccb8b06c67dcc2460c0	no	11
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	20970-1-1-1_RCE.pdf	1321359 d093dfc6a8640b3e2b264ff21cf06c1960135dfb	no	3
Warnings:					
Information:					
3	Transmittal Letter	20970-1-1-1_Transmittal.pdf	136264 265998db2cf54431a15164f9069ba236e525df86	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32860 e97fe1448521e6f1b2c3f553af4e3698e77102c7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1696628		

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/660,677	Filing Date 07/26/2017	☐ 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 $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ 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	09/20/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	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".	/MINNIE A JACKSON/
*** 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.

PATENT APPLICATION
Docket No. 20970.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	15/660,677	) Art Unit 2612
Confirmation No.:	7610	)
Filed:	July 26, 2017	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	Gordon G. Liu	)
Customer No.:	22913	)

AMENDMENT B AND RESPONSE

AFTER FINAL

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

Dear Sir:

In response to the Final Office Action of May 6, 2019 ("*Office Action*"), (Paper No. 20190430), 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 9 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A computer system for automating ~~the~~ a 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 non-linear pathway extending between the first starting point and the first ending point; and

a first length extending along the non-linear pathway between the first starting point and the first ending point;

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

shift the first set of pixels along the first length of 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.

2. (Currently Amended) 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~~ a mask prevents pixels covered by the mask from being shifted, and

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.

3. (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.

4. (Currently Amended) 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 and the second beginning portion of the digital image is different than the first 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~~ ending portion of the user interface and the second ending portion of the digital image is different than the first ending portion of the digital image;

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.

5. (Previously Presented) The computer system of claim 4, wherein the non-linear pathway is different from the second direction.

6. (Previously Presented) The computer system of claim 4, wherein the first ending portion of the user interface is outside the edges of the digital image.

7. (Currently Amended) A method for automating ~~the~~ a 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, an indication of a non-linear pathway extending away from the first starting point;

selecting a first set of pixels extending along ~~the~~ a length of the non-linear pathway and away from the first starting point; and

shifting the first set of pixels 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.

8. (Original) The method as recited in claim 0, 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.

9. (Original) 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.

10. (Original) The method as recited in claim 0, 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.

11. (Original) 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.

12. (Original) 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.

13. (Original) The method as recited in claim 0, 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.

14. (Previously Presented) The method as recited in claim 13, wherein the non-linear pathway is different from the second direction.

15. (Currently Amended) A method for automating ~~the~~ a 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 non-linear pathway extending between the first starting point and the first ending point; and

a first length extending along the non-linear pathway between the first starting point and the first ending point;

identifying a first set of pixels that lie along the first length of the non-linear pathway between the first starting point and the first ending point; and

shifting the first set of pixels along the first length of 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.

16. (Currently Amended) The method of claim 15, further comprising:

identifying a particular portion of the digital image to mask, wherein: ~~the~~ a mask prevents pixels covered by the mask from being shifted, and

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.

17. (Currently Amended) The method of claim 15, further comprising:

generating ~~the~~ a mask, wherein generating the mask comprises:

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

generating the mask to cover area within the boundary.

18. (Currently Amended) 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 and the second beginning portion of the digital image is different than the first 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~~ ending portion of the user interface and the second ending portion of the digital image is different than the first ending portion of the digital image;

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.

19. (Previously Presented) The method of claim 18, wherein the non-linear pathway is different from the second direction.

20. (Previously Presented) The method of claim 18, wherein the first ending portion of the user interface is outside the edges of the digital image.

REMARKS

The Final Office Action ("*Office Action*"), mailed May 6, 2019, considered claims 1-20.

By this amendment Claim 1, 2, 4, 7, 15-18 have been amended to address various informalities. No claims have been cancelled or added. Accordingly, claims 1-20 are pending, of which claims 1, 7, and 15 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims.

Response to Amendment

Initially, Applicant thanks the Examiner for finding the claims in condition for allowance over the prior art. Applicants also take this opportunity to clarify the record. On page 4, the *Office Action* asserts that "Applicant argues that by this response, the independent claims 1, 7, and 15 are hereby amended to add a new limitation "identify a first set of pixels that are: parallel to the first digital link, within a user-defined threshold distance from the first digital link, and extending from the first starting point to the first ending point; and shift the first set of pixels in the first direction' in order to overcome the 35 U.S.C. §101 and §103 rejection." Applicants respectfully submit that this statement is in error and appears to refer to the claims of U.S. Patent Application No. 16/102,055 (now U.S. Patent No. 10,346,017). Applicants submit that the present claims are in condition for allowance based upon their own merits.

Obviousness Type Double Patenting Rejection

In the Office Action, the Examiner provisionally rejects claims 1-5 and 7-19 under the judicially created doctrine of obviousness-type double patenting in view claims 1-4, 6-8, 10-13 and 16-19 of U.S. Patent Application Serial No. 16/102,055. Applicant submits herewith a terminal disclaimer relative to U.S. Patent Application No. 16/102,055 (now U.S. Patent No.

10,346,017) in order to overcome this rejection. Withdrawal of this rejection and allowance of the pending claims is respectfully requested in view of the terminal disclaimer.

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 September, 2019.

Respectfully submitted,

/W. Brad Barger/

W. Brad Barger
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Attorneys for Applicant
Customer No. 22913

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

22913 7590 10/02/2019

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

EXAMINER
LIU, GORDON G

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 10/02/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

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	01/02/2020

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 10/02/2019

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.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

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	01/02/2020

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
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

22913 7590 10/02/2019

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

EXAMINER	
LIU, GORDON G	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 10/02/2019

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.

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. 15/660,677	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 9/20/2019.
   ☐ 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 1-20 . 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 a reply 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. PTO-413.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/GORDON G LIU/
Examiner, Art Unit 2612

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 allowed in this Office action.

EXAMINER'S AMENDMENT

Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Stringham on September 27, 2019.

Claims 1-20, are allowed

The application has been amended as follows:

Claims 8, 10, and 13, have been amended to correct the dependency error and the final version of the claims 8, 10, and 13, are indicated below:

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 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.

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.

Allowable Subject Matter

Applicant filed Terminal Disclaimer on 9/20/2019, and the application is allowed. **Claims 1-20** are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 1-20 were carefully reviewed and a search with regards to independent **claims 1, 7, and 15,** has been made. Accordingly, those claims are believed to be distinct from the prior arts searched.

Regarding **Claims 1-20,** specifically independent **claims 1, 7, and 15,** the prior art searched was found to neither anticipate nor suggest a computer system for automating a 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 non-linear pathway extending between the first starting point and the first ending point; and a first length extending along the non-linear pathway between the first starting point and the first ending point; identify a first set of pixels that lie along the first link between the first starting point and the first ending point; and shift the first set of pixels along the first length of 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.

Ohta (US 20150262327 A1), modified by Amirghodsi, etc. (US 20170140514 A1) and "Palette Cycling" (by SCICompanion, March 6, 2016, hereinafter referred as SCICompanion), 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; 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 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. However, Ohta, modified by Amirghodsi and SCICompanion, does not teaches every claimed limitation, especially the claimed limitation of "create a first 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 between the first starting point and the first ending point; identify a first set of pixels that lie along the first link between the first starting point and the first ending point; and shift the first set of pixels along the first length of 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" (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

Examiner-Initiated Interview Summary	Application No. 15/660,677	Applicant(s) Plota et al.	
	Examiner GORDON G LIU	Art Unit 2612	AIA (FITF) Status Yes

All participants (applicant, applicant's representative, PTO personnel):

(1) GORDON G. LIU. (3) _____.

(2) John Stringham. (4) _____.

Date of Interview: 27 September 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: 8,10 and 13.

Identification of prior art discussed: _____.

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...)

Examiner has been authorized by the applicant during this phone interview to amend the dependency of the dependent claims 8, 10, and 13 to correct the dependency error. The dependent claims 8, 10, and 13 are dependent on the independent claim 7: the error is that the dependent claims 8, 10, and 13 were dependent on claim 0. This is an obvious typo. With the examiner's amendment, the application is allowable..

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of 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	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	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)	20	
/GORDON G LIU/ Examiner, Art Unit 2612	28 September 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.: 20190928

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	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)	20	
/GORDON G LIU/ Examiner, Art Unit 2612	28 September 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.: 20190928

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	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	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/GORDON G LIU/ Examiner, Art Unit 2612	28 September 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.: 20190928

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	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.	9/24/2018	/G.L./
Updated the above class search.	05/02/2019	/G.L./
Updated the above class search.	09/28/2019	/G.L./

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
345	619	9/24/2018	/G.L./
	Updated the above class search.	05/02/2019	/G.L./
	Updated the above class search.	09/28/2019	/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**
Google search: color cycling, palette cycling.	9/24/2018	/G.L./

/GORDON G LIU/ Examiner, Art Unit 2612	/GORDON LIU/ Examiner.Art Unit 2612

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/660,677	Plota et al.
	Examiner	Art Unit
	GORDON G LIU	2612

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
345	619	09/28/2019	/G.L./
	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	09/28/2019	/G.L./
	(Troy and Plota).as.	09/28/2019	/G.L./
	(Plota and Troy or Connelly and Sascha).in.	09/28/2019	/G.L./
	@pd>"20190501"	09/28/2019	/G.L./

/GORDON G LIU/ Examiner, Art Unit 2612	/GORDON LIU/ Examiner.Art Unit 2612

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/102055	17-Apr-2019	Notice of Allowance
	2	16/162206	3-May-2019	Final Office Action

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	09/28/2019

*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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	**Of**	2	Attorney Docket Number	20970.1.1.1

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.

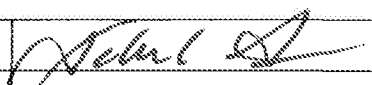
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ 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.**

41244391_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

Bibliographic Data

Application No: 15/660,677

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /GORDON G LIU/ G.G.L

Examiner's Signature Initials

Title: AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/26/2017	345	2612	20970.1.1.1
RULE			

APPLICANTS

INVENTORS

Troy Plota Kihei, HI, UNITED STATES

Sascha Connelly Kihei, HI, UNITED STATES

CONTINUING DATA

This application has PRO of 62514703 06/02/2017

This application has PRO of 62368017 07/28/2016

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/02/2017

**** 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

$800

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:48
S3	37754	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S4	41412	S2 or S3	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S5	317	S4 and shift with pixel	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S6	5	S5 and mask with boundary	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 00:50
S7	0	("2018/0032236").URPN.	USPAT	OR	OFF	2018/09/02 00:52
S8	5	("20070019007" | "20100134505" | "20110273583" | "20150022518" | "20150262327").PN.	US-PGPUB; USPAT	OR	OFF	2018/09/02 01:04
S9	2	cycle same shifting and pixel adj strip	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 01:09
S10	2	("20170236028" or "20160270648").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/02 01:37
S11	0	circular adj shift$3 adj pixels	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/03 23:33
S12	1	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/03 23:35
S13	2	("9536461" or "20030034992").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:32
S14	121	color adj cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:52
S15	31	S14 and mask	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 09:52
S18	78	pixel adj rotating	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:32
S19	0	S18 and cycling	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:33
S20	14	S18 and shift	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 11:33
S21	1263	pixel adj shifting	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:03
S22	30	S21 and animation	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:03
S23	1	"8299413".pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/04 15:06
S24	2	("20150262327" or "20170140514").pn.	US-PGPUB; USPAT; EPO	OR	OFF	2018/09/23 21:08
S25	3	"15660677"	US-PGPUB;	OR	OFF	2019/03/20

			USPAT; EPO; DERWENT			15:42
S26	3	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2019/04/17 23:24
S27	4526	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S28	40235	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S29	43899	S27 or S28	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S30	43899	S29	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S31	1953	S30 and non-linear	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S32	42	S31 and pathway	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:50
S33	34	S32 and shift$3	US-PGPUB; USPAT; EPO	OR	OFF	2019/05/01 08:51
S34	4527	345/619.ccls.	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:48
S35	42549	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:48
S36	46215	S34 or S35	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:48
S37	46215	S36	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:48
S38	62	S37 and ending adj point and beginning adj point	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:51
S39	0	S38 and pathway same shift	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:51
S40	0	S38 and pathway with shift	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:51
S41	1	S38 and pathway and shift	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 18:51
S46	4	"15660677"	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 22:48
S47	0	(Troy and Plota).as.	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 22:52
S48	4	(Plota and Troy or Connelly and Sascha).in.	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 22:52
S49	333542	@pd>"20190501"	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 22:53
S50	55	S49 and ending adj point and beginning adj point	US-PGPUB; USPAT; EPO	OR	OFF	2019/09/28 22:53

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S42	42549	(G06T11/60 or G06T19/00 or G06T11/00 or G06F9/4443 or G06F3/0481).cpc.	US-PGPUB; USPAT	OR	OFF	2019/09/28 18:52
S43	4526	345/619.ccls.	US-	OR	OFF	2019/09/28

			PGPUB; USPAT			18:53
S44	46214	S42 or S43	US-PGPUB; USPAT	OR	OFF	2019/09/28 18:53
S45	62	S44 and ending adj point and beginning adj point	US-PGPUB; USPAT	OR	OFF	2019/09/28 18:53
S51	0	(Troy and Plota).as.	US-PGPUB; USPAT	OR	OFF	2019/09/28 22:57
S52	4	(Plota and Troy or Connelly and Sascha).in.	US-PGPUB; USPAT	OR	OFF	2019/09/28 22:57
S53	333540	@pd>"20190501"	US-PGPUB; USPAT	OR	OFF	2019/09/28 22:57
S54	55	S53 and ending adj point and beginning adj point	US-PGPUB; USPAT	OR	OFF	2019/09/28 22:58
S55	3	S54 and pathway and shift	US-PGPUB; USPAT	OR	OFF	2019/09/28 22:58

9/28/2019 10:59:58 PM
C:\Users\gliu\Documents\EAST\Workspaces\Case318_15660677.wsp

Doc Code: Oath
Document Description: Oath or declaration filed

PTO/AIA/08 (11-15)
Approved for use through 4/30/2017. OMB 0651-0032
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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
First Named Inventor	Troy Plota
COMPLETE IF KNOWN	
Application Number	15/660,677
Filing Date	July 26, 2017
Art Unit	2422
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 15/660,677

filed on July 26, 2017.

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 punishable 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: 022913 OR ☐ Correspondence address below

Name		
Address		
City	State	Zip
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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:

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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
Santa Barbara	CA	US

Mailing Address

2987 Arriba Way

City	State	Zip	Country
Santa Barbara	CA	93105	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

PTO/AIA/08 (13-15)

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(*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
Santa Barbara	CA	US

Mailing Address

2987 Arriba Way

City	State	Zip	Country
Santa Barbara	CA	93105	US

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

Electronic Acknowledgement Receipt

EFS ID:	37431178
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	11-OCT-2019
Filing Date:	26-JUL-2017
Time Stamp:	11:00:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	20970_1_1_1_Declaration_Sascha.pdf	96675 1aaf7cf793c58e67a4473ea92f04062009f5d9af	no	2

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Information:

2	Oath or Declaration filed	20970_1_1_1_Declaration_Troy.pdf	99629 48a18d6e77265102559562bd7b8034274fa799a1	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:

Total Files Size (in bytes):	196304

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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)				Application Number	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/162206	27-Nov-2019	Notice of Allowance

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.

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				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	**Of**	2	Attorney Docket Number	20970.1.1.1

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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	12/11/19
Name/Print	John C. Stringham	Registration Number	40,831

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Electronic Patent Application Fee Transmittal

Application Number:	15660677
Filing Date:	26-Jul-2017
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Filer:	John C. Stringham/Anastasiia Matkovska
Attorney Docket Number:	20970.1.1.1

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:	37997152
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
Title of Invention:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE
First Named Inventor/Applicant Name:	Troy Plota
Customer Number:	22913
Filer:	John C. Stringham/Anastasiia Matkovska
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20970.1.1.1
Receipt Date:	11-DEC-2019
Filing Date:	26-JUL-2017
Time Stamp:	13:40:48
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	E2019BAD42140356
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	20970-1-1-1_2019-12-11_IDS.PDF	171929 2a5db3ade35bd1d396f7c3c514d16e6655cfedcc	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
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					
2	Other Reference-Patent/App/Search documents	16162206_2019-11-27_NOA.pdf	468411 6065fb0aca8dfdd99256248fa2fe94b2ef049807	no	9
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30527 8106a99fea2787857a8e861b04b1632e3aff05f4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	670867		

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
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.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

22913 7590 12/19/2019

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
12/19/2019	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.
15/660,677	07/26/2017	Plota et al.	20970.1.1.1

	EXAMINER	
Workman Nydegger 60 East South Temple Suite 1000 Salt Lake City, UT 84111	GORDON G LIU	
	ART UNIT	PAPER
	2612	20191214

DATE MAILED: _____

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

Commissioner for Patents

IDS filed on 12/11/2019 has been initialized, and the instant 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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	1	Of	2	Attorney Docket Number	20970.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE / ISSUE NOTIFICATION DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	16/162206	27-Nov-2019	Notice of Allowance

EXAMINER SIGNATURE			
Examiner Signature	/GORDON G LIU/	Date Considered	12/14/2019

*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	15/660,677
				Filing Date	July 26, 2017
				First Named Inventor	Troy Plota
				Art Unit	2612
				Examiner Name	Gordon G. Liu
Sheet	2	Of	2	Attorney Docket Number	20970.1.1.1

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.

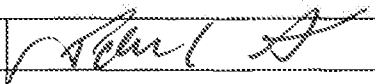
☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ 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	12/11/19
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.**

41244391_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L/

Via E-File

PATENT APPLICATON
Docket No: 20970.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:		)
	Troy Plota	)
Serial No:	15/660,677	) Art Unit 2612
Filed:	July 26, 2017	)
Confirmation No.:	7610	)
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 October 2, 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 2nd day of January, 2020 ~~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

(43314691.1).doc

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 10/02/2019
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.
15/660,677	07/26/2017	Troy Plota	20970.1.1.1	7610

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	01/02/2020

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 Jan 2, 2020

Typed or printed name John C. Stringham Registration No. 40831

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:	15660677
Filing Date:	26-Jul-2017
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

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:	38179826
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	02-JAN-2020
Filing Date:	26-JUL-2017
Time Stamp:	08:58:39
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	E202012959207934
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_Transmittal_of_Issue_Fee.pdf	56573 0851295237b98dbd5dbd9193fbdd6f0e168cd571	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_Fees_Transmittal.pdf	83204 b9d8558e79e24a026862feeb4f4378b488202fb4	no	1
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	Fee Worksheet (SB06)	fee-info.pdf	30033 7098e631e4c821e4e016e759aafe04c4edd62e11	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	169810		

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15660677
	Filing Date	2017-07-26
	First Named Inventor	Troy Plota
	Art Unit	2611
	Examiner Name	Kee M. Tung
	Attorney Docket Number	20970.1.1.1

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
Change(s) applied to document, /G.R.P./ 12/3/2019	1	20150262327	17-Sep-2015	~~OMRON~~ CORPORATION	Ohta
	2	20150022518	22-Jan-2015	JVC KENWOOD ~~CORPORATION~~	Takeshita
	3	20100134505	3-Jun-2010	ANDERSON	
	4	20070019007	25-Jan-2007	JUNG	
	5	20110273583	10-Nov-2011	YOSHINO	

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]
	6	International Search Report and Written Opinion for application no. PCT/US2017/044256 mailed on October 6, 2017	☐

EXAMINER SIGNATURE

Examiner Signature	/GORDON G LIU/	Date Considered	09/02/2018

*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 English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.G.L./

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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/660,677	02/11/2020	10558342	20970.1.1.1	7610

22913 7590 01/22/2020

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
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.

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	15/660,677
Filing Date	July 26, 2017
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

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
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.**

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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

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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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	38538345
Application Number:	15660677
International Application Number:	
Confirmation Number:	7610
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
Receipt Date:	10-FEB-2020
Filing Date:	26-JUL-2017
Time Stamp:	13:21:07
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_Powers-of-Attorney.pdf	1417936 86d1b5916c83fc03231b40a34a8f6b6d563ce246	no	3

Warnings:

Information:	
Total Files Size (in bytes):	1417936

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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

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
15/660,677	07/26/2017	Troy Plota	20970.1.1.1

CONFIRMATION NO. 7610

POA ACCEPTANCE LETTER

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

OC000000114747846

Date Mailed: 02/18/2020

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**.

/vnguyen/

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
15/660,677	**10/26/2021 06:03:31 PM ET**	**20970.1.1.1**

Title of Invention

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10558342
CONFIRMATION #	7610	FILED BY	Gabrielle Price
PATENT CENTER #	60370559	FILING DATE	07/26/2017
CUSTOMER #	22913	FIRST NAMED INVENTOR	Troy Plota
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Willilam Barger

Documents

TOTAL DOCUMENTS: 3

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
20970-1-1-1 2021-10-26 Transmittal.pdf	2	Transmittal Letter	155 KB
20970-1-1-1 2021-10-26 Petition for EOT.pdf	2	Extension of Time	120 KB
20970-1-1-1 2021-10-26 Amendment A.pdf	11	Amendment/Req. Reconsideration-After Non-Final Reject	148 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

20970-1-1-1 2021-10-26 Transmittal.pdf	3849786B79C5FA0C4647CCDBF0926BC91E5BD84B9E16E02F65FEC78B3ED49366A626C046F4A04E28BE1AA6A877829B467BDFB0C360F8ECEB012C54387DF6A663
20970-1-1-1 2021-10-26 Petition for EOT.pdf	A68EFB5FF5387F66A5448A80E7D59951F683C32F0977918A64329000ED520B2257D0038D1843B603A73FD4AC228F8C2EFA56520A41E19B8E36BD8D688344B4FF
20970-1-1-1 2021-10-26 Amendment A.pdf	37CC4B59F47CA222998373DDA938283627A0529C108BBFF652DEF1440F99BAF9AECB04D9E63D8B17A0620F4013AF2BAAD17521DC6760C8D2CFDD7B6FE4032788

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 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 eFILE

PATENT APPLICATION
Docket No: 20970.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Troy Plata	)
Serial No.:	16/735,550	) Art Unit) 2612
Filed:	January 6, 2020	)
Conf. No.:	2797	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL AGE	)
Examiner:	GORDON G. LIU	)
Customer No.:	22913	)

PETITION FOR EXTENSION OF TIME

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

Sir:

Pursuant to 37 C.F.R. § 1.136(a), it is respectfully requested that the shortened statutory period which was set for responding to the Office Action dated April 30, 2021 (paper no. 20210418), be extended for 3 Month(s) until October 30, 2021.

Payment in the amount of $740 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 extension of time.

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 26th day of October, 2021.

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

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
15/660,677	10/26/2021 06:03:31 PM ET	20970.1.1.1

Title of Invention

AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10558342
CONFIRMATION #	7610	FILED BY	Gabrielle Price
PATENT CENTER #	60370559	AUTHORIZED BY	William Barger
CUSTOMER #	22913	FILING DATE	07/26/2017
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Troy Plota

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 2008	E20210PI03550725	Gabrielle Price

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
233178	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)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2253	EXTENSION FOR RESPONSE WITHIN THIRD MONTH -	740.00	1	740.00
			TOTAL AMOUNT:	$740.00

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 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.

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PATENT APPLICATION
Docket No. 20970.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/735,550	) Art Unit) 2612
Confirmation No.:	2797	)
Filed:	January 6, 2020	)
For:	AUTOMATED PIXEL SHIFTING WITHIN A DIGITAL IMAGE	)
Examiner:	GORDON G. LIU	)

TRANSMITTAL FOR AMENDMENT "A"
AND RESPONSE AND EXTENSION OF TIME

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.

_X_ To render the transmitted Amendment "A" and Response timely filed enclosed are the following:

_X_ Petition for 3 Month Extension of Time ($740).

__X__ Payment in the amount of $740 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 26th day of October, 2021.

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. 20970.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Troy Plota, *et al.*	)
Serial No.:	16/735,550	) Art Unit) 2612
Confirmation No.:	2797	)
Filed:	January 6, 2020	)
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 April 30, 2021 ("*Office Action*"), (Paper No. 20210418), 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 9 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;

apply a mask to~~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 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 non-linear pathway extending a first direction between the first starting point and the first ending point ~~a first direction extending from the first starting point to the first ending point~~; and

a first length extending along the non-linear pathway between the first

starting point and the first ending point;

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

shift the first set of pixels in the first direction along the first length of 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.

2. (New) 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.

3. (New) The computer system of claim 2, wherein the executable instructions include instructions that are executable to configure the computer system to apply 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.

4. (New) The computer system of claim 1, wherein the executable instructions include instructions that are executable to configure the computer system to generate the mask by:

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.

5. (New) The computer system of claim 4, wherein the non-linear pathway is different from the second direction.

6. (New) The computer system of claim 4, wherein the first direction is different from the second direction.

7. (New) The computer system of claim 4, wherein a first magnitude of the shifting of the first set of pixels is proportionally related to the first length and a second magnitude of the shifting of the second set of pixels is proportionally related to a second length extending along a pathway between the second starting point and a second ending point.

8. (New) A computer-implemented method, executed on one or more processors, for automating the shifting of pixels within a digital image, the computer-implemented method comprising:

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

applying a mask to a particular portion of the digital image, wherein the mask prevents pixels covered by the mask from being shifted;

receiving a first starting point through a user interface;

receiving a first ending point through the user interface;

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

a non-linear pathway extending a first direction between the first starting point and the first ending point ; and

a first length extending along the non-linear pathway between the first starting point and the first ending point;

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

shifting the first set of pixels in the first direction along the first length of the non-linear pathway, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted.

9. (New) The computer-implemented method of claim 8, 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.

10. (New) The computer-implemented method of claim 9, wherein applying the mask further comprises:

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

generating the mask to cover area within the boundary.

11. (New) The computer-implemented method of 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.

12. (New) The computer-implemented method of claim 11, wherein the non-linear pathway is different from the second direction.

13. (New) The computer-implemented method of claim 11, wherein the first direction is different from the second direction.

14. (New) The computer-implemented method of claim 11, wherein a first magnitude of the shifting of the first set of pixels is proportionally related to the first length and a second magnitude of the shifting of the second set of pixels is proportionally related to a second length extending along a pathway between the second starting point and a second ending point.

15. (New) A computer-readable media comprising one or more physical computer-readable storage media having stored thereon executable instructions that, when executed at a processor, cause a computer system to perform a method for automating the shifting of pixels within a digital image, the method comprising:

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

applying a mask to a particular portion of the digital image, wherein the mask prevents pixels covered by the mask from being shifted;

receiving a first starting point through a user interface;

receiving a first ending point through the user interface;

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

a non-linear pathway extending a first direction between the first starting point and the first ending point ; and

a first length extending along the non-linear pathway between the first starting point and the first ending point;

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

shifting the first set of pixels in the first direction along the first length of the non-linear pathway, wherein shifting the first set of pixels comprises rendering in a loop the first set of pixels being shifted.

16. (New) The computer-readable media 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.

17. (New) The computer-readable media of claim 16, wherein configuring the computer system to apply the mask further comprises:

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

generating the mask to cover area within the boundary.

18. (New) The computer-readable media of claim 15, wherein the executable instructions include instructions that are executable to cause the computer system to generate the mask by:

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.

19. (New) The computer-readable media of claim 18, wherein the non-linear pathway is different from the second direction.

20. (New) The computer-readable media of claim 18, wherein the first direction is different from the second direction.

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed April 30, 2021, considered Claim 1.

By this amendment Claim 1 has been amended. No claims are cancelled and new Claims 2-20 are added. Accordingly, Claims 1-20 are pending, of which claims 1, 8, and 15 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims.

Obviousness Type Double Patenting Rejection

In the Office Action, the Examiner rejects claim 1 under the judicially created doctrine of obviousness-type double patenting in view of claims 1 and 2 of US 10,558,342.

An electronically submitted terminal disclaimer relative to US 10,558,342 accompanies this response in order to overcome this rejection. Withdrawal of this rejection and allowance of the pending claims is respectfully requested in view of the terminal disclaimer.

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 26th day of October, 2021.

Respectfully submitted,

/W. Brad Barger/

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