

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

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| First Named Inventor: | Isaac Levanon | Nonprovisional Application Number (if known): | |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |

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

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

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

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.
 ---OR---
 (b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

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

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

| | |
|--------------------------------------|--|
| Signature /Anatoly S. Weiser/ | Date 03 November 2016 |
| Name (Print/Typed) Anatoly S. Weiser | Practitioner Registration Number 43229 |

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

*Total of _____ forms are submitted.

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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.

OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION
CHANNELS

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Priority Claims/Related Applications

This application is a continuation of and claims priority to U.S. Patent Application Serial No. 14/970,526, filed December 15, 2015, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS; this application is also a continuation of and claims priority to U.S. Patent Application Serial No. 15/281,037, filed September 29, 2016, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS; each of the U.S. Patent Applications Serial No. 14/970,526 and Serial No. 15/281,037 is a continuation of and claims priority to U.S. Patent Application Serial No. 14/547,148, filed November 19, 2014, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS, now U.S. Patent No. 9,253,239; which is a continuation of and claims priority to U.S. Patent Application Serial No. 13/027,929, filed February 15, 2011, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS, now U.S. Patent No. 8,924,506; which is a continuation-in-part of and claims priority to U.S. Patent Application Serial No. 12/619,643, filed on November 16, 2009, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS, now U.S. Patent No. 7,908,343; which is a continuation of and claims priority to U.S. Patent Application Serial No. 10/035,987, filed on December 24, 2001, entitled OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS, now U.S. Patent No. 7,644,131; which claims the benefit under 35 U.S.C. §119(e) of U.S. Provisional Application Nos. 60/258,488, 60/258,489, 60/258,465, 60/258,468, 60/258,466, and 60/258,467, all filed December 27, 2000. The disclosures of all the foregoing patent documents are incorporated herein by reference as if fully set forth herein, including Figures, Claims, and Tables. The present application is also related to application Serial No. 10/035,981, entitled SYSTEM AND METHODS FOR NETWORK IMAGE DELIVERY WITH DYNAMIC VIEWING FRUSTUM OPTIMIZED FOR LIMITED BANDWIDTH COMMUNICATION CHANNELS, Levanon *et*

al., filed on December 24, 2001, now U.S. Patent No. 7,139,794, issued on November 21, 2006, which is assigned to the Assignee of the present Application.

Field

The disclosure is related to network based, image distribution systems and, in particular, to a system and methods for efficiently selecting and distributing image parcels through a narrowband or otherwise limited bandwidth communications channel to support presentation of high-resolution images subject to dynamic viewing frustums.

Background

The Internet and or other network systems may provide a unique opportunity to transmit for example complex images, typically large scale bit-maps, particularly those approaching photo-realistic levels, over large area and or distances. In common application, the images may be geographic, topographic, and or other highly detailed maps. The data storage requirements and often proprietary nature of such images could be such that conventional interests may be to transfer the images on an as-needed basis.

In conventional fixed-site applications, the image data may be transferred over a relatively high-bandwidth network to client computer systems that in turn, may render the image. Client systems may typically implement a local image navigation system to provide zoom and or pan functions based on user interaction. As well recognized problem with such conventional systems could be that full resolution image presentation may be subject to the inherent transfer latency of the network. Different conventional systems have been proposed to reduce the latency affect by transmitting the image in highly compressed formats that support progressive resolution build-up of the image within the current client field of view. Using a transform compressed image transfer function increases the field of the image that can be transferred over a fixed bandwidth network in unit time. Progressive image resolution transmission, typically using a differential resolution method, permits an approximate image to be quickly presented with image details being continuously added over time.

Tzou, in U.S. Pat. No. 4,698,689, describes a two-dimensional data transform system that supports transmission of differential coefficients to represent an image. Subsequent transmitted coefficient sets are progressively accumulated with prior transmitted sets to provide a succeeding refined image. The inverse-transform function performed by the client computer is, however, highly compute intensive. In order to simplify the transform implementation and further reduce the latency of presenting any portion of an approximate image, images are subdivided into a regular array. This enables the inverse-transform function on the client, which is time-critical, to deal with substantially smaller coefficient data sets. The array size in Tzou is fixed, which leads to progressively larger coefficient data sets as the detail level of the image increases. Consequently, there is an inherently increasing latency in resolving finer levels of detail.

An image visualization system proposed by Yap et al., U.S. Pat. No. 6,182,114, overcomes some of the foregoing problems. The Yap et al. system also employs a progressive encoding transform to compress the image transfer stream. The transform also operates on a subdivided image, but the division is indexed to the encoding level of the transform. The encoded transform coefficient data sets are, therefore, of constant size, which supports a modest improvement in the algorithmic performance of the inverse transform operation required on the client.

Yap et al. adds utilization of client image panning or other image pointing input information to support a foveation-based operator to influence the retrieval order of the subdivided image blocks. This two-dimensional navigation information is used to identify a foveal region that is presumed to be the gaze point of a client system user. The foveation operator defines the corresponding image block as the center point of an ordered retrieval of coefficient sets representing a variable resolution image. The gaze point image block represents the area of highest image resolution, with resolution reduction as a function of distance from the gaze point determined by the foveation operator. This technique thus progressively builds image resolution at the gaze point and succeeding outward based on a relatively compute intensive function. Shifts in the gaze point can be responded to with relative speed by preferentially retrieving coefficient sets at and near the new foveal region.

Significant problems remain in permitting the convenient and effective use of complex images by many different types of client systems, even with the improvements provided by the various conventional systems. In particular, the implementation of conventional image visualization systems is generally unworkable for smaller, often dedicated or embedded, clients where use of image visualization would clearly be beneficial. Conventional approaches effectively presume that client systems have an excess of computing performance, memory and storage. Small clients, however, typically have restricted performance processors with possibly no dedicated floating-point support, little general purpose memory, and extremely limited persistent storage capabilities, particularly relative to common image sizes. A mobile computing device such as mobile phone, smart phone, tablet and or personal digital assistant (PDA) is a characteristic small client. Embedded, low-cost kiosk, automobile navigation systems and or Internet enabled I connected TV are other typical examples. Such systems are not readily capable, if at all, of performing complex, compute-intensive Fourier or wavelet transforms, particularly within a highly restricted memory address space.

As a consequence of the presumption that the client is a substantial computing system, conventional image visualization systems also presume that the client is supported by a complete operating system. Indeed, many expect and require an extensive set of graphics abstraction layers to be provided by the client system to support the presentation of the delivered image data. In general, these abstraction layers are conventionally considered required to handle the mapping of the image data resolution to the display resolution capabilities of the client system. That is, resolution resolved image data provided to the client is unconstrained by any limitation in the client system to actually display the corresponding image. Consequently, substantial processor performance and memory can be conventionally devoted to handling image data that is not or cannot be displayed.

Another problem is that small clients are generally constrained to generally to very limited network bandwidths, particularly when operating under wireless conditions. Such limited bandwidth conditions may exist due to either the direct technological constraints dictated by the use of a low bandwidth data channel or indirect constraints imposed on relatively high-bandwidth channels by high concurrent user loads. Cellular connected PDAs and webphones are examples of small clients that are frequently constrained by limited bandwidth conditions. The

conventionally realizable maximum network transmission bandwidth for such small devices may range from below one kilobit per second to several tens of kilobits per second. While Yap et al. states that the described system can work over low bandwidth lines, little more than utilizing wavelet-based data compression is advanced as permitting effective operation at low communications bandwidths. While reducing the amount of data that must be carried from the server to the client is significant, Yap et al. simply relies on the data packet transfer protocols to provide for an efficient transfer of the compressed image data. Reliable transport protocols, however, merely mask packet losses and the resultant, sometimes extended recovery latencies. When such covered errors occur, however, the aggregate bandwidth of the connection is reduced and the client system can stall waiting for further image data to process.

Consequently, there remains a need for an image visualization system that can support small client systems, place few requirements on the supporting client hardware and software resources, and efficiently utilize low to very low bandwidth network connections.

Summary

Thus, a general purpose of the present invention is to provide an efficient system and methods of optimally presenting image data on client systems with potentially limited processing performance, resources, and communications bandwidth.

This is achieved in the present invention by providing for the retrieval of large-scale images over network communications channels for display on a client device by selecting an update image parcel relative to an operator controlled image viewpoint to display via the client device. A request is prepared for the update image parcel and associated with a request queue for subsequent issuance over a communications channel. The update image parcel is received from the communications channel and displayed as a discrete portion of the predetermined image. The update image parcel optimally has a fixed pixel array size, is received in a single and or plurality of network data packets, and were the fixed pixel array may be constrained to a resolution less than or equal to the resolution of the client device display.

An advantage of the present invention is that both image parcel data requests and the rendering of image data are optimized to address the display based on the display resolution of the client system.

Another advantage of the present invention is that the prioritization of image parcel requests is based on an adaptable parameter that minimizes the computational complexity of determining request prioritization and, in turn, the progressive improvement in display resolution within the field of view presented on a client display.

A further advantage of the present invention is that the client software system requires relatively minimal client processing power and storage capacity. Compute intensive numerical calculations are minimally required and image parcel data is compactly stored in efficient data structures. The client software system is very small and easily downloaded to conventional computer systems or embedded in conventional dedicated function devices, including portable devices, such as PDAs, tablets and webphones.

Still another advantage of the present invention is that image parcel data requests and presentation can be readily optimized to use low to very low bandwidth network connections. The software system of the present invention provides for re-prioritization of image parcel data requests and presentation in circumstances where the rate of point-of-view navigation exceeds the data request rate.

Yet another advantage of the present invention is that image parcel data rendering is performed without requiring any complex underlying hardware or software display subsystem. The client software system of the present invention includes a bit-map rendering engine that draws directly to the video memory of the display, thus placing minimal requirements on any underlying embedded or disk operating system and display drivers. Complex graphics and animation abstraction layers are not required.

Still another advantage of the present invention is that image parcel block compression is used to obtain fixed size transmission data blocks. Image parcel data is recoverable from transmission data using a relatively simple client decompression algorithm. Using fixed size transmission data blocks enables image data parcels to be delivered to the client in bounded time frames.

A yet further advantage of the present invention is that multiple data forms can be transferred to the client software system for concurrent display. Array overlay data, correlated positionally to the image parcel data and generally insensitive to image parcel resolution, can be

initially or progressively provided to the client for parsing and parallel presentation on a client display image view.

Brief Description of the Drawings

These and other advantages and features of the present invention will become better understood upon consideration of the following detailed description of the invention when considered in connection with the accompanying drawings, in which like reference numerals designate like parts throughout the figures thereof, and wherein:

FIG. 1 depicts a preferred system environment within which various embodiments of the present invention can be utilized;

FIG. 2 is a block diagram illustrating the preparation of image parcel and overlay data set that are to be stored by and served from a network server system in accordance with a preferred embodiment of the present invention;

FIG. 3 is a block diagram of a client system image presentation system constructed in accordance with a preferred embodiment of the present invention;

FIG. 4 provides a data block diagram illustrating an optimized client image block processing path constructed in accordance with a preferred embodiment of the present invention;

FIG. 5 is a process flow diagram showing a main processing thread implemented in a preferred embodiment of the present invention;

FIG. 6 provides a process flow diagram showing a network request thread implemented in a preferred embodiment of the present invention;

FIG. 7 provides a process flow diagram showing a display image rendering thread implemented in a preferred embodiment of the present invention;

FIG. 8 provides a process flow diagram showing the parcel map processing performed preliminary to the rendering of image data parcels in accordance with a preferred embodiment of the present invention;

FIG. 9 provides a process flow diagram detailing the rendering and progressive prioritization of image parcel data download requests in accordance with a preferred embodiment of the present invention; and

FIG. 10 provides a process flow diagram detailing the determination of an optimal detail level for image parcel presentation for a current viewing frustum in accordance with a preferred embodiment of the present invention.

Detailed Description of One or More Embodiments

The preferred operational environment 10 of the present invention is generally shown in FIG. 1. A network server system 12, operating as a data store and server of image data, is responsive to requests received through a communications network, such as the Internet 14 generally and various tiers of internet service providers (ISPs) including a wireless connectivity provider 16. Client systems, including conventional workstations and personal computers 18 and smaller, typically dedicated function devices often linked through wireless network connections, such as PDAs, webphones 20, and automobile navigation systems, source image requests to the network server 12, provide a client display and enable image navigational input by a user of the client system. Alternately, a dedicated function client system 20 may be connected through a separate or plug-in local network server 22, preferably implementing a small, embedded Web server, to a fixed or removable storage local image repository 24. Characteristically, the client system 18, 20 displays are operated at some fixed resolution generally dependent on the underlying display hardware of the client systems 18, 20.

The image navigation capability supported by the present invention encompasses a viewing frustum placed within a three-dimensional space over the imaged displayed on the client 18, 20. Client user navigational inputs are supported to control the x, y lateral, rotational and z height positioning of the viewing frustum over the image as well as the camera angle of incidence relative to the plane of the image. To effect these controls, the software implemented on the client systems 18, 20 supports a three-dimensional transform of the image data provided from the server 12, 22.

In accordance with the preferred embodiments of the present invention, as generally illustrated in FIG. 2, a network image server system 30 stores a combination of source image

data 32 and source overlay data 34. The source image data 32 is typically high-resolution bit-map raster map and or satellite imagery of geographic regions, which can be obtained from commercial suppliers. The overlay image data 34 is typically a discrete data file providing image annotation information at defined coordinates relative to the source image data 32. In the preferred embodiments of the present invention, image annotations include, for example, street, building and landmark names, as well as representative 2 and 3D objects, graphical icons, decals, line segments, and or text and or other characters, graphics and or other media.

The network image server system 30 preferably pre-processes the source image data 32 and or source overlay data 34 to forms preferred for storage and serving by the network server 12, 22. The source image data 32 is preferably pre-processed to obtain a series K_{1-N} of derivative images of progressively lower image resolution. The source image data 32, corresponding to the series image K_0 , is also subdivided into a regular array such that each resulting image parcel of the array has for example a 64 by 64 pixel resolution where the image data has a color or bit per pixel depth of 16 bits, which represents a data parcel size of 8K bytes. The resolution of the series K_{1-N} of derivative images is preferably related to that of the source image data 32 or predecessor image in the series by a factor of four. The array subdivision is likewise related by a factor of four such that each image parcel is of a fixed 8K byte size.

In the preferred embodiment of the present invention, the image parcels are further compressed and stored by the network server 12, 22. The preferred compression algorithm may implement for example a fixed 4:1 compression ratio such that each compressed and stored image parcel has a fixed 2K byte size. The image parcels are preferably stored in a file of defined configuration such that any image parcel can be located by specification of a K_D , X, Y value, representing the image set resolution index D and corresponding image array coordinate.

In other implementations, the image array dimensions (which as 64 X 64 above) may be powers of two so that the image array can be used in texture mapping efficiently. To accommodate different data parcel size than the 2KByte associated with 64x64 pixel parcel dimension described above and other communication protocol and overhead requirements, to accommodate transmission through other than a 3KByte per second transmission channel, the present invention may use larger compression ratios that takes, for example, a 128x128 or

256x256 pixel parcel dimension and compresses it to meet the 3KByte per second transmission channel, or other communication bandwidth used to stream the parcel.

The system may also accommodate different and larger data parcel sizes as transmission protocols, compression ratio achieved and micro-architectures of the client computers change. For purposes above, the data content was a pixel array representing image data. Where the data parcel content is vector, text or other data that may subject to different client system design factors, other parcel sizes may be used. Furthermore, the parcel sizes can be different between the server and the client. For example the server may create parcels or hold parcels, for streaming with 256x256 pixel parcel dimension and the client may render them as 64x64. In addition, parcels sizes on different servers may vary from one server to another and from the client side rendering. In the system, each grid is treated as a sparse data array that can be progressively revised to increase the resolution of the grid and thereby the level of detail presented by the grid.

The source overlay data 34 is preferably pre-processed 36 into either an open XML format, such as the Geography Markup Language (GML), which is an XML based encoding standard for geographic information developed by the OpenGIS Consortium (OGC; www.opengis.org), or a proprietary binary representation. The XML/GML representation is preferred as permitting easier interchange between different commercial entities, while the binary representation is preferred as more compact and readily transferable to a client system 18, 20. In both cases, the source overlay data 34 is pre-processed to contain the annotation data preferably in a resolution independent form associated with a display coordinate specification relative to the source image data 32. The XML, GML or binary overlay data may be compressed prior to storage on the network server 12, 22.

The preferred architecture 40 of a client system 18, 20, for purposes of implementing the present invention, is shown in FIG. 3. The architecture 40 is preferably implemented by software plug-in or application executed by the client system 18, 20 and that utilizes basic software and hardware services provided by the client system 18, 20. A parcel request client 42 preferably implements an HTML client that supports HTML-based interactions with the server 12, 22 using the underlying network protocol stack and hardware network interface provided by the client systems 18, 20. A central parcel processing control block 44 preferably implements

the client process and control algorithms. The control block 44 directs the transfer of received image parcels and XML/GML/binary overlay data to a local parcel data store 46. Local parcel data store 46 may also act for example as local cache whether the entire data or part of it is in dynamic and/or static cache. Preferably image data parcels are stored in conventional quad-tree data structures, where tree nodes of depth D correspond to the stored image parcels of a derivative image of resolution KD. The XML/GML/binary overlay data is preferably stored as a data object that can be subsequently read by an XML/GML/binary parser implemented as part of the control block 44.

The control block 44 is also responsible for decompressing and directing the rendering of image parcels to a local display by a rendering engine 48. Preferably, the rendering engine 48 writes to the video memory of the underlying client display hardware relying on only generic graphics acceleration hardware capabilities and may take advantage of more advanced graphics acceleration hardware when available in the client system 18, 20. In general, the relied-on capabilities include bit-bit and related bit-oriented functions that are readily supported by current conventional display controller hardware. The rendering engine 48 is optimized to perform image parcel texture mapping without reliance on complex floating point operations, permitting even relatively simple processors to efficiently execute the rendering engine 48. The rendering engine 48 may take advantage of floating point operations when available in the client system 18, 20.

Changes in the viewing frustum are determined from user input navigation commands by a frustum navigation block 50. In the preferred embodiments of the present invention, the input navigation controls are modeled for three-dimensional fly-over navigation of the displayed image. The navigation controls support point-of-view rotation, translation, attitude, and altitude over the displayed image. The effective change in viewing frustum as determined by the frustum navigation block 50 is provided to the control block 44.

The control block 44, based in part on changes in the viewing frustum, determines the ordered priority of image parcels to be requested from the server 12, 22 to support the progressive rendering of the displayed image. The image parcel requests are placed in a request queue 52 for issuance by the parcel request client 42. Preferably, the pending requests are issued

in priority order, thereby dynamically reflecting changes in the viewing frustum with minimum latency.

In various implementations of the parcel processing, each data parcel is independently processable by the client system 18, 20, which is enabled by the selection and server-side processing used to prepare a parcel for transmission, thus providing for on-demand real-time parcel processing and creation on the server side for streaming based on the client request and not only for pre-processed parcel creation for retrieval for streaming from the server. Thus, the system can use both pre-processed parcels on the server and on-demand real-time creation of such parcels on the server side for streaming to the client.

An optimal image parcel data flow 60, as configured for use in the preferred embodiments of the present invention, is shown in FIG. 4. Preferably, the TCP/IP network protocol is used to deliver image parcels to the clients 18, 20. For the preferred embodiments, where network bandwidth is limited or very limited, entire image parcels are preferably delivered in corresponding data packets. This preference maximizes data delivery while avoiding the substantial latency and processing overhead of managing image parcel data split over multiple network packets. Thus, a 2K byte compressed image parcel 62 is delivered as the data payload of a TCP/IP packet 64. Uncompressed, the 8K byte image parcel 62 is recognized as part of the present invention as being within the nominally smallest LI data cache 66 size of conventional microprocessors 68. By ensuring that an uncompressed image parcel fits within the LI cache, the texture map rendering algorithm can execute with minimum memory management overhead, thus optimally utilizing the processing capability of the microprocessor 68. Additionally, the writing of video data as a product of the rendering algorithm is uniform, thereby improving the apparent video stability of the display to the user.

The client architecture 40 preferably executes in multiple process threads, with additional threads being utilized for individual network data request transactions. As shown in FIG. 5, an image parcel management process 80 implements a loop that determines image parcels subject to update 82 and creates corresponding image parcel download requests 84. Navigation events that alter the viewing frustum are considered in part to determine the current field of view. The quad tree data structures are examined 86 to identify viewable image parcels of higher resolution than currently available in the parcel data store 46.

A pool of image request threads is preferably utilized to manage the image parcel download operations. In the preferred embodiments of the present invention, a pool of four network request threads is utilized. The number of pool threads is determined as a balance between the available system resources and the network response latency, given the available bandwidth of the network connection. Empirically, for many wireless devices, four concurrent threads are able to support a relatively continuous delivery of image data parcels to the client 20 for display processing. As image parcels are progressively identified for download, a free request thread is employed to issue 88 a corresponding network request to the server 12, 22. When a network response is received, the corresponding thread recovers 90 the image parcel data. The received image parcel is then stored 92 in a corresponding quad-tree data structure node.

For small clients 20, the available memory for the parcel data store 46 is generally quite restricted. In order to make optimal use of the available memory, only currently viewable image parcels are subject to download. Where the size of the parcel data store 46 is not so restricted, this constraint can be relaxed. In either case, a memory management process 94 runs to monitor use of the parcel data store 46 and selectively remove image parcels to free memory for newly requested image parcels. Preferably, the memory management process 94 operates to preferentially remove image parcels that are the furthest from the current viewing frustum and that have the highest data structure depth. Preferably child node image parcels are always removed before a parent node parcel is removed.

A preferred network request management process 100 is shown in FIG. 6. The process 100 waits 102 on the existence of a download request in the priority request queue 52. The process 100 then waits on a network request pool thread to become free 104. When a network request thread becomes available, the process 100 examines 106 all of the pending requests in the priority request queue 52 and selects 108 the request with the highest assigned priority. Thus, sequentially enqueued requests can be selectively issued out of order based on an independently assigned request priority. The request is then issued 110 and the request management process 100 leaves the request thread waiting on a network response.

FIG. 7 presents a preferred display management process 120. Event driven user navigation information is evaluated 122 to determine a current viewing frustum location and

orientation within a three-dimensional space relative to the displayed image. An algorithmic priority selection 124 of a next image parcel to render is then performed. The selected image parcel is then rendered 126 to the display memory 70. The rendering operation preferably performs a texture map transform of the parcel data corresponding to the current viewing frustum location and orientation. The overlay data is then parsed or is pre-parsed to determine 128 whether the image coordinates of any overlay annotation correspond to the current image parcel location. If the coordinates match, the overlay annotation is rendered 130 to the video display memory 70. The process 120 then continues with the next selection 124 of an image parcel to render, subject to any change in the viewing frustum location and orientation.

A preferred implementation of the selection 124 and rendering 126 of image parcels in accordance with the present invention is detailed in FIGS. 8 through 10. Referring first to FIG. 8, any outstanding requests in the priority request queue 52 are preferably cleared 142 in response to a change in the viewing frustum location and orientation. The effective altitude of the viewing frustum and or the resolution of the client display are then used as a basis for determining an optimal level of detail L that will be displayed. The detail level L value operates as a floor defining the maximum resolution K_L of image data that can be effectively viewed on the client display given the location and or orientation of the viewing frustum. Constraining image parcel requests to the resolution range K_N to K_L , where K_N is the lowest resolution derivative image stored by the network server 12, 22, prevents the download and processing of image parcels that cannot provide any perceptible improvement in the displayed image.

As part of the recursive evaluation of the optimal level of detail L , the image display space is progressively split 146 by four to one reductions into polygons. The quad-tree data structures holding existing image parcel data in the parcel data store 46 are concurrently traced 148 to establish a correspondence with the polygon map. Where the trace of a quad-tree data structure completes 150 to a node index of L for a polygon P , the node corresponding image parcel is associated with polygon P . The polygon P will not be further subdivided and no higher resolution image parcels will be requested for any portion of the image within the area represented by polygon P . Where the trace reaches a maximum node index of D for a polygon P' 152, where $N \leq D < L$ and N is the index of the lowest resolution derivative image stored by the network server 12, 22, the image parcel associated with the node is associated with the polygon

P'. This polygon P' will be subject to further subdivision and progressive requests for image parcels of higher resolution up to the detail level L.

Referring now to FIG. 9, a display image is then rendered 160 beginning with the maximum depth polygons previously found. Iterating over the set of maximum depth polygons, any polygons outside of the viewing frustum are skipped 162. Polygons that are at least partially visible are clipped to the applicable bounds of the viewing frustum 164. The polygon corresponding image parcel data is then texture mapped 166 into the polygon corresponding coordinates of the video memory 70. If the node index depth of the rendered image parcel is at least equal to the prior determined optimal detail level L 168, the iteration over the polygons P continues.

Where the node index depth is less than the optimal detail level L 170, the polygon P' is subdivided into four polygons and correspondingly represented by the creation of four child nodes within the associated quad-tree data structure 172. Four image parcel download requests are then created 174.

The download priority associated with each request is determined 176 by execution of a function S that operates on a 2D polygon argument P and returns a real number representing the request priority. The function argument P is a list of real (x, y) coordinates of the vertices of the current polygon in screen coordinates after being clipped to fit within the current viewing frustum. That is, the function S works over general polygons in a two-dimensional space, whose vertices are specified by the series $\{(x(1),y(1)),(x(2),y(2)), \dots ,(x(n),y(n))\}$. The argument P vertices sent to S represent the position of the vertices composing each of the polygons, after being clipping to the viewing frustum, viewable within the display space having the fixed resolution [xRes, yRes]. Thus, the clipped polygons are all within the rectangle [0, xRes] x [0, yRes].

In execution of the function S, each of the P coordinates is first transformed by linear mapping of the screen coordinate space to the square [-1,1]x[-1,1] by the operation $x(i)=(x(i)-xRes/2)/(xRes/2)$; $y(i)=(y(i)-yRes/2)/(yRes/2)$. The x and y coordinate values of each vertex (x(i),y(i)) for i= 1 to n) are then transformed by the function $T(a)=sgn(a)*pow(|a|, d)$, where the control parameter d is a constant in the range (0,1], or equivalently the interval $0 < d \leq 1$. The

function S then returns a real value that is equal to the area covered by the argument polygon P vertices subject to the applied coordinate transformation. Thus, the accumulated priority for any image parcel pending download is the sum of the values of returned by the function S for each of the viewable polygons that require some part of the image parcel as the source data for texture map rendering of the polygon. The priority operation of the request queue 52 is such that download requests will be issued preferentially for image parcels with the largest priority value.

In accordance with the preferred embodiments of the present invention, the value of the control parameter d can be adjusted to ultimately affect the behavior of the function S in determining the download request priority. In general, image parcels with lower resolution levels will accumulate greater priority values due to the larger number of polygons that may use a given low resolution image parcel as a rendering data source. Such lower resolution image parcels are therefore more likely to be preferentially downloaded. In accordance with the present invention, this generally assures that a complete image of at least low resolution will be available for rendering.

The control parameter d, as applied in execution of the function S, well as the area distortion produced by the projection transform also influences the value returned by the function S such that relatively higher-resolution image parcels near the image view point will occasionally achieve a higher priority than relatively remote and partially viewed image parcels of lower resolution. Using values smaller than 1 for the control parameter d results in requests with a higher priority for parcels covering areas near the focal point of the viewer, which is presumed to be the center point of the display space, relative to requests for parcels further from the center point in absolute terms and of the same resolution depth D. Thus, in accordance with the present invention, the priority assigned to image parcel requests effectively influences the order of requests based on the relative contribution of the image parcel data to the total display quality of the image. Empirically, a value of 0.35 for the control parameter d for small screen devices, such as PDAs and webphones has been found to produce desirable results.

The computed priorities of each of the four newly created image parcel requests are then assigned 178 and the requests are enqueued in the priority request queue 52. The next polygon P is then considered in the loop of the image parcel rendering process 160.

The preferred algorithm 180 for determining the detail level L value for a given viewing frustum is shown in FIG. 10. In accordance with the present invention, the optimal detail level L is effectively the limit at which the resolution of image parcel data functionally exceeds the resolution of the client display. Preferably, to determine the optimal detail level L, the viewpoint or camera position of the viewing frustum is determined 182 relative to the displayed image. A nearest polygon P of depth D is then determined 184 from the effective altitude and attitude of the viewpoint. The nearest point A of the polygon P is then determined 186. The point A may be within the interior or an edge of the polygon P, though most likely be located at a vertex of the polygon P.

The optimum level of detail L at point A is then computed 188 as the base-4 logarithm of the number of pixels on the screen that would be covered by a single pixel from an image parcel of the lowest resolution K_N image, which is the quad-tree root image and corresponds to an image area covering the entire image map. The point A optimal detail level L is preferably computed analytically from the local value of the Jacobian of the projective transform used to transform the three dimensional image coordinate space to screen coordinates, evaluated at the point A.

Where the depth D of the polygon P is greater than the depth of the computed optimal level of detail L, the detail level L is taken as the optimal detail level L 190. Thus, through the process 140, an image parcel or corresponding section of the closest resolution image parcel associated with a parent node in the quad-tree data structure relative to the depth level L will be used as the texture for rendering the polygon P. Conversely, if the depth D is less than that of the optimal detail level L, the polygon P is effectively split into quadrants and the optimal level of detail is reevaluated. The process 180 thus continues iteratively until the optimal detail level L is found.

Thus, a system and methods of optimally presenting image data on client systems with potentially limited processing performance, resources, and communications bandwidth have been described. While the present invention has been described particularly with reference to the communications and display of geographic image data, the present invention is equally applicable to the efficient communications and display of other high resolution information.

In the process implemented by the system described above, data parcels may be selected for sequential transmission based on a prioritization of the importance of the data contained. The criteria for the importance of a particular data parcel may be defined as suitable for particular applications and may directly relate to the presentation of image quality, provision of a textual overlay of a low-quality image to quickly provide a navigational orientation, or the addition of topography information at a rate or timing different from the rate of image quality improvement. Thus, image data layers reflecting navigational cues, text overlays, and topography can be composed into data packets for transmission subject to prioritizations set by the server alone and not based on the client system and interactively influenced by the actions and commands provided by the user of the client system. However, this also may be influenced based on the nature and type of the client system, and interactively influenced by the actions and commands provided by the user of the client system (Figure 5).

In view of the above description of the preferred embodiments of the present invention, many modifications and variations of the disclosed embodiments will be readily appreciated by those of skill in the art. It is therefore to be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically described above.

ABSTRACT OF THE DISCLOSURE

Large-scale images are retrieved over network communications channels for display on a client device by selecting an update image parcel relative to an operator controlled image viewpoint to display via the client device. A request is prepared for the update image parcel and associated with a request queue for subsequent issuance over a communications channel. The update image parcel is received from the communications channel and displayed as a discrete portion of the predetermined image. The update image parcel optimally has a fixed pixel array size, is received in a single and or plurality of network data packets, and were the fixed pixel array may be constrained to a resolution less than or equal to the resolution of the client device display.

1. A method of communicating images for display to a plurality of wireless portable devices, the method comprising steps of:

pre-processing a source image to obtain a series ($K_0, K_{-1} \dots K_{1-N}$) of related images of progressively lower image resolution, wherein each related image of the series ($K_0, K_{-1} \dots K_{1-N}$) comprises pixel data and is subdivided into a regular array of image parcels, and each image parcel of each regular array of the image parcels forms a discrete portion of the source image;

storing the image parcels of the series for serving by one or more servers;

providing client software to a wireless portable device;

receiving a first request at the one or more servers from the first wireless portable device over a network communication channel, wherein the network communication channel is at least in part wireless, and the first request being for a first image parcel of the series, wherein the first image parcel is selected based on a first user-controlled image viewpoint on the first wireless portable device relative to the source image;

sending the first image parcel from the one or more servers to the first wireless portable device over the network communication channel, in response to the first request;

receiving a second request at the one or more servers from the first wireless portable device over the network communication channel, the second request being for a second image parcel of the series, wherein the second image parcel is selected based on the first user-controlled image viewpoint on the first wireless portable device relative to the source image, the step of receiving the second request being performed after the step of receiving the first request; and

sending the second image parcel from the one or more servers to the first wireless portable device over the network communication channel, in response to the second request;

wherein:

the first wireless portable device renders at least a portion of the first image parcel before finishing receiving the second image parcel;

the first wireless portable device issues the first request and the second request according to a priority order;

priority of the second request in the priority order is not higher than priority of the first request in the priority order;

the first wireless portable device stores the first image parcel and the second image parcel in a local parcel storage at the first wireless portable device;

before issuing the first request, the first wireless portable device determines that a third image parcel is usable for the first user-controlled image viewpoint and the third image parcel is already stored in the local parcel storage, and the first wireless portable device renders the third image parcel before issuing the first request without requesting the third image parcel over the network communication channel;

the first wireless portable device handles download operations of at least the first image parcel and the second image parcel in parallel, thereby enabling efficient use of network bandwidth in conditions of network latency; and

the local parcel store is configured as a server to provide access to the at least some image parcels received by the first wireless portable device.

2. The method of claim 1, wherein the first user-controlled image viewpoint is determined based on a navigational input of the first wireless portable device.

3. The method of claim 2 wherein the navigational input comprises three-dimensional positional coordinate data and rotational positional data.
4. The method of claim 2, wherein the first wireless portable device stores requests for image parcels to be downloaded from the one or more servers in a priority queue, and wherein responsive to a change in the navigational input, a request is removed from the priority queue.
5. The method of claim 1, wherein number of parallel image parcel download operations by the first wireless portable device for image parcels of the series is determined based at least in part on network response latency and available system resources.
6. The method of claim 1, further comprising sending overlay data by the one or more servers to the first wireless portable device over the network communication channel.
7. The method according to claim 6, wherein the overlay data comprises text annotations relating to at least one item selected from the group consisting of: one or more street names, one or more building names, and one or more landmarks.
8. The method of claim 1, wherein the wireless portable device issues the first request and the second request according to a priority order based at least in part on viewable areas corresponding to the first user-controlled image viewpoint.

9. The method of claim 1, wherein the first wireless portable device issues the first request and the second request according to a priority order based at least in part on resolution of the first image parcel and resolution of the second image parcel.

10. A computing system comprising one or more servers, wherein the one or more servers are coupled to a wireless portable device by a network communication channel, the network communication channel being at least in part wireless, the one or more servers being configured to:

pre-process a source image to obtain a series ($K_0, K_{-1} \dots K_{1-N}$) of related images of progressively lower image resolution, wherein each related image of the series ($K_0, K_{-1} \dots K_{1-N}$) comprises pixel data and is subdivided into a regular array of image parcels, and each image parcel of each regular array of the image parcels forms a discrete portion of the source image;

store the image parcels of the series for serving by the one or more servers;

provide client software to the wireless portable device;

receive a first request from the wireless portable device over the network communication channel, the first request being for a first image parcel of the series, wherein the first image parcel is selected based on a first user-controlled image viewpoint on the wireless portable device relative to the source image;

send the first image parcel from the one or more servers to the wireless portable device over the network communication channel, in response to the first request;

receive a second request from the wireless portable device over the network communication channel, the second request being for a second image parcel of the series, wherein the second image parcel is selected based on the first user-controlled image viewpoint

on the wireless portable device relative to the source image, the second request being received by the one or more servers after the first request is received by the one or more servers; and

send the second image parcel from the one or more servers to the wireless portable device over the network communication channel, in response to the second request;

wherein:

the wireless portable device renders at least a portion of the first image parcel before finishing receiving the second image parcel;

the wireless portable device issues the first request and the second request according to a priority order;

priority of the second request in the priority order is not higher than priority of the first request in the priority order;

the wireless portable device stores the first image parcel and the second image parcel in a local parcel storage at the first wireless portable device;

before issuing the first request, the first wireless portable device determines that a third image parcel is usable for the first user-controlled image viewpoint and that the third image parcel is already stored in the local parcel storage, and the wireless portable device renders the third image parcel before issuing the first request without requesting the third image parcel over the network communication channel;

the wireless portable device handles download operations of at least the first image parcel and the second image parcel in parallel, thereby enabling efficient use of network bandwidth in conditions of network latency; and

the local parcel store is configured as a server to provide access to the at least some image parcels received by the wireless portable device.

11. The computing system of claim 10, wherein the first user-controlled image viewpoint is determined based on a navigational input of the wireless portable device.
12. The computing system of claim 11, wherein the navigational input comprises three-dimensional positional coordinate data and rotational positional data.
13. The computing system of claim 11, wherein the wireless portable device stores requests for the image parcels of the series to be downloaded from the one or more servers in a priority queue, and wherein responsive to a change in the navigational input, a request is removed from the priority queue.
14. The computing system of claim 10, wherein number of parallel image parcel download operations by the wireless portable device for the image parcels of the series is determined based at least in part on network response latency and available system resources.
15. The computing system of claim 10, wherein the one or more servers are further configured to send overlay data to the wireless portable device over the network communication channel.
16. The computing system of claim 15, wherein the overlay data comprises text annotations relating to at least one item selected from the group consisting of: one or more street names, one or more building names, and one or more landmarks.

17. The computing system of claim 10, wherein the wireless portable device issues the first request and the second request according to a priority order based at least in part on viewable areas corresponding to the first user-controlled image viewpoint.

18. The computing system of claim 10, wherein the wireless portable device issues the first request and the second request according to a priority order based at least in part on resolution of the first image parcel and resolution of the second image parcel.

19. A wireless portable device, wherein:

the wireless portable device is coupled to one or more servers over a network communication channel, the network communication channel being at least in part wireless, the one or more servers storing a series ($K_0, K_{-1} \dots K_{1-N}$) of related images of progressively lower image resolution, each related image of the series ($K_0, K_{-1} \dots K_{1-N}$) comprising pixel data and being subdivided into a regular array of image parcels, each image parcel of each regular array of the image parcels of the series forming a discrete portion of a source image, the series being obtained by processing the source image, the one or more servers being configured to serve the related images of the series;

the wireless portable device is configured to:

determine a first image parcel of the series based on a first user-controlled image viewpoint on the wireless portable device relative to the source image;

send a first request for the first image parcel of the series to the one or more servers over the network communication channel;

receive the first image parcel from the one or more servers over the network communication channel, in response to the first request;

determine a second image parcel based on the first user-controlled image viewpoint on the wireless portable device relative to the source image;

send a second request for the second image parcel to the one or more servers, the second request being sent after the first request; and

receive the second image parcel from the one or more servers to the wireless portable device over the network communication channel, in response to the second request;

render at least a portion of the first image parcel before finishing receiving the second image parcel;

store the first image parcel and the second image parcel in a local parcel storage at the first wireless portable device;

before sending the first request, determine that a third image parcel is usable for the first user-controlled image viewpoint and the third image parcel is already stored in the local parcel storage, and render the third image parcel without requesting the third image parcel over the network communication channel;

handle download operations of at least the first image parcel and the second image parcel in parallel, thereby enabling efficient use of network bandwidth in conditions of network latency;

configure the local parcel store as a server to provide access to at least some image parcels received by the wireless portable device;

the first request and the second request are issued according to a priority order;

priority of the second request in the priority order is not higher than priority of the first request in the priority order.

20. The wireless portable device of claim 19, further configured to determine the first user-controlled image viewpoint based on a navigational input of the wireless portable device.
21. The wireless portable device of claim 20, wherein the navigational input comprises three-dimensional positional coordinate data and rotational positional data.
22. The wireless portable device of claim 20, further configured to store requests for image parcels to be downloaded from the one or more servers in a priority queue, and, responsive to a change in the navigational input, to remove a request from the priority queue.
23. The wireless portable device of claim 19, wherein number of parallel image parcel download operations by the wireless portable device for image parcels of the series is determined based at least in part on network response latency and available system resources.
24. The wireless portable device of claim 19, further configured to receive overlay data sent by the one or more servers to the wireless portable device over the network communication channel, and to render the overlay data when rendering parcel images of the series.
25. The wireless portable device of claim 24, wherein the overlay data comprises text annotations relating to at least one item selected from the group consisting of: one or more street names, one or more building names, and one or more landmarks.

26. The wireless portable device of claim 19, further configured to send the first request and the second request according to a priority order based at least in part on viewable areas corresponding to the first user-controlled image viewpoint.

27. The wireless portable device of claim 19, further configured to send the first request and the second request according to a priority order based at least in part on resolution of the first image parcel and resolution of the second image parcel.

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OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

| | | | |
|---|---|---------|---------|
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |
| This statement is directed to: | | | |
| <input checked="" type="checkbox"/> The attached application, | | | |
| OR | | | |
| <input type="checkbox"/> United States application or PCT international application number _____ filed on _____. | | | |
| LEGAL NAME of inventor to whom this substitute statement applies: | | | |
| (E.g., Given Name (first and middle (if any)) and Family Name or Surname) | | | |
| Yonatan Lavi | | | |
| Residence (except for a deceased or legally incapacitated inventor): | | | |
| City | State | Country | |
| Raanana | | IL | |
| Mailing Address (except for a deceased or legally incapacitated inventor): | | | |
| 21 Bar Ilan Street | | | |
| City | State | Zip | Country |
| Raanana | | | IL |
| I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application. | | | |
| The above-identified application was made or authorized to be made by me. | | | |
| I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. | | | |
| Relationship to the inventor to whom this substitute statement applies: | | | |
| <input type="checkbox"/> Legal Representative (for deceased or legally incapacitated inventor only), | | | |
| <input checked="" type="checkbox"/> Assignee, | | | |
| <input type="checkbox"/> Person to whom the inventor is under an obligation to assign, | | | |
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[Page 1 of 2]

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Circumstances permitting execution of this substitute statement:

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If there are joint inventors, please check the appropriate box below:

- An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.
- OR
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Name: **Alexander Poltorak**

Date (Optional): **11/3/14**

Signature: 

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Bradium Technologies LLC

Applicant Name:

Title of Person Executing This Substitute Statement: **CEO OF GENERAL PATENT CORPORATION, MANAGER OF BRADIUM TECHNOLOGIES LLC**

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Monsey**

State **NY**

Country **USA**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

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City **Suffern**

State **NY**

Zip **10901**

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I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

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137611

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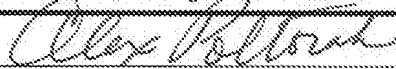
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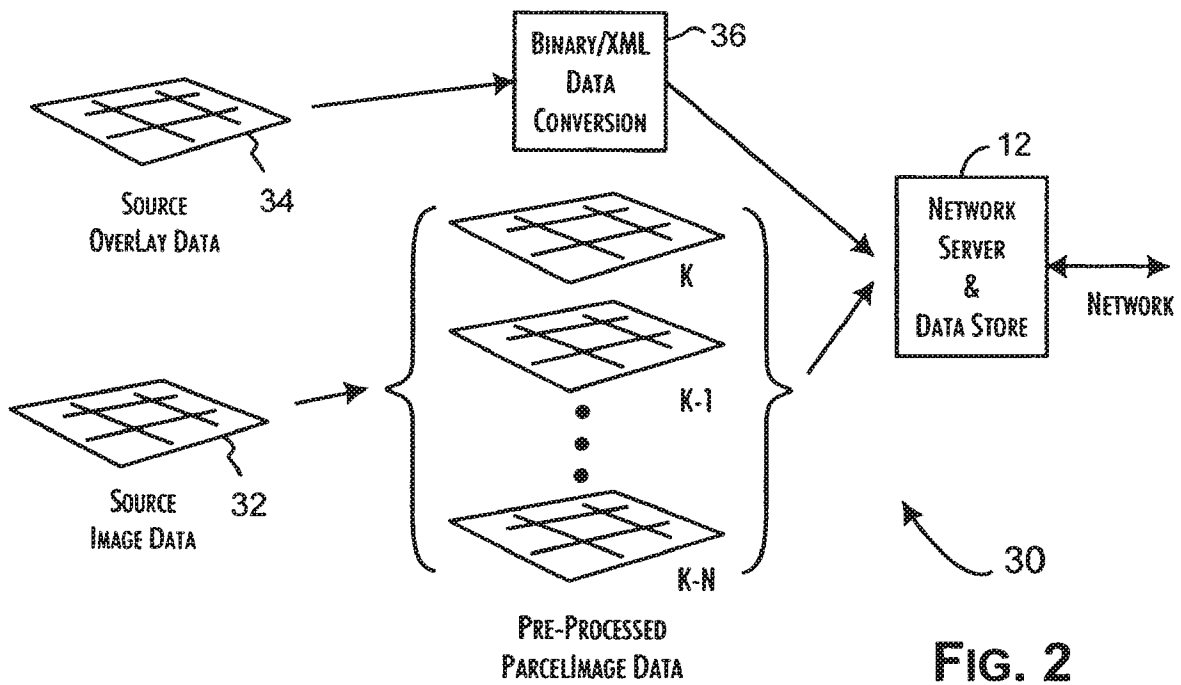
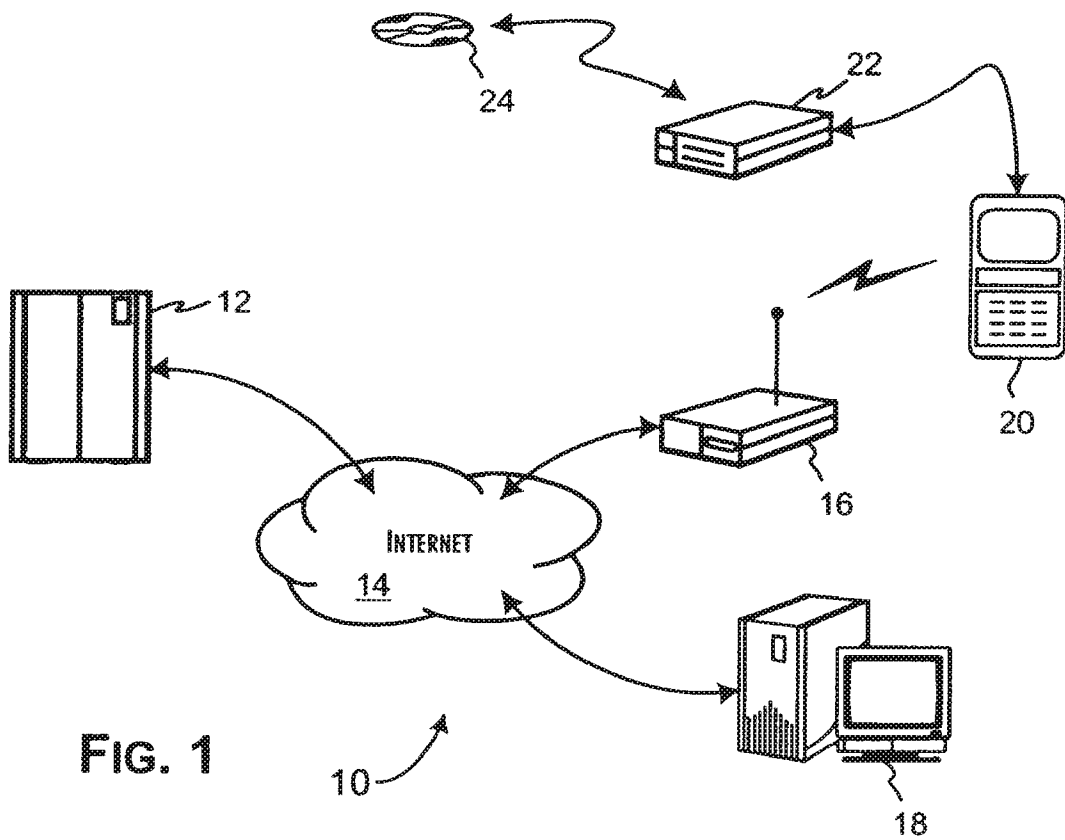
SIGNATURE of Assignee of Record

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| Signature |  | Date | 11/3/16 |
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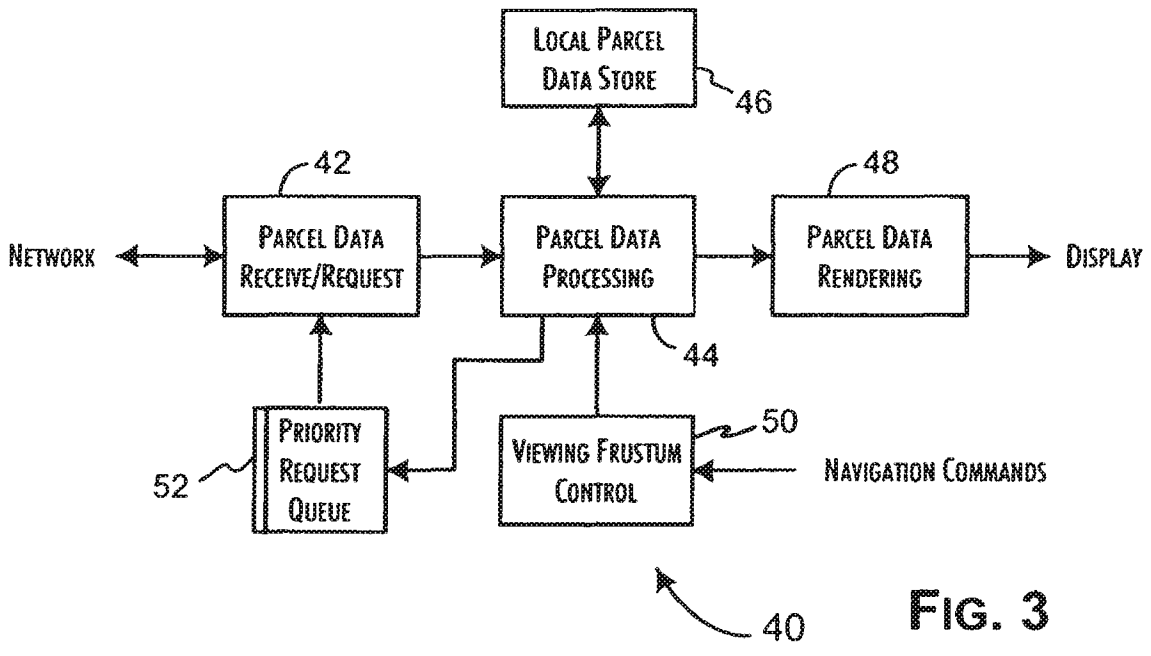


FIG. 3

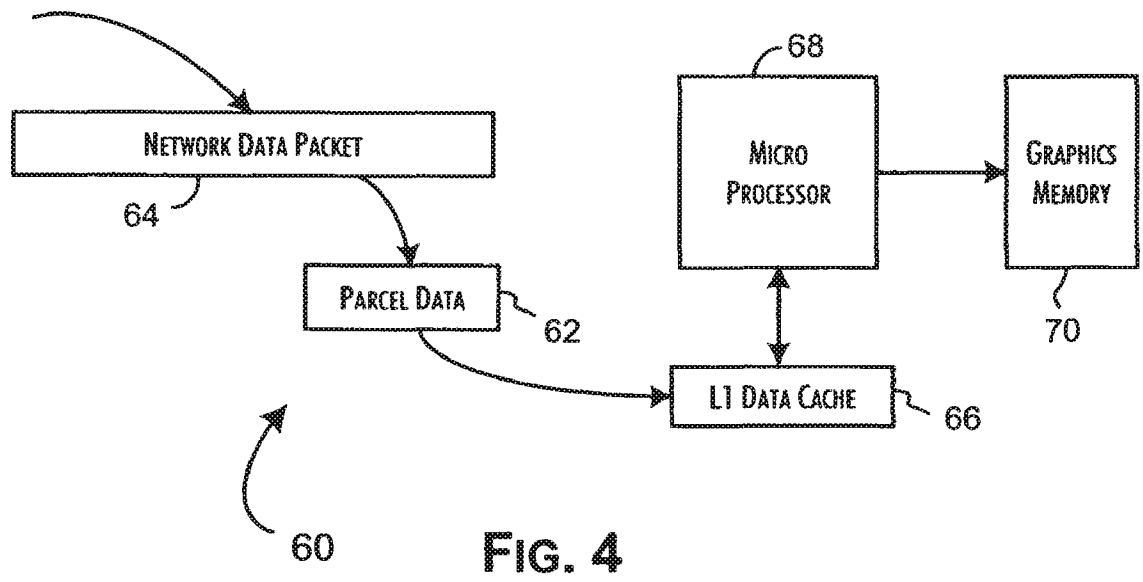
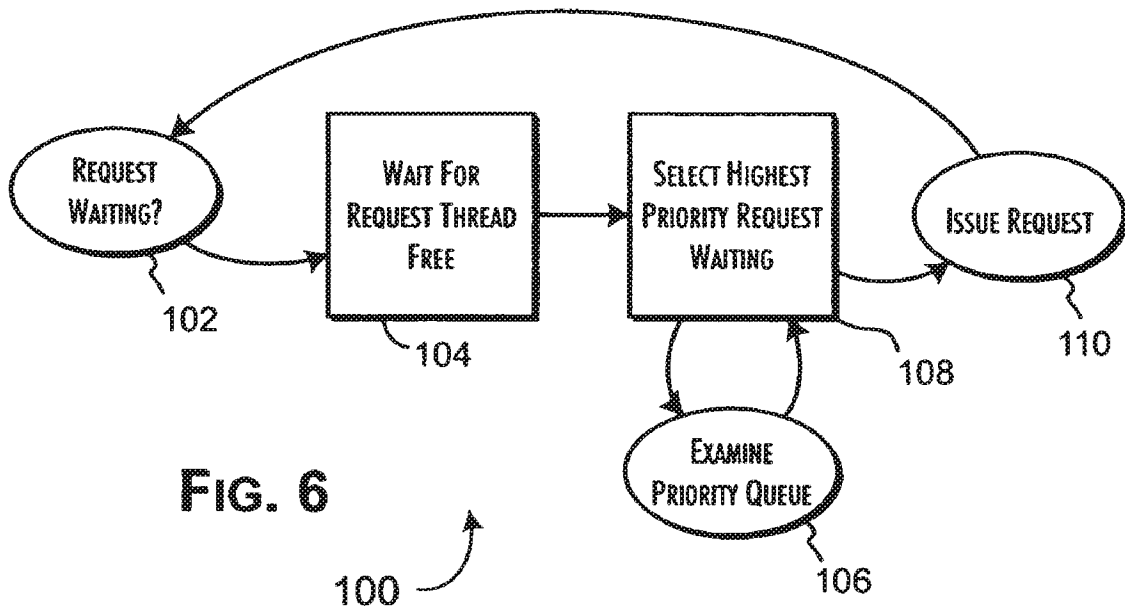
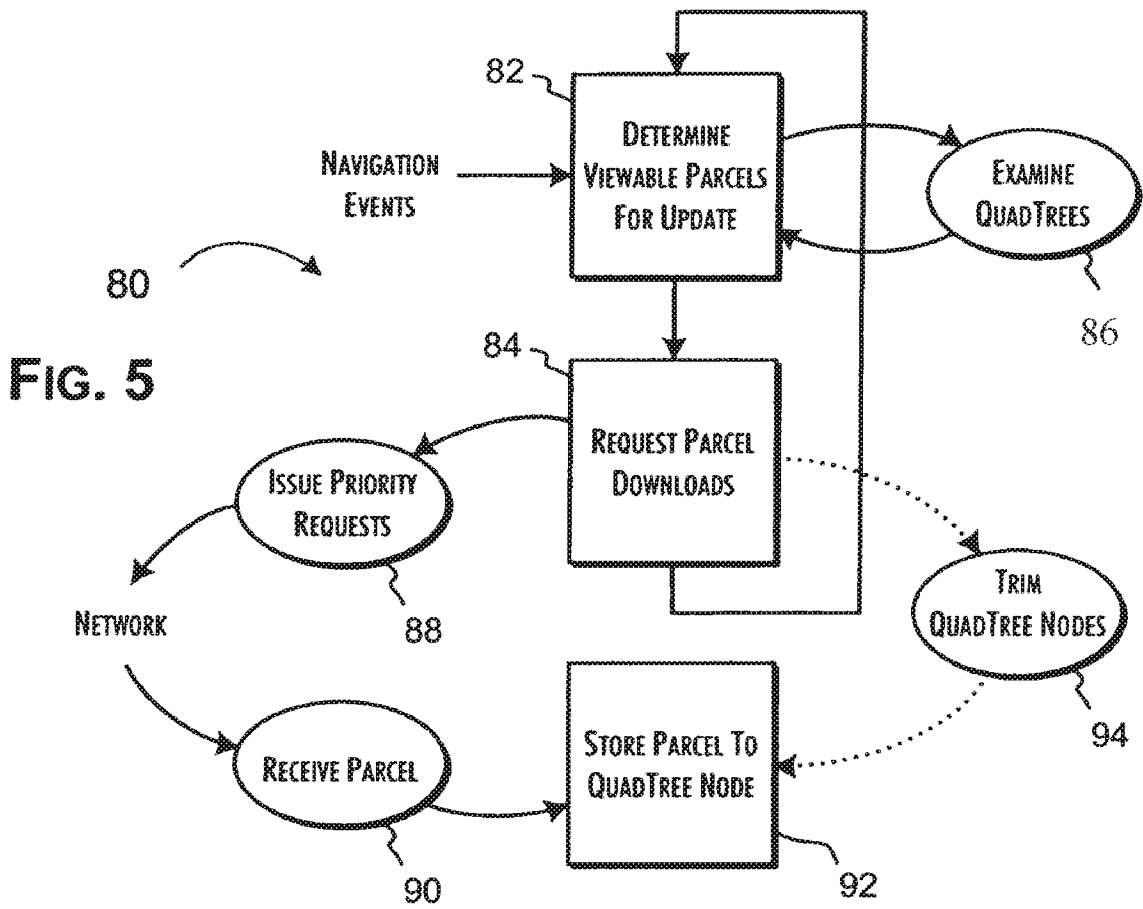


FIG. 4



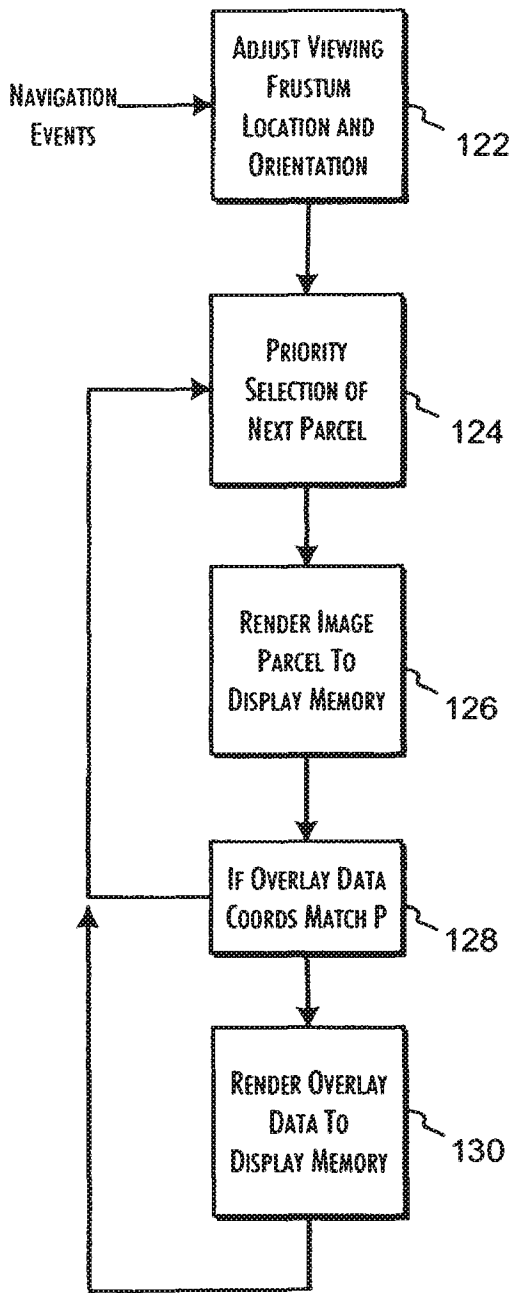
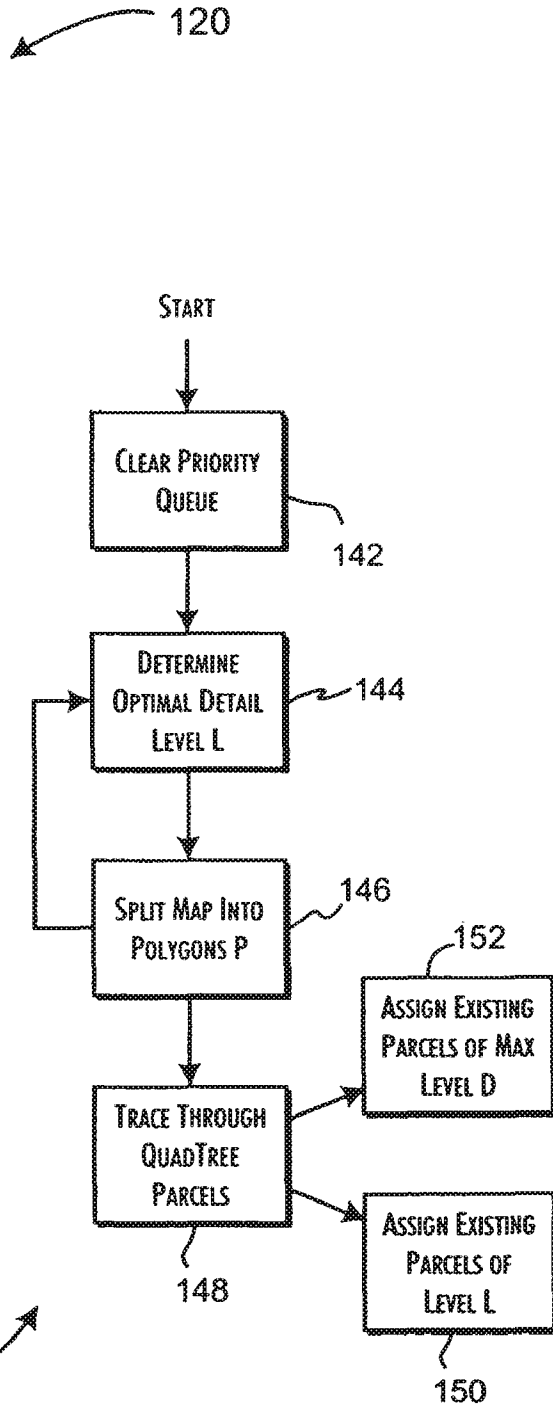


FIG. 8

140

FIG. 7



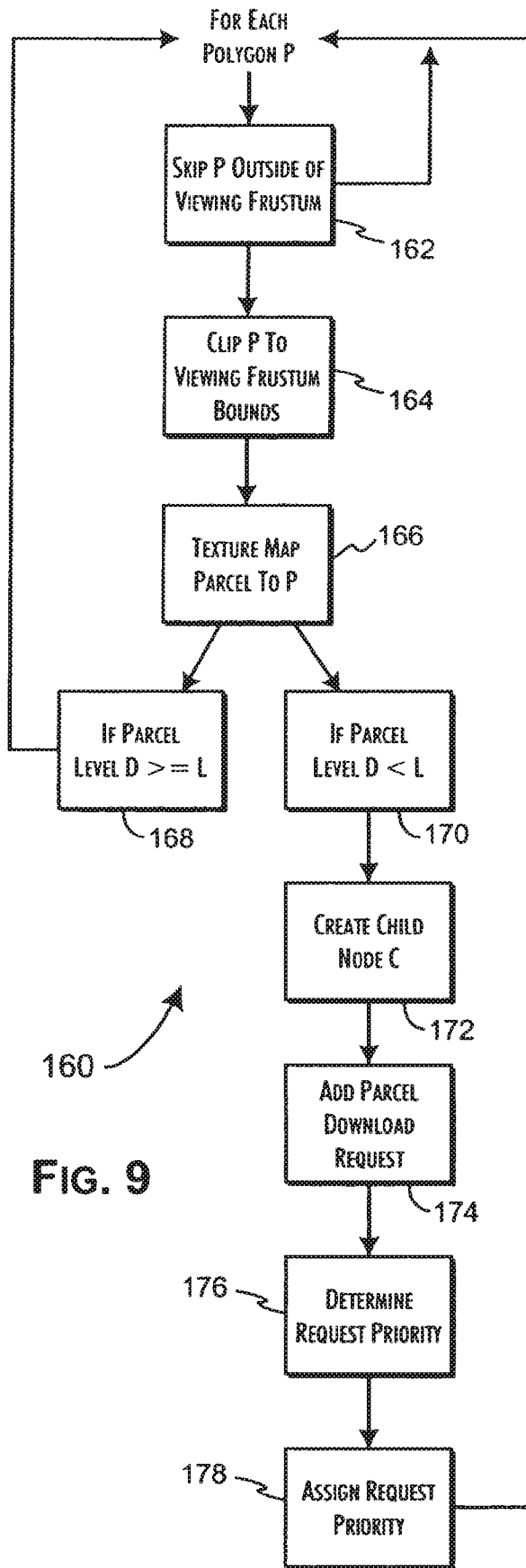


FIG. 9

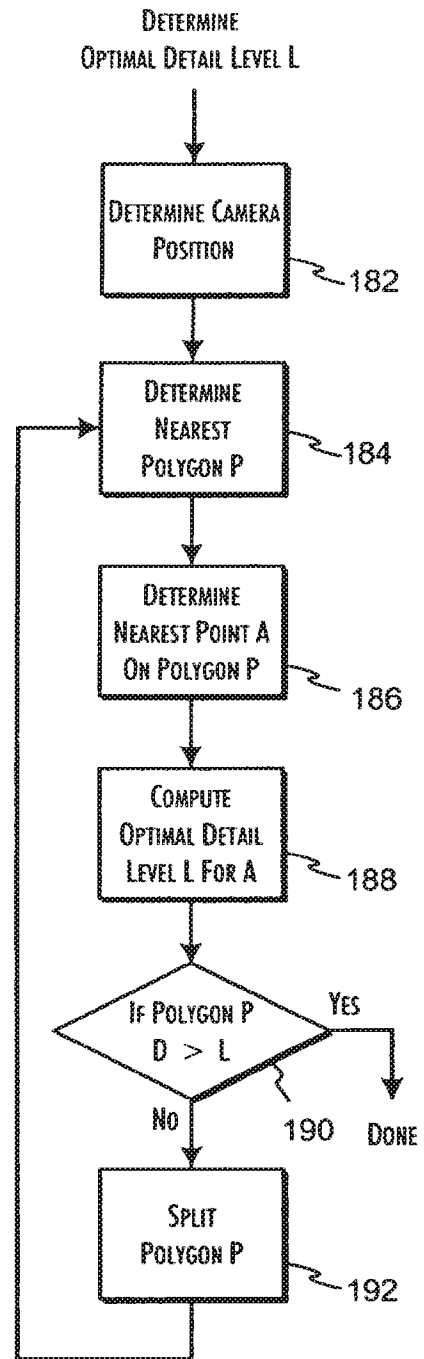


FIG. 10

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| | |
|--------------------|---|
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
|--------------------|---|

As the below named inventor, I hereby declare that:

This declaration is directed to: The attached application, or
 United States application or PCT international application number 14/547,148
 filed on 19 November 2014

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

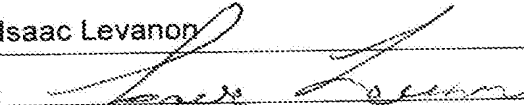
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Isaac Levanon Date (Optional): _____
 Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Bradium Technologies LLCApplication No./Patent No.: _____ Filed/Issue Date: 03 November 2016Titled: OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELSBradium Technologies LLC, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. The assignee of the entire right, title, and interest.
2. An assignee of less than the entire right, title, and interest (check applicable box):
- The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors Isaac Levanon and Yonatan Lavi To: Inovo Limited

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: Inovo Limited To: Bradium Technologies LLC

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). 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. 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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STATEMENT UNDER 37 CFR 3.73(c)

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5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
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6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet(s).

As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Anatoly S. Weiser/

Signature

Anatoly S. Weiser

Printed or Typed Name

03 November 2016

Date

43,229

Title or Registration 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.

Electronic Patent Application Fee Transmittal

| | |
|---|--|
| Application Number: | |
| Filing Date: | |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Filer: | Anatoly Weiser./Sean Taylor |
| Attorney Docket Number: | AP026CON4 |

Filed as Small Entity

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

| Description | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|--|----------|----------|--------|----------------------|
| Basic Filing: | | | | |
| UTILITY FILING FEE (ELECTRONIC FILING) | 4011 | 1 | 70 | 70 |
| UTILITY SEARCH FEE | 2111 | 1 | 300 | 300 |
| UTILITY EXAMINATION FEE | 2311 | 1 | 360 | 360 |
| REQUEST FOR PRIORITIZED EXAMINATION | 2817 | 1 | 2000 | 2000 |

Pages:

Claims:

| | | | | |
|------------------------|------|---|----|-----|
| CLAIMS IN EXCESS OF 20 | 2202 | 7 | 40 | 280 |
|------------------------|------|---|----|-----|

Miscellaneous-Filing:

| Description | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|--|----------|----------|--------|----------------------|
| PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL | 1504 | 1 | 0 | 0 |
| PROCESSING FEE, EXCEPT PROV. APPLS. | 2830 | 1 | 70 | 70 |
| Petition: | | | | |
| Patent-Appeals-and-Interference: | | | | |
| Post-Allowance-and-Post-Issuance: | | | | |
| Extension-of-Time: | | | | |
| Miscellaneous: | | | | |
| Total in USD (\$) | | | | 3080 |

Electronic Acknowledgement Receipt

| | |
|---|--|
| EFS ID: | 27415570 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser./Sean Taylor |
| Filer Authorized By: | Anatoly Weiser. |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 03-NOV-2016 |
| Filing Date: | |
| Time Stamp: | 19:25:01 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

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| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | \$3080 |
| RAM confirmation Number | 110416INTEFSW19273600 |
| Deposit Account | |
| Authorized User | |

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File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|------------------------|---------------------------|--|------------------|------------------|
| 1 | Application Data Sheet | AP026CON4_ADS_aia0014.pdf | 1823728 | no | 10 |
| | | | e16298f9034568e95150c2b62bbff233b31a8d2b | | |

Warnings:

Information:

| | | | | | |
|---|------------------|------------------------------|--|----|---|
| 2 | TrackOne Request | AP026CON4_Track1_aia0424.pdf | 119207 | no | 2 |
| | | | b6bd4f3080f43b07500f1906a63122d682fd1fc6 | | |

Warnings:

Information:

| | | | | | |
|---|--|-----------------------------|--|-----|----|
| 3 | | AP026CON4_Specification.pdf | 117518 | yes | 19 |
| | | | 39937d82268f3ba302a3874198d74290f3f4dc0d | | |

Multipart Description/PDF files in .zip description

| Document Description | Start | End |
|----------------------|-------|-----|
| Specification | 1 | 18 |
| Abstract | 19 | 19 |

Warnings:

Information:

| | | | | | |
|---|--------|----------------------|--|----|----|
| 4 | Claims | AP026CON4_Claims.pdf | 35369 | no | 10 |
| | | | fc61b43c3b2044913c1b4054c7e675f0c756050d | | |

Warnings:

Information:

| | | | | | |
|---|---------------------------|------------------------------|--|----|---|
| 5 | Oath or Declaration filed | AP026CON4_SubDec_aia0002.pdf | 490337 | no | 2 |
| | | | 4f9f36addce146d29235014821234ded6a8a65ed | | |

Warnings:

Information:

| | | | | | |
|-------------------------------------|---|-----------------------------------|--|----|---|
| 6 | Power of Attorney | AP026CON4_POA_aia0080.pdf | 389889 | no | 1 |
| | | | 06705bb4c1eaf9fe6beec40f5b1ccf8738b0632f | | |
| Warnings: | | | | | |
| Information: | | | | | |
| 7 | Drawings-only black and white line drawings | AP026CON4_Figures.pdf | 375244 | no | 5 |
| | | | 7824c4c454f5515c3b621907d2a0f176837d87c6 | | |
| Warnings: | | | | | |
| Information: | | | | | |
| 8 | Oath or Declaration filed | AP026CON3_Declaration_Levanon.pdf | 497272 | no | 1 |
| | | | b41cc40e52153afa2a3c96e3faac16e9a004bb17 | | |
| Warnings: | | | | | |
| Information: | | | | | |
| 9 | Miscellaneous Incoming Letter | AP026CON4_Statement_aia0096.pdf | 118638 | no | 3 |
| | | | a6598d0fe5e868ff58193d1aaae9cfe542630b91 | | |
| Warnings: | | | | | |
| Information: | | | | | |
| 10 | Fee Worksheet (SB06) | fee-info.pdf | 41594 | no | 2 |
| | | | f09496d78e01f9038fa344c24868c3aafdeb8fa5 | | |
| Warnings: | | | | | |
| Information: | | | | | |
| Total Files Size (in bytes): | | | 4008796 | | |

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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.

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| | | |
|--|--|-----------|
| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |
| <p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p> | | |

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

| | | | | | |
|---|-----------------------|-----------------------------------|-------------|--------|--------|
| Inventor | 1 | | | | Remove |
| Legal Name | | | | | |
| Prefix | Given Name | Middle Name | Family Name | Suffix | |
| | saac | | Levanon | | |
| Residence Information (Select One) US Residency <input type="radio"/> Non US Residency Active US Military Service | | | | | |
| City | Raanana | Country of Residence ⁱ | | L | |
| Mailing Address of Inventor: | | | | | |
| Address 1 | 28 Levi Eshkol Street | | | | |
| Address 2 | | | | | |
| City | Raanana | State/Province | | | |
| Postal Code | | Country ⁱ | IL | | |
| Inventor | 2 | | | | Remove |
| Legal Name | | | | | |
| Prefix | Given Name | Middle Name | Family Name | Suffix | |
| | Yonatan | | Lavi | | |
| Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service | | | | | |
| City | Raanana | Country of Residence ⁱ | | L | |
| Mailing Address of Inventor: | | | | | |
| Address 1 | 21 Bar Ilan Street | | | | |
| Address 2 | | | | | |
| City | Raanana | State/Province | | | |
| Postal Code | | Country ⁱ | IL | | |
| All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. | | | | | |
| | | | | | Add |

Correspondence Information:

| | | | |
|---|--|------------------------|-----------|
| Application Data Sheet 37 CFR 1.76 | | Attorney Docket Number | AP026CON4 |
| | | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |

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

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

| | | | |
|-----------------|---------------------|-----------|--------------|
| Customer Number | 137611 | | |
| Email Address | aw@IPLCounsel.com | Add Email | Remove Email |
| Email Address | sean@IPLCounsel.com | Add Email | Remove Email |

Application Information:

| | | | |
|---|--|---|-------------------------------------|
| Title of the Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |
| Attorney Docket Number | AP026CON4 | Small Entity Status Claimed | <input checked="" type="checkbox"/> |
| Application Type | Nonprovisional | | |
| Subject Matter | Utility | | |
| Total Number of Drawing Sheets (if any) | 5 | Suggested Figure for Publication (if any) | 2 |

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: | <input checked="" type="radio"/> Customer Number | <input type="radio"/> US Patent Practitioner | <input type="radio"/> Limited Recognition (37 CFR 11.9) |
|--------------------|--|--|---|

| | | | |
|---|--|------------------------|-----------|
| Application Data Sheet 37 CFR 1.76 | | Attorney Docket Number | AP026CON4 |
| | | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |
| Customer Number | 137611 | | |

Domestic Benefit/National Stage Information:

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

When referring to the current application, please leave the "Application Number" field blank.

| | | | | | |
|--------------------------|-------------------------------|--------------------------|--------------------------|------------------------------------|-------------------------|
| Prior Application Status | Pending | | Remove | | |
| Application Number | Continuity Type | | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) | |
| | Continuation of | | 15281037 | 2016-09-29 | |
| Prior Application Status | Pending | | Remove | | |
| Application Number | Continuity Type | | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) | |
| 15281037 | Continuation of | | 14970526 | 2015-12-15 | |
| Prior Application Status | Patented | | Remove | | |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 14970526 | Continuation of | 14547148 | 2014-11-19 | 9253239 | 2016-02-02 |
| Prior Application Status | Patented | | Remove | | |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 14547148 | Continuation of | 13027929 | 2011-02-15 | 8924506 | 2014-12-30 |
| Prior Application Status | Patented | | Remove | | |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 13027929 | Continuation in part of | 12619643 | 2009-11-16 | 7908343 | 2011-03-15 |
| Prior Application Status | Patented | | Remove | | |
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 12619643 | Continuation of | 10035987 | 2001-12-24 | 7644131 | 2010-01-05 |
| Prior Application Status | Expired | | Remove | | |
| Application Number | Continuity Type | | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) | |
| 10035987 | Claims benefit of provisional | | 60258465 | 2000-12-27 | |
| Prior Application Status | Expired | | Remove | | |
| Application Number | Continuity Type | | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) | |
| 10035987 | Claims benefit of provisional | | 60258466 | 2000-12-27 | |

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|---|--|------------------------|-----------|
| Application Data Sheet 37 CFR 1.76 | | Attorney Docket Number | AP026CON4 |
| | | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | |

| | | | |
|---|-------------------------------|---------------------------------------|------------------------------------|
| Prior Application Status | Expired | <input type="button" value="Remove"/> | |
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 10035987 | Claims benefit of provisional | 60258467 | 2000-12-27 |
| Prior Application Status | Expired | <input type="button" value="Remove"/> | |
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 10035987 | Claims benefit of provisional | 60258468 | 2000-12-27 |
| Prior Application Status | Expired | <input type="button" value="Remove"/> | |
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 10035987 | Claims benefit of provisional | 60258488 | 2000-12-27 |
| Prior Application Status | Expired | <input type="button" value="Remove"/> | |
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| 10035987 | Claims benefit of provisional | 60258489 | 2000-12-27 |
| Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button. | | | <input type="button" value="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).

| | | | |
|--|----------------------|--------------------------|--|
| | | | <input type="button" value="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. | | | <input type="button" value="Add"/> |

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

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.

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|---|--|-----------|
| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |

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|---|
| <input type="checkbox"/> 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. |
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|---|--|-----------|
| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

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|---|--|-----------|
| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |

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 | <input type="button" value="Remove"/> |
| <p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p> | | |
| <input type="button" value="Clear"/> | | |
| <input checked="" type="radio"/> 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: | | |
| <div style="border: 1px solid black; height: 20px; width: 100%;"></div> | | |
| Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/> | | |
| If the Applicant is an Organization check here. <input checked="" type="checkbox"/> | | |
| Organization Name | Bradium Technologies LLC | |
| Mailing Address Information For Applicant: | | |
| Address 1 | 75 Montebello Road | |
| Address 2 | | |
| City | Suffern | State/Province NY |
| Country | US | Postal Code 10901 |
| Phone Number | | Fax Number |
| Email Address | | |
| Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="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.

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.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |

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|--|----------------------|
| 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. | |
| <input type="button" value="Remove"/> | |
| If the Assignee or Non-Applicant Assignee is an Organization check here. <input checked="" type="checkbox"/> | |
| Organization Name Bradium Technologies LLC | |
| Mailing Address Information For Assignee including Non-Applicant Assignee: | |
| Address 1 75 Montebello Road | |
| Address 2 | |
| City Suffern | State/Province NY |
| Country i US | Postal Code 10901 |
| Phone Number | Fax Number |
| Email Address | |
| Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/> | |

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is **not** checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

| | | | |
|---|---------------------|---------------------|------------------------------------|
| Signature | /Anatoly S. Weiser/ | Date (YYYY-MM-DD) | 2016-11-03 |
| First Name | Anatoly | Last Name | Weiser |
| | | Registration Number | 43229 |
| Additional Signature may be generated within this form by selecting the Add button. | | | <input type="button" value="Add"/> |

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.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | AP026CON4 |
| | Application Number | |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | |

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 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.

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.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Bradium Technologies LLC

Application No./Patent No.: _____ Filed/Issue Date: 03 November 2016

Titled: OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

Bradium Technologies LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

- 1. The assignee of the entire right, title, and interest.
- 2. An assignee of less than the entire right, title, and interest (check applicable box):
 - The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
 - There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

- 3. The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

- 4. The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventors Isaac Levanon and Yonatan Lavi To: Inovo Limited

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: Inovo Limited To: Bradium Technologies LLC

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). 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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet(s).

As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Anatoly S. Weiser/

Signature

Anatoly S. Weiser

Printed or Typed Name

03 November 2016

Date

43,229

Title or Registration 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.

Electronic Acknowledgement Receipt

| | |
|---|--|
| EFS ID: | 27415974 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser./Sean Taylor |
| Filer Authorized By: | Anatoly Weiser. |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 03-NOV-2016 |
| Filing Date: | |
| Time Stamp: | 20:51:34 |
| 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 | Assignee showing of ownership per 37 CFR 3.73 | AP026CON4_Statement_aia0096.pdf | 118638 <small>a6598d0fe5e868ff58193d1aaae9cfe542630b91</small> | no | 3 |

Warnings:

| | |
|---|--------|
| Information: | |
| Total Files Size (in bytes): | 118638 |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> | |



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Table with 5 columns: APPLICATION NUMBER, FILING OR 371(C) DATE, FIRST NAMED APPLICANT, ATTY.DOCKET NO./TITLE, REQUEST ID. Values: 15/343,052, 11/03/2016, Bradium Technologies LLC, AP026CON4, 27976

Acknowledgement of Change to Small Entity Status

The entity status change request below filed through Private PAIR on 11/03/2016 has been accepted.

CERTIFICATIONS:

Change of Entity Status:
X Applicant asserting small entity status. See 37 CFR 1.27.
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.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Table with 2 columns: Label, Value. Rows: Signature: /Anatoly S. Weiser/, Name: Anatoly S. Weiser, Registration Number: 43229

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
15/343,052

APPLICATION AS FILED - PART I

(Column 1) (Column 2)

| FOR | NUMBER FILED | NUMBER EXTRA |
|---|---|--------------|
| BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A |
| SEARCH FEE (37 CFR 1.16(k), (l), or (m)) | N/A | N/A |
| EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A |
| TOTAL CLAIMS (37 CFR 1.16(j)) | 27 minus 20 = * | 7 |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | 3 minus 3 = * | |
| 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.

SMALL ENTITY

| RATE(\$) | FEE(\$) |
|----------|---------|
| N/A | 70 |
| N/A | 300 |
| N/A | 360 |
| x 40 = | 280 |
| x 210 = | 0.00 |
| | 0.00 |
| TOTAL | 1010 |

OTHER THAN SMALL ENTITY

| RATE(\$) | FEE(\$) |
|----------|---------|
| N/A | |
| N/A | |
| N/A | |
| | |
| | |
| | |
| TOTAL | |

APPLICATION AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

| AMENDMENT A | CLAIMS REMAINING AFTER AMENDMENT | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |
|---|----------------------------------|------------------------------------|---------------|
| | Total (37 CFR 1.16(i)) | * Minus ** | = |
| Independent (37 CFR 1.16(h)) | * Minus *** | = | |
| Application Size Fee (37 CFR 1.16(s)) | | | |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | |

SMALL ENTITY

| RATE(\$) | ADDITIONAL FEE(\$) |
|-----------------|--------------------|
| x = | |
| x = | |
| | |
| | |
| TOTAL ADD'L FEE | |

OTHER THAN SMALL ENTITY

| RATE(\$) | ADDITIONAL FEE(\$) |
|-----------------|--------------------|
| x = | |
| x = | |
| | |
| | |
| TOTAL ADD'L FEE | |

(Column 1) (Column 2) (Column 3)

| AMENDMENT B | CLAIMS REMAINING AFTER AMENDMENT | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |
|---|----------------------------------|------------------------------------|---------------|
| | Total (37 CFR 1.16(i)) | * Minus ** | = |
| Independent (37 CFR 1.16(h)) | * Minus *** | = | |
| Application Size Fee (37 CFR 1.16(s)) | | | |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | |

SMALL ENTITY

| RATE(\$) | ADDITIONAL FEE(\$) |
|-----------------|--------------------|
| x = | |
| x = | |
| | |
| | |
| TOTAL ADD'L FEE | |

OTHER THAN SMALL ENTITY

| RATE(\$) | ADDITIONAL FEE(\$) |
|-----------------|--------------------|
| x = | |
| x = | |
| | |
| | |
| TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.



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Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 15/343,052, 11/03/2016, 2673, 1010, AP026CON4, 27, 3

CONFIRMATION NO. 8491

FILING RECEIPT

137611
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901



Date Mailed: 11/15/2016

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)

Isaac Levanon, Raanana, ISRAEL;
Yonatan Lavi, Raanana, ISRAEL;

Applicant(s)

Bradium Technologies LLC, Suffern, NY;

Assignment For Published Patent Application

Bradium Technologies LLC, Suffern, NY

Power of Attorney: The patent practitioners associated with Customer Number 137611

Domestic Priority data as claimed by applicant

This application is a CON of 15/281,037 09/29/2016
which is a CON of 14/970,526 12/15/2015
which is a CON of 14/547,148 11/19/2014 PAT 9253239
which is a CON of 13/027,929 02/15/2011 PAT 8924506
which is a CIP of 12/619,643 11/16/2009 PAT 7908343
which is a CON of 10/035,987 12/24/2001 PAT 7644131
which claims benefit of 60/258,465 12/27/2000
and claims benefit of 60/258,466 12/27/2000
and claims benefit of 60/258,467 12/27/2000
and claims benefit of 60/258,468 12/27/2000
and claims benefit of 60/258,488 12/27/2000
and claims benefit of 60/258,489 12/27/2000

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: 11/10/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/343,052**

Projected Publication Date: 02/23/2017

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

Preliminary Class

358

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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 Assets Control, 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.



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/343.052 11/03/2016 Isaac Levanon AP026CON4 8491

137611 7590 12/02/2016
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

EXAMINER

Table with 2 columns: ART UNIT, PAPER NUMBER
2447

Table with 2 columns: MAIL DATE, DELIVERY MODE
12/02/2016 PAPER

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
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Doc Code:
TRACK1.GRANT

| | |
|---|-----------------------------|
| Decision Granting Request for Prioritized Examination (Track I or After RCE) | Application No.: 15/343,052 |
| <p>1. THE RNEWED REQUEST FILED <u>11/03/16</u> IS GRANTED.</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. <input checked="" type="checkbox"/> for an original nonprovisional application (Track I).</p> <p>B. <input type="checkbox"/> for an application undergoing continued examination (RCE).</p> <p>2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a petition for extension of time to extend the time period for filing a reply;</p> <p>B. filing an amendment to amend the application to contain more than four independent claims, more than thirty total claims, or a multiple dependent claim;</p> <p>C. filing a request for continued examination;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to Terri Johnson at 571-272-2991. In his/her absence, calls may be directed to Brian Brown at 571-272-5338.</p> <p>/Terri Johnson/ Paralegal Specialist</p> <p>_____ [Signature] _____ (Title)</p> | |

Office of Petitions: Decision Count Sheet

Mailing Month

11

Application No.

15343052



For US serial numbers: enter number only, no slashes or commas. Ex: 10123456

For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official:

Johnson, Terri

Count (1) - Palm Credit

15/343,052

Decision: GRANT

FINANCE WORK NEEDED
Select Check Box for YES



Decision Type: 643 - Track One request



Notes:

Count (2)

Decision: n/a

FINANCE WORK NEEDED
Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

Decision: n/a

FINANCE WORK NEEDED
Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

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

Printed on: 12/2/2016

Office of Petitions: Routing Sheet



Application No. 15/343,052

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

GRANTED

DISMISSED

DENIED



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/343.052 11/03/2016 Isaac Levanon AP026CON4 8491

137611 7590 02/08/2017
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

EXAMINER

LAZARO, DAVID R

ART UNIT PAPER NUMBER

2455

MAIL DATE DELIVERY MODE

02/08/2017

PAPER

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.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 15/343,052 | Applicant(s) LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | AIA (First Inventor to File) Status No |

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

Period for Reply

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

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

Status

- 1) Responsive to communication(s) filed on 11/03/16.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) Claim(s) 1-27 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) 1-27 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 11/03/16 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: _____

Art Unit: 2455

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

DETAILED ACTION

2. Claims 1-27 are pending in this office action.

Priority

3. This application is a continuation of 15/281,037.

Double Patenting

4. 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-l.jsp.

5. Claims 1-27 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-60 of copending Application No.

Art Unit: 2455

15/281,037 (reference application). Although the claims at issue are not identical, they are not patentably distinct from each other.

6. Claims 1-60 of copending Application No. 15/281,037 contain every element of claims 1-27 of the instant application and thus anticipate the claims of the instant application. Claims 1-27 of the instant application therefore are not patently distinct from the earlier patent claims and as such are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim. *"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim."* In re Longi, 759 F.2d at 896, 225 USPQ at 651.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID LAZARO whose telephone number is (571)272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

Art Unit: 2455

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. 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.

/DAVID LAZARO/
Primary Examiner, Art Unit 2455

| | | | |
|-----------------------------------|---------------------------------------|---|-------------|
| Notice of References Cited | Application/Control No. 15/343,052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | Page 1 of 3 |

U.S. PATENT DOCUMENTS

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | CPC Classification | US Classification |
|---|---|--|-----------------|------------------------|--------------------|-------------------|
| * | A | US-4,682,869 A | 07-1987 | Itoh; Masaharu | G06T9/004 | 358/426.12 |
| * | B | US-4,972,319 A | 11-1990 | Delorme; David M. | G09B29/007 | 340/990 |
| * | C | US-5,559,936 A | 09-1996 | Poulter; Graham G. | G06F17/30017 | 345/428 |
| * | D | US-5,613,051 A | 03-1997 | Iodice; David M. | G06F3/14 | 345/428 |
| * | E | US-5,929,860 A | 07-1999 | Hoppe; Hugues H. | G06T9/001 | 345/419 |
| * | F | US-5,995,903 A | 11-1999 | Smith; Eric L. | G01C21/00 | 340/995.26 |
| * | G | US-6,167,442 A | 12-2000 | Sutherland; Stephen B. | G06F17/3028 | 709/217 |
| * | H | US-6,212,301 B1 | 04-2001 | Warner; Scott J. | G06T9/00 | 382/232 |
| * | I | US-6,246,797 B1 | 06-2001 | Castor; Jon S. | H04N19/63 | 375/E7.035 |
| * | J | US-6,285,317 B1 | 09-2001 | Ong; Ping-Wen | G01C21/3647 | 340/995.2 |
| * | K | US-6,314,452 B1 | 11-2001 | Dekel; Shai | H04N19/647 | 375/E7.045 |
| * | L | US-6,326,965 B1 | 12-2001 | Castelli; Vittorio | G06F17/30241 | 345/420 |
| * | M | US-6,346,938 B1 | 02-2002 | Chan; Ellery Y. | G06F3/04815 | 345/419 |

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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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| Notice of References Cited | Application/Control No. 15/343,052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | Page 2 of 3 |

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| * | A | US-6,345,279 B1 | 02-2002 | Li; Chung-Sheng | G06F17/30905 | 1/1 |
| * | B | US-6,397,259 B1 | 05-2002 | Lincke; Scott D. | G06F17/3089 | 707/E17.116 |
| * | C | US-6,449,639 B1 | 09-2002 | Blumberg; Robert | G06F17/30905 | 707/E17.118 |
| * | D | US-6,496,189 B1 | 12-2002 | Yaron; Ronnie | G06T15/40 | 345/419 |
| * | E | US-6,525,732 B1 | 02-2003 | Gadh; Rajit | G06T15/20 | 345/428 |
| * | F | US-6,608,628 B1 | 08-2003 | Ross; Muriel D. | G06T17/20 | 345/619 |
| * | G | US-6,608,933 B1 | 08-2003 | Dowell; Craig M. | G06T9/007 | 382/232 |
| * | H | US-6,625,309 B1 | 09-2003 | Li; Chia-Hsin | G06T15/40 | 345/418 |
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| * | J | US-6,704,024 B2 | 03-2004 | Robotham; John S. | G06F3/14 | 345/581 |
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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| Notice of References Cited | Application/Control No. 15/343,052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | Page 3 of 3 |

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| * | C US-6,970,604 B1 | 11-2005 | Chai; Bing-Bing | H04N19/176 | 375/E7.056 |
| * | D US-7,644,131 B2 | 01-2010 | Levanon; Isaac | G06F3/14 | 345/625 |
| * | E US-8,924,506 B2 | 12-2014 | Levanon; Isaac | G06F3/1454 | 345/625 |
| | F US- | | | | |
| | G US- | | | | |
| | H US- | | | | |
| | I US- | | | | |
| | J US- | | | | |
| | K US- | | | | |
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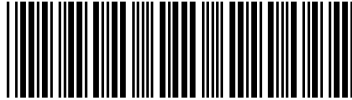
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| SERIAL NUMBER | FILING or 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. | | |
|---|---|--|-----------------------------------|--|---------------------------|--------------------------------|
| 15/343,052 | 11/03/2016 | 709 | 2455 | AP026CON4 | | |
| APPLICANTS Bradium Technologies LLC, Suffern, NY; | | | | | | |
| INVENTORS Isaac Levanon, Raanana, ISRAEL; Yonatan Lavi, Raanana, ISRAEL; | | | | | | |
| ** CONTINUING DATA ***** This application is a CON of 15/281,037 09/29/2016 which is a CON of 14/970,526 12/15/2015 which is a CON of 14/547,148 11/19/2014 PAT 9253239 which is a CON of 13/027,929 02/15/2011 PAT 8924506 which is a CIP of 12/619,643 11/16/2009 PAT 7908343 which is a CON of 10/035,987 12/24/2001 PAT 7644131 which claims benefit of 60/258,465 12/27/2000 and claims benefit of 60/258,466 12/27/2000 and claims benefit of 60/258,467 12/27/2000 and claims benefit of 60/258,468 12/27/2000 and claims benefit of 60/258,488 12/27/2000 and claims benefit of 60/258,489 12/27/2000 | | | | | | |
| ** FOREIGN APPLICATIONS ***** | | | | | | |
| ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 11/10/2016 | | | | | | |
| Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/DAVID R LAZARO/</u> Examiner's Signature | | <input type="checkbox"/> Met after Allowance Initials | STATE OR COUNTRY ISRAEL | SHEETS DRAWINGS 5 | TOTAL CLAIMS 27 | INDEPENDENT CLAIMS 3 |
| ADDRESS Bradium Technologies LLC 75 Montebello Road Suffern, NY 10901 UNITED STATES | | | | | | |
| TITLE OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | | | | | |
| FILING FEE RECEIVED 1010 | FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following: | | | <input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ | | |

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| Index of Claims  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

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Claims renumbered in the same order as presented by applicant
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| CLAIM | | DATE | | | | | | | |
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| Final | Original | 02/06/2017 | | | | | | | |
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| | 25 | ✓ | | | | | | | |
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| | 27 | ✓ | | | | | | | |

EAST Search History

EAST Search History (Prior Art)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|--|-----------------|------------------|---------|------------------|
| L1 | 20 | (progressive\$2 with resolution with series) same array | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:03 |
| L2 | 35 | (progressive\$2 with resolution same series) same array | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:03 |
| L3 | 25 | (lower with resolution with series with image) same array | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:04 |
| L4 | 32 | (US-6882755-\$ or US-6608628-\$ or US-6326965-\$ or US-6212301-\$ or US-6314452-\$ or US-6525732-\$ or US-6704024-\$ or US-6345279-\$ or US-5613051-\$ or US-6754365-\$ or US-6246797-\$ or US-6496189-\$ or US-6970604-\$ or US-5559936-\$ or US-6397259-\$ or US-6801665-\$ or US-4682869-\$ or US-6711297-\$ or US-6898311-\$ or US-6449639-\$ or US-6608933-\$ or US-6704791-\$ or US-6625309-\$ or US-6167442-\$ or US-6346938-\$ or US-5995903-\$).did. or (US-6285317-\$ or US-5929860-\$ or US-4972319-\$ or US-7644131-\$ or US-7908343-\$ or US-8924506-\$).did. | USPAT | OR | ON | 2017/02/06 12:05 |
| L5 | 1597 | ((H04N1/40068 OR H04N1/4172 OR H04N1/64 OR H04N21/234345 OR H04N21/234363 OR H04N21/25825).CPC.) | USPAT | OR | ON | 2017/02/06 12:07 |
| L6 | 6802 | ((H04N1/40068 OR H04N1/4172 OR H04N1/64 OR H04N21/234345 OR H04N21/234363 OR H04N21/25825 OR G06F17/30241 OR G06F3/04815 OR G06T3/4092 OR G06T19/00 OR G06T19/003).CPC.) | USPAT | OR | ON | 2017/02/06 12:09 |
| L7 | 1445 | ((G06F3/04815).CPC.) | USPAT | OR | ON | 2017/02/06 12:09 |
| L8 | 0 | 5 and 7 | USPAT | OR | ON | 2017/02/06 12:09 |
| L9 | 69 | 7 and (progressive or mesh or overlay) and (image or picture) and resolution and array | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:10 |
| L10 | 0 | 9 and request with priority | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:11 |
| L11 | 32 | 6 and request with priority same image | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:11 |
| L12 | 636 | ("levanon" "lavi").in. | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:12 |
| L13 | 9 | 12 and (image with series with resolution same array).clm. | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:13 |
| L14 | 6 | 12 and (image with series with | US-PGPUB; | OR | ON | 2017/02/06 |

| | | | | | | |
|-----|--------|---|--------------------|----|-----|---------------------|
| | | resolution same array and priority).clm. | USPAT | | | 12:13 |
| L15 | 1 | 14 and local adj parcel.clm. | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:21 |
| L16 | 1 | 15 and server same hardware | US-PGPUB; USPAT | OR | ON | 2017/02/06 12:48 |
| L17 | 31 | (US-6801665-\$ or US-6449639-\$ or US-6326965-\$ or US-6246797-\$ or US-6970604-\$ or US-6346938-\$ or US-6711297-\$ or US-6314452-\$ or US-4972319-\$ or US-6608933-\$ or US-6525732-\$ or US-6704791-\$ or US-5929860-\$ or US-5613051-\$ or US-4682869-\$ or US-7644131-\$ or US-8924506-\$ or US-6625309-\$ or US-6345279-\$ or US-6397259-\$ or US-6285317-\$ or US-5559936-\$ or US-6704024-\$ or US-6608628-\$ or US-6882755-\$ or US-5995903-\$).did. or (US-6167442-\$ or US-6212301-\$ or US-6754365-\$ or US-6898311-\$ or US-6496189-\$).did. | USPAT | OR | ON | 2017/02/06 13:14 |
| S1 | 1 | ("6850235").PN. | USPAT | OR | OFF | 2005/07/19 15:14 |
| S2 | 2 | (progressive and screen and resolution).ab. | USPAT | OR | ON | 2005/07/19 15:15 |
| S3 | 4 | (image and screen and resolution and updat\$3).ab. | USPAT | OR | ON | 2005/07/19 15:16 |
| S4 | 231 | (image near5 transmi\$8 and resolution).ab. | USPAT | OR | ON | 2005/07/19 15:17 |
| S5 | 5900 | (709/227-237).OCLS. | USPAT | OR | OFF | 2005/07/19 15:17 |
| S6 | 2 | S4 and S5 | USPAT | OR | ON | 2005/07/19 15:18 |
| S7 | 1613 | image same different adj resolution | USPAT | OR | ON | 2005/07/19 15:18 |
| S8 | 630 | S7 and network | USPAT | OR | ON | 2005/07/19 15:18 |
| S9 | 168 | S7 same (browser or client or user) | USPAT | OR | ON | 2005/07/19 15:20 |
| S10 | 129492 | (bandwidth or latency) | USPAT | OR | ON | 2005/07/19 15:20 |
| S11 | 57 | S9 and S10 | USPAT | OR | ON | 2005/07/19 15:26 |
| S12 | 627 | image near5 (updat\$3) same (view or viewpoint) | USPAT | OR | ON | 2005/11/21 17:46 |
| S13 | 7 | S5 and S12 | USPAT | OR | ON | 2005/07/19 15:26 |
| S14 | 90 | image near5 (updat\$3) same (viewpoint) | USPAT | OR | ON | 2005/07/19 15:30 |
| S15 | 0 | image near5 (updat\$3) same (viewpoint) same request | USPAT | OR | ON | 2005/07/19 15:27 |
| S16 | 28 | image near5 (updat\$3) same (viewpoint) and (internet or network) | USPAT | OR | ON | 2005/07/19 15:29 |
| S17 | 5198 | image same (packet or parcel) | USPAT | OR | ON | 2005/07/19 15:29 |

| | | | | | | |
|-----|-------|--|---|----|-----|---------------------|
| S18 | 3 | S14 and S17 | USPAT | OR | ON | 2005/07/19 15:29 |
| S19 | 215 | S5 and S17 | USPAT | OR | ON | 2005/07/19 15:29 |
| S20 | 6867 | image near5 (updat\$3) | USPAT | OR | ON | 2005/07/19 15:30 |
| S21 | 24 | S19 and S20 | USPAT | OR | ON | 2005/07/19 15:30 |
| S22 | 69642 | image same resolution | USPAT | OR | ON | 2005/07/19 15:31 |
| S23 | 4 | S21 and S22 | USPAT | OR | ON | 2005/07/19 15:41 |
| S24 | 2 | image same queue same viewpoint | USPAT | OR | ON | 2005/07/19 15:41 |
| S25 | 60 | queue same viewpoint | USPAT | OR | ON | 2005/07/19 15:42 |
| S26 | 3 | S22 and S25 | USPAT | OR | ON | 2005/07/19 15:49 |
| S27 | 107 | single adj packet same image | USPAT | OR | ON | 2005/07/19 15:49 |
| S28 | 6 | S5 and S27 | USPAT | OR | ON | 2005/07/19 15:58 |
| S29 | 1 | ("6182144").PN. | USPAT | OR | OFF | 2005/07/19 15:58 |
| S30 | 1 | ("6182114").PN. | USPAT | OR | OFF | 2005/07/19 15:58 |
| S31 | 3 | ("6182114").URPN. | USPAT | OR | ON | 2005/07/19 16:01 |
| S32 | 9 | ("4622632" "5341466" "5481622" "5568598" "5710835" "5724070" "5861920" "5880856" "5920865").PN. | US-PGPUB; USPAT; USOCR | OR | ON | 2005/07/19 16:02 |
| S33 | 32 | ("5880856").URPN. | USPAT | OR | ON | 2005/07/19 16:25 |
| S34 | 2 | fixed adj dimension adj array | USPAT | OR | ON | 2005/07/19 16:25 |
| S35 | 3 | fixed adj dimension adj array | US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/07/19 16:29 |
| S37 | 1098 | array near5 pixel same fixed | USPAT | OR | ON | 2005/07/19 16:30 |
| S38 | 0 | S5 and S37 | USPAT | OR | ON | 2005/07/19 16:30 |
| S39 | 5 | array near5 pixel same fixed same packet | USPAT | OR | ON | 2005/07/19 16:49 |
| S40 | 1 | ("4,698,689").PN. | USPAT | OR | OFF | 2005/07/19 16:34 |
| S41 | 427 | array near5 pixel with fixed | USPAT | OR | ON | 2005/07/19 16:37 |
| S44 | 219 | progressive adj transmission | USPAT | OR | ON | 2005/07/19 16:49 |
| S45 | 0 | S41 and S44 | USPAT | OR | ON | 2005/07/19 16:49 |

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|-----|-------|--|--------------------|----|-----|---------------------|
| S46 | 15 | array same pixel same fixed same packet | USPAT | OR | ON | 2005/07/19 16:51 |
| S47 | 263 | array same pixel and packet and internet | USPAT | OR | ON | 2005/07/19 19:06 |
| S48 | 3 | S44 and S47 | USPAT | OR | ON | 2005/07/19 17:06 |
| S49 | 91 | foveat\$4 | USPAT | OR | ON | 2005/07/19 17:06 |
| S50 | 52 | S49 and array | USPAT | OR | ON | 2005/07/19 17:06 |
| S51 | 4 | S50 and (packet or parcel) | USPAT | OR | ON | 2005/07/19 17:07 |
| S52 | 1122 | array same pixel same (transmit\$8 or transmission or issuing or sending or sent) and network | USPAT | OR | ON | 2005/07/19 19:07 |
| S53 | 103 | array same pixel same (transmit\$8 or transmission or issuing or sending or sent) same (internet or network) | USPAT | OR | ON | 2005/07/20 10:07 |
| S54 | 18359 | ("709").CLAS. | USPAT | OR | OFF | 2005/07/19 19:07 |
| S55 | 7 | S53 and S54 | USPAT | OR | ON | 2005/07/19 19:08 |
| S56 | 170 | image same tree near5 data adj structure | USPAT | OR | ON | 2005/07/20 10:07 |
| S57 | 92 | image same tree near5 data adj structure same (stor\$3) | USPAT | OR | ON | 2005/07/20 10:07 |
| S58 | 7 | image same tree near5 data adj structure same (stor\$3) same server | USPAT | OR | ON | 2005/07/20 10:35 |
| S59 | 1 | ("6275693").PN. | USPAT | OR | OFF | 2005/07/20 10:35 |
| S60 | 12254 | (709/202,203,217,218,230,231).CCLS. | US-PGPUB; USPAT | OR | OFF | 2006/09/27 14:27 |
| S61 | 2415 | (382/305,232).CCLS. | US-PGPUB; USPAT | OR | OFF | 2006/09/27 14:27 |
| S62 | 1033 | (345/428,581,625).CCLS. | US-PGPUB; USPAT | OR | OFF | 2006/09/27 14:27 |
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| S64 | 10 | (image and progressive and resolution and (deliver\$3 or transmit\$4 or transmission or retriev\$4)).ab. | USPAT | OR | ON | 2005/07/22 11:58 |
| S65 | 2 | S63 and S64 | USPAT | OR | ON | 2005/07/22 11:15 |
| S66 | 7 | S64 and (array or dimension\$2) | USPAT | OR | ON | 2005/07/22 11:22 |
| S67 | 1 | S64 and (array) | USPAT | OR | ON | 2005/07/22 11:22 |
| S68 | 653 | (image and resolution and (deliver\$3 or transmit\$4 or transmission or retriev\$4)).ab. | USPAT | OR | ON | 2005/07/22 11:23 |
| S69 | 29 | S63 and S68 | USPAT | OR | ON | 2005/07/22 11:23 |
| S70 | 11 | S69 and array | USPAT | OR | ON | 2005/07/22 12:13 |

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| S71 | 5 | ("4682869" "5453788" "5543844" "5845015" "6625309").PN. | US-PGPUB; USPAT; USOCR | OR | ON | 2005/07/22 11:45 |
| S72 | 2 | (image and (thin or limited) near2 (client or device) and resolution and (deliver\$3 or transmit\$4 or transmission or retriev\$4)).ab. | USPAT | OR | ON | 2005/07/22 11:58 |
| S73 | 726 | (resolution or display) same (thin or limited) near4 (client or device) and resolution same image same (deliver\$3 or transmit\$4 or transmission or retriev\$4) | US-PGPUB; USPAT | OR | ON | 2005/07/22 12:24 |
| S74 | 29 | S63 and S73 | US-PGPUB; USPAT | OR | ON | 2005/07/22 11:59 |
| S76 | 13 | ("6345279").URPN. | USPAT | OR | ON | 2005/07/22 12:22 |
| S77 | 13 | S74 and array | US-PGPUB; USPAT | OR | ON | 2005/07/22 12:23 |
| S78 | 10 | (resolution or display) same (thin or limited) near4 (client or device) and resolution same image same (deliver\$3 or transmit\$4 or transmission or retriev\$4) | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/07/22 12:24 |
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| S80 | 2 | S79 and single adj packet | USPAT | OR | ON | 2005/07/22 14:16 |
| S81 | 11783 | ((709/203,217,232,246) or (345/428,581) or (381/232,305)).OCLS. | US-PGPUB; USPAT | OR | OFF | 2005/11/21 17:44 |
| S82 | 1243 | ((update or progressive) same (image or picture)).ab. | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:47 |
| S83 | 30 | S81 and S82 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:45 |
| S84 | 210102 | ((image or picture)).ab. | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:46 |
| S85 | 1093 | S81 and S84 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:46 |
| S87 | 1171 | image near5 (updat\$3) same (view or viewpoint) | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S88 | 21 | S85 and S87 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:46 |
| S89 | 173405 | (image or picture) with portion | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S90 | 480 | S85 and S89 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:47 |
| S91 | 32 | S90 and (progressive) | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:47 |

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|------|------|--|----------------------------|----|----|------------------|
| S92 | 123 | image near5 (updat\$3) same (view or viewpoint) | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/11/21 17:47 |
| S93 | 0 | image near5 (updat\$3) same (view or viewpoint) and progressive | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/11/21 17:47 |
| S94 | 8216 | (update or progressive) same (image or picture) | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/11/21 17:47 |
| S95 | 490 | (update or progressive) same (image or picture) and portion | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/11/21 17:47 |
| S96 | 6 | (update or progressive) same (image or picture) and portion and packet | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2005/11/21 17:48 |
| S97 | 93 | image near5 (updat\$3) same (view or viewpoint) and packet | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S98 | 922 | (image or picture) with portion same packet | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S99 | 531 | S84 and S98 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S100 | 7 | S82 and S98 | US-PGPUB; USPAT | OR | ON | 2005/11/21 17:48 |
| S101 | 193 | (coefficient or updat\$3 or wavelet) same single adj packet | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:06 |
| S102 | 7 | (coefficient or updat\$3 or wavelet) same single adj packet same (image or display\$3) | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:07 |
| S103 | 23 | (US-6449639-\$ or US-6345279-\$ or US-6704024-\$ or US-6898311-\$ or US-4682869-\$ or US-6314452-\$ or US-6326965-\$ or US-6608628-\$ or US-6704791-\$ or US-6711297-\$ or US-6754365-\$ or US-6397259-\$ or US-5559936-\$ or US-5613051-\$ or US-6496189-\$ or US-6525732-\$ or US-6167442-\$ or US-6246797-\$ or US-6625309-\$ or US-6801665-\$ or US-6882755-\$ or US-6212301-\$ or US-6970604-\$).did. | USPAT | OR | ON | 2006/03/22 16:23 |
| S104 | 5 | S103 and (priorit\$) | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:28 |
| S105 | 12 | S103 and (fixed) | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:23 |
| S106 | 0 | S103 and (fixed adj array) | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:23 |
| S107 | 0 | S103 and (fixed adj compression) | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:23 |
| S108 | 4 | fixed adj compression adj ratio same coefficient | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:29 |
| S109 | 182 | fixed adj compression adj ratio | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:29 |
| S110 | 24 | fixed adj compression adj ratio same image | US-PGPUB; USPAT | OR | ON | 2006/03/22 16:30 |
| S111 | 46 | "16x16" or "16 x 16" same (image) | US-PGPUB; USPAT | OR | ON | 2006/03/22 18:58 |

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|------|---------|---|----------------------------|----|-----|------------------|
| S112 | 44 | "16x16" or "16 x 16" same (image) same (array or block or dimension or compression) | US-PGPUB; USPAT | OR | ON | 2006/03/22 18:57 |
| S113 | 44 | "16x16" or "16 x 16" same (image) same (array or block or compression) | US-PGPUB; USPAT | OR | ON | 2006/03/22 18:57 |
| S114 | 9 | ("16x16" or "16 x 16") same (image) | US-PGPUB; USPAT | OR | ON | 2006/03/22 19:14 |
| S115 | 102 | minimum adj coded adj unit same jpeg | US-PGPUB; USPAT | OR | ON | 2006/03/22 19:14 |
| S116 | 25 | minimum adj coded adj unit same jpeg same "16" | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:33 |
| S118 | 7272 | ((709/231,246,247) or (382/232,305) or (345/428,581)).CCLS. | US-PGPUB; USPAT | OR | OFF | 2006/03/23 15:34 |
| S119 | 4242 | (progressive).ab. | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:34 |
| S120 | 30 | S118 and S119 | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:34 |
| S121 | 150 | wavelet and viewpoint and large near3 image | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:35 |
| S122 | 17 | S118 and S121 | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:35 |
| S123 | 506 | progressive and (zoom or pan or viewpoint) and (satellite or large) near3 image | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:36 |
| S124 | 51 | S118 and S123 | US-PGPUB; USPAT | OR | ON | 2006/03/23 15:36 |
| S125 | 0 | progressive and (zoom or pan or viewpoint) and (satellite or large) near3 image | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/03/23 15:36 |
| S126 | 1 | wavelet and (zoom or pan or viewpoint) and (satellite or large) near3 image | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/03/23 15:36 |
| S127 | 19 | progressive and (satellite or large) near3 image | EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/03/23 15:36 |
| S129 | 34356 | (map or mapping or topographic\$5 or navigat\$6).ab. | US-PGPUB; USPAT | OR | ON | 2006/09/27 12:22 |
| S134 | 62392 | (z adj axis) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:06 |
| S136 | 18230 | (topgraphic\$5 or geograph\$8) same (map or view\$3 or display\$3) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:28 |
| S137 | 440 | S134 and S136 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:06 |
| S138 | 1551294 | rotat\$3 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:06 |
| S139 | 339943 | rotat\$3 same (view\$3 or display\$3) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:07 |
| S140 | 168 | S137 and S139 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:07 |
| S141 | 109 | S140 and network | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:08 |
| S142 | 3 | S141 and frustum | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:09 |
| S143 | 1675 | frustum same (view\$3 or display\$3) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:09 |

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|------|-------|---|------------------------------|----|-----|---------------------|
| S144 | 74 | S129 and S143 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:10 |
| S145 | 594 | S143 and (3d or 3-d or (three adj dimensional)) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:09 |
| S146 | 383 | S145 and (map or mapping or topographic\$5 or navigat\$6) | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:10 |
| S147 | 9 | S136 and S144 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:10 |
| S148 | 24 | ("20010026549" "20020005891" "20020013659" "20020047798" "20020049534" "20020070934" "20020085041" "20020128775" "20020141655" "20020191003" "20030030546" "20030030634" "20030120823" "20030135327" "20030146869" "20030151592" "20040001059" "20040032409" "20040125103" "5995903" "6199014" "6285317" "6314370" "6552721").PN. | US-PGPUB; USPAT; USOCR | OR | ON | 2006/09/27 14:13 |
| S152 | 19724 | ((709/202,203,217,218,230,231) or (382/305,232) or (345/428,581,625)).OCLS. | US-PGPUB; USPAT | OR | OFF | 2006/09/27 14:28 |
| S153 | 101 | S129 and S136 and S152 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:28 |
| S154 | 0 | S153 and frustum | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:28 |
| S155 | 38 | S143 and S152 | US-PGPUB; USPAT | OR | ON | 2006/09/27 14:28 |
| S156 | 58 | three adj dimensional same progressive same (network or server or download\$3) | US-PGPUB; USPAT | OR | ON | 2009/05/26 07:29 |
| S157 | 88 | three adj dimensional same progressive\$2 same (network or server or download\$3) | US-PGPUB; USPAT | OR | ON | 2009/05/26 07:37 |
| S158 | 1 | S157 and derivative adj image | US-PGPUB; USPAT | OR | ON | 2009/05/26 07:37 |
| S159 | 1 | ("6671424").PN. | US-PGPUB; USPAT | OR | OFF | 2009/05/26 07:42 |
| S160 | 9 | progressive adj mesh and overlay | US-PGPUB; USPAT | OR | ON | 2009/05/26 08:04 |
| S161 | 29845 | ((709/202,203,217,218,230,231) or (382/305,232) or (345/428,581,625)).OCLS. | US-PGPUB; USPAT | OR | OFF | 2009/05/26 08:45 |
| S162 | 10 | S157 and S161 | US-PGPUB; USPAT | OR | ON | 2009/05/26 08:45 |
| S163 | 57 | (progressive and (image or picture or screen) and resolution).ab. | USPAT | OR | ON | 2009/08/15 21:35 |
| S164 | 24409 | (709/202,203,217,218,230,231).OCLS. | US-PGPUB; USPAT | OR | OFF | 2009/08/15 21:35 |
| S165 | 4605 | (382/305,232).OCLS. | US-PGPUB; USPAT | OR | OFF | 2009/08/15 21:35 |
| S166 | 1880 | (345/428,581,625).OCLS. | US-PGPUB; USPAT | OR | OFF | 2009/08/15 21:35 |
| S167 | 17405 | S164 or S165 or S166 | USPAT | OR | ON | 2009/08/15 21:35 |

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|------|-------|--|---|----|-----|---------------------|
| S168 | 6 | S167 and S163 | USPAT | OR | ON | 2009/08/15 21:35 |
| S169 | 132 | (progressive and large).ab. | USPAT | OR | ON | 2009/08/15 21:36 |
| S170 | 7 | S167 and S169 | USPAT | OR | ON | 2009/08/15 21:36 |
| S171 | 67 | ((mesh or overlay)and (image or picture or screen) and resolution).ab. | USPAT | OR | ON | 2009/08/15 21:40 |
| S172 | 2738 | ((mesh or overlay)and (image or picture or screen)).ab. | USPAT | OR | ON | 2009/08/15 21:40 |
| S173 | 36 | S167 and S172 | USPAT | OR | ON | 2009/08/15 21:40 |
| S174 | 15965 | (progressive or mesh or overlay) and (image or picture) | FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2009/08/15 21:40 |
| S175 | 908 | (progressive or mesh or overlay) and (image or picture) and resolution | FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2009/08/15 21:41 |
| S176 | 54 | (progressive or mesh or overlay) and (image or picture) and resolution and array | FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2009/08/15 21:41 |
| S184 | 1 | ("5929860").PN. | US-PGPUB; USPAT | OR | OFF | 2016/12/27 14:19 |
| S185 | 111 | (original source origin) adj image same (series array) with resolution same (subdivid\$3 divid\$3 portion) | US-PGPUB; USPAT | OR | ON | 2016/12/27 14:25 |
| S186 | 19 | S185 and image with viewpoint | US-PGPUB; USPAT | OR | ON | 2016/12/27 14:25 |
| S187 | 20 | S185 and image same viewpoint | US-PGPUB; USPAT | OR | ON | 2016/12/27 14:26 |
| S188 | 1 | ("4972319").PN. | US-PGPUB; USPAT | OR | OFF | 2016/12/27 14:30 |
| S189 | 3 | (("7644131") or ("7908343") or ("8924506")).PN. | US-PGPUB; USPAT | OR | OFF | 2016/12/27 14:45 |


EAST Search History (I nterference)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|-------|---|--------------------|------------------|---------|---------------------|
| S178 | 30813 | ((709/202,203,217,218,230,231) or (382/305,232) or (345/428,581,625)).CCLS. | US-PGPUB; USPAT | OR | OFF | 2009/08/15 21:36 |
| S179 | 31 | ((image or picture or pixel) and overlay and array and resolution).clm. | US-PGPUB; USPAT | OR | ON | 2009/08/15 21:39 |
| S180 | 1 | S178 and S179 | US-PGPUB; USPAT | OR | ON | 2009/08/15 21:39 |
| S181 | 3652 | ((image or picture or pixel) and overlay).clm. | US-PGPUB; USPAT | OR | ON | 2009/08/15 21:39 |
| S182 | 51 | ((image or picture or pixel) and overlay and (progressive or mesh)).clm. | US-PGPUB; | OR | ON | 2009/08/15 21:39 |

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|------|---|---------------|---------------------------------|----|----|---------------------|
| S183 | 1 | S178 and S182 | USPAT US- PGPUB; USPAT | OR | ON | 2009/08/15 21:40 |
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2/ 6/ 2017 1:23:30 PM

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| Search Notes  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

| CPC- SEARCHED | | |
|--|----------|----------|
| Symbol | Date | Examiner |
| H04N1/40068 H04N1/4172 H04N1/64 H04N21/234345 H04N21/234363 H04N21/25825 G06F17/30241 G06F3/04815 G06T3/4092 OG06T19/00 G06T19/003 | 2/6/2017 | DRL |

| CPC COMBINATION SETS - SEARCHED | | |
|---------------------------------|------|----------|
| Symbol | Date | Examiner |
| | | |

| US CLASSIFICATION SEARCHED | | | |
|----------------------------|----------|------|----------|
| Class | Subclass | Date | Examiner |
| | | | |

| SEARCH NOTES | | |
|---|----------|----------|
| Search Notes | Date | Examiner |
| EAST: USPAT, USPGPUB - subject matter and inventor search | 2/6/2017 | DRL |

| INTERFERENCE SEARCH | | | |
|-------------------------|-------------------------|------|----------|
| US Class/ CPC Symbol | US Subclass / CPC Group | Date | Examiner |
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| Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed | PTO/SB/25 PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce |
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|-----------------------------|---|
| Electronic Petition Request | TERMINAL DISCLAIMER TO OBIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION AND TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT |
| Application Number | 15343052 |
| Filing Date | 03-Nov-2016 |
| First Named Inventor | Isaac Levanon |
| Attorney Docket Number | AP026CON4 |
| Title of Invention | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |

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 |
|--------------------------|------------------|
| BRADIUM TECHNOLOGIES LLC | 100 % |

The owner(s) of 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 any patent granted on pending reference Application Number(s)

15281037 filed on 09/29/2016
14970526 filed on 12/15/2015

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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.

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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.

Applicants 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 43229
- 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 | /Anatoly S. Weiser/ |
| Name | Anatoly S. Weiser |

*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: | 15343052 | | | |
| Filing Date: | 03-Nov-2016 | | | |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | | |
| First Named Inventor/Applicant Name: | Isaac Levanon | | | |
| Filer: | Anatoly Weiser. | | | |
| Attorney Docket Number: | AP026CON4 | | | |
| 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.: 15343052

Filing Date: 03-Nov-2016

Applicant/Patent under Reexamination: Levanon

Electronic Terminal Disclaimer filed on February 13, 2017

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: | 28344868 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser. |
| Filer Authorized By: | |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 13-FEB-2017 |
| Filing Date: | 03-NOV-2016 |
| Time Stamp: | 22:49:30 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

| | |
|--|-----------------------------|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | \$160 |
| RAM confirmation Number | 021417INTEFSW00007322503196 |
| Deposit Account | |
| Authorized User | |

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File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|--------------------------------------|--------------------------|--|------------------|------------------|
| 1 | Electronic Terminal Disclaimer-Filed | eTerminal-Disclaimer.pdf | 38231 | no | 3 |
| | | | f6bf6f1f310d826254647f6521497560949e544c | | |

Warnings:

Information:

| | | | | | |
|---|----------------------|--------------|--|----|---|
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 30339 | no | 2 |
| | | | 6daaa5702ee3007a4a747b2653e6a55fd29ea2f1 | | |

Warnings:

Information:

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Isaac Levanon *et al.*

Serial No.: **15/343,052**

Filed: **November 3, 2016**

For: **OPTIMIZED IMAGE DELIVERY
OVER LIMITED BANDWIDTH
COMMUNICATION CHANNELS**

Group Art Unit: **2455**

Examiner: **David R. Lazaro**

Attorney File No.: **AP026CON4**

Confirmation No.: **8491**

Office Action Mailed On: **2/8/2017**

**Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

REPLY TO OFFICE ACTION

This paper is a reply (the "Reply") to the outstanding Office action mailed on the date shown above (the "Office Action"). The Office Action set a shortened statutory period of three months for reply. The Reply is being filed within the set period and therefore is timely.

Authorization is granted to charge to Deposit Account Number 50-3196 additional claim fees (if any) applicable to small entities, any deficiency in the small entity statutory disclaimer fee, and all other small entity fees necessary to file this Reply and papers (if any) described as being filed together with the Reply.

Remarks begin on page 2 of this paper.

REMARKSClaim Status

Claims 1-27 are pending in the application. This paper does not amend, add, or cancel claims. Claims 1 and 10 are the independent claims of the application.

Summary of the Office Action

In the Office Action, the Examiner provisionally rejected claims 1-27 on the ground of non-statutory obviousness-type double patenting, as being unpatentable over claims 1-60 of co-pending U.S. Patent Application Ser. No. 15/281,037 (the "reference application").

Applicant respectfully responds to the Office Action.

Double Patenting Rejections

A Terminal Disclaimer (eTD) has been filed. Applicant respectfully submits that the Terminal Disclaimer obviates the provisional double patenting rejections.

CONCLUSION

For the foregoing reasons, Applicant submits that all pending claims are allowable. To discuss any matter pertaining to the instant application, the Examiner is invited to call the undersigned attorney at (858) 720-9431.

Having made an effort to bring the application in condition for allowance, a notice to this effect is earnestly solicited.

Respectfully submitted,

Dated: February 13, 2017

/Anatoly S. Weiser/
Anatoly S. Weiser, Reg. No. 43,229
Customer No. 137,611
TechLaw LLP
3525 Del Mar Heights Road, #295
San Diego, CA 92130
(858) 720-9431

Electronic Acknowledgement Receipt

| | |
|---|--|
| EFS ID: | 28344919 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser. |
| Filer Authorized By: | |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 13-FEB-2017 |
| Filing Date: | 03-NOV-2016 |
| Time Stamp: | 23:15:51 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

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| Submitted with Payment | no |
|------------------------|----|

File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|---|----------------------|--|------------------|------------------|
| 1 | Amendment/Req. Reconsideration-After Non-Final Reject | Amendment1-Image.pdf | 277923 <small>7f96bea1029931b7fde7fef9381f571f2bb70fb</small> | no | 3 |

Warnings:

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|---|--------|
| Information: | |
| Total Files Size (in bytes): | 277923 |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> | |



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 4 columns: APPLICATION NUMBER (15/343,052), FILING OR 371(C) DATE (11/03/2016), FIRST NAMED APPLICANT (Isaac Levanon), ATTY. DOCKET NO./TITLE (AP026CON4)

CONFIRMATION NO. 8491

PUBLICATION NOTICE

137611
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901



Title:OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

Publication No.US-2017-0054830-A1
Publication Date:02/23/2017

NOTICE OF PUBLICATION OF APPLICATION

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

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

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

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

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

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

| | | |
|---|------------------------|-----------------|
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | Application Number | 15343052 |
| | Filing Date | 2016-11-03 |
| | First Named Inventor | Isaac Levanon |
| | Art Unit | 2455 |
| | Examiner Name | DAVID R. LAZARO |
| | Attorney Docket Number | AP026CON4 |

| U.S.PATENTS | | | | | | | Remove |
|-------------------|---------|---------------|------------------------|------------|---|--|--------|
| Examiner Initial* | Cite No | Patent Number | Kind Code ¹ | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | Application Number | 15343052 |
| | Filing Date | 2016-11-03 |
| | First Named Inventor | Isaac Levanon |
| | Art Unit | 2455 |
| | Examiner Name | DAVID R. LAZARO |
| | Attorney Docket Number | AP026CON4 |

| | |
|---|--|
| 1 | Declaration of Yonatan Lavi, Exhibit 1017 with exhibits (attachments) A-E filed in PTAB Case No. IPR2016-00448, all pages. |
|---|--|

If you wish to add additional non-patent literature document citation information please click the Add button

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 See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ 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 | 15343052 |
| Filing Date | 2016-11-03 |
| First Named Inventor | Isaac Levanon |
| Art Unit | 2455 |
| Examiner Name | DAVID R. LAZARO |
| Attorney Docket Number | AP026CON4 |

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.

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 | /Anatoly S. Weiser/ | Date (YYYY-MM-DD) | 2017-02-24 |
| Name/Print | Anatoly S. Weiser | Registration Number | 43229 |

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.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

| | |
|---|--|
| EFS ID: | 28461146 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser. |
| Filer Authorized By: | |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 24-FEB-2017 |
| Filing Date: | 03-NOV-2016 |
| Time Stamp: | 20:27:02 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

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|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|---------------------------|--|------------------|------------------|
| 1 | Transmittal Letter | IDS_Transmittal-Image.pdf | 424705 dcef6496fe5470b05f3abccefbdd7bde0da0bc9c | no | 3 |

Warnings:

| Information: | | | | | |
|---|--|--|--|----------|----|
| 2 | Information Disclosure Statement (IDS) Form (SB08) | IDS.pdf | 1034662 34c4e8b62ce9b3139ce3463f12a2cf2b305b8812 | no | 4 |
| Warnings: | | | | | |
| Information: | | | | | |
| A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems. | | | | | |
| 3 | Non Patent Literature | IPR2016-00448Exhibit1017Lavi Declaration-Image.pdf | 11313279 fc79195c2e89ab36818d59cd76b62db24b90b31a | no | 72 |
| Warnings: | | | | | |
| Information: | | | | | |
| | | | Total Files Size (in bytes): | 12772646 | |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> | | | | | |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Isaac Levanon *et al.*

Serial No.: **15/343,052**

Filed: **November 3, 2016**

For: **OPTIMIZED IMAGE DELIVERY
OVER LIMITED BANDWIDTH
COMMUNICATION CHANNELS**

Group Art Unit: **2455**

Examiner: **David R. Lazaro**

Attorney File No.: **AP026CON4**

Confirmation No.: **8491**

**Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Sir:

Transmitted herewith is IDS form (SB008) listing document considered relevant to the above-referenced Application. Applicant respectfully requests that the document be considered by the Examiner and an initialed copy of each page of the IDS be returned to the undersigned attorney.

The present disclosure statement should not be construed as a representation that a search has been made or that no other material information as defined in 37 C.F.R. § 1.56(a) exists.

If specific pages of the document are not indicated in the IDS forms filed together with this paper, we intend to indicate "all pages" for the document.

A copy of the document has been filed, is being filed together with this paper, or will be filed shortly.

The document may have markings thereon. No significance should be attached to the markings, if they in fact exist.

The document is not necessarily analogous art.

Applicant herein does not comment regarding the effective dates of the document, its status as art, or its authenticity (except as discussed below).

By way of explanation and further disclosure, the cited document is Exhibit 1017 filed in PTAB Case No. IPR2016-00448 (U.S. Pat. No. 7,908,343). The patent application that has issued as the U.S. Patent 7,908,343 (which is the subject of the IPR proceeding) is in the chain of priority of the present Application. Exhibit 1017 is Declaration of Yonatan Lavi, an inventor in the present Application. The Declaration has “exhibits” A-E attached to it. (To avoid confusion inherent in having “exhibits A-E to Exhibit 1017,” we refer below to these “exhibits” A-E as “attachments” A-E.) Mr. Lavi’s Declaration itself was not cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned attorney after making reasonable inquiry, Mr. Lavi’s Declaration was not known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the information disclosure statement (see 37 C.F.R. § 1.97(e)(2)). In fact, Mr. Lavi’s Declaration is dated January 31, 2017. The undersigned attorney hereby makes the statement under 37 C.F.R. § 1.97(e)(2) regarding Mr. Lavi’s Declaration proper, but not regarding attachments A-E to Mr. Lavi’s Declaration.

This paper and the IDS are filed before the mailing date of any of a final action under 37 C.F.R. § 1.113, a notice of allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution in the application, and is accompanied by the statement under 37 C.F.R. § 1.97(e)(2) made in the immediately preceding paragraph. The undersigned attorney believes that the IDS therefore should be considered. 37 C.F.R. § 1.97(c). If, however, the undersigned attorney is mistaken and the IDS fee under 37 C.F.R. § 1.17(p) is required, the undersigned attorney authorizes the fee as it applies to small entities to be charged to Deposit Account Number 50-3196.

Applicant and the undersigned attorney believe that this disclosure complies with the requirements of 37 C.F.R. §§ 1.56, 1.97, and 1.98, and the Manual of Patent Examining Procedure § 609. If the Examiner and/or other Office personnel consider(s) otherwise, we respectfully request that the undersigned attorney be informed promptly so that any deficiencies can be remedied.

To discuss any matter pertaining to the above-referenced Application, the Examiner and other Office personnel are invited to call the undersigned attorney at (858) 720-9431.

Respectfully submitted,

Dated: 2/24/2017

/Anatoly S. Weiser/
Anatoly S. Weiser
TechLaw LLP
3525 Del Mar Heights Road, #295
San Diego, CA 92130
(858) 720-9431
Reg. No. 43,229



NOTICE OF ALLOWANCE AND FEE(S) DUE

137611 7590 03/10/2017
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

Table with 2 columns: EXAMINER (LAZARO, DAVID R), ART UNIT (2455), PAPER NUMBER (8491)

DATE MAILED: 03/10/2017

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

15/343,052 11/03/2016 Isaac Levanon AP026CON4 8491
TITLE OF INVENTION: OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies. If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above. If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)". For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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.

137611 7590 03/10/2017
Bradium Technologies LLC
 75 Montebello Road
 Suffern, NY 10901

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 15/343,052 | 11/03/2016 | Isaac Levanon | AP026CON4 | 8491 |

TITLE OF INVENTION: OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | SMALL | \$480 | \$0 | \$0 | \$480 | 06/12/2017 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|-----------------|----------|----------------|
| LAZARO, DAVID R | 2455 | 709-217000 |

| | |
|---|---|
| <p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p> | <p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1</p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2</p> <p>_____ 3</p> |
|---|---|

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

| | |
|---|--|
| <p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p> | <p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p> |
|---|--|

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. _____



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/343,052 11/03/2016 Isaac Levanon AP026CON4 8491

137611 7590 03/10/2017
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

Table with 1 column: EXAMINER
LAZARO, DAVID R

Table with 2 columns: ART UNIT, PAPER NUMBER
2455

DATE MAILED: 03/10/2017

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 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| | | | |
|-------------------------------|--------------------------------------|---------------------------------------|--|
| Notice of Allowability | Application No. 15/343,052 | Applicant(s) LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | AIA (First Inventor to File) Status No |

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to the amendment filed 2/13/17.
 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 1-27. 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. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>2/24/17</u> | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 7. <input type="checkbox"/> Other _____. |
| 4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. | |

/DAVID LAZARO/
Primary Examiner, Art Unit 2455

Doc code: IDS
 Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
 Approved for use through 07/31/2016. OMB 0651-0031
 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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| | | |
|---|------------------------|-----------------|
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | Application Number | 15343052 |
| | Filing Date | 2016-11-03 |
| | First Named Inventor | Isaac Levanon |
| | Art Unit | 2455 |
| | Examiner Name | DAVID R. LAZARO |
| | Attorney Docket Number | AP026CON4 |

| U.S.PATENTS | | | | | | | Remove |
|-------------------|---------|---------------|------------------------|------------|---|--|--------|
| Examiner Initial* | Cite No | Patent Number | Kind Code ¹ | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | |
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

| | | |
|------------------------|-----------------|------------|
| Application Number | | 15343052 |
| Filing Date | | 2016-11-03 |
| First Named Inventor | Isaac Levanon | |
| Art Unit | | 2455 |
| Examiner Name | DAVID R. LAZARO | |
| Attorney Docket Number | AP026CON4 | |

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| 1 | Declaration of Yonatan Lavi, Exhibit 1017 with exhibits (attachments) A-E filed in PTAB Case No. IPR2016-00448, all pages. |
|---|--|

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

| | | | |
|--------------------|------------------|-----------------|------------|
| Examiner Signature | /DAVID R LAZARO/ | Date Considered | 03/06/2017 |
|--------------------|------------------|-----------------|------------|

*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 See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ 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 | | 15343052 | |
| Filing Date | | 2016-11-03 | |
| First Named Inventor | Isaac Levanon | | |
| Art Unit | 2455 | | |
| Examiner Name | DAVID R. LAZARO | | |
| Attorney Docket Number | AP026CON4 | | |

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.

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 | /Anatoly S. Weiser/ | Date (YYYY-MM-DD) | 2017-02-24 |
| Name/Print | Anatoly S. Weiser | Registration Number | 43229 |


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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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.
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| Issue Classification  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. | |
| | Examiner DAVID LAZARO | Art Unit 2455 | |

| CPC | | | | | | |
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| Symbol | | | | | Type | Version |
| H04L | | 67 | | 327 | F | 2013-01-01 |
| G06T | | 3 | | 4092 | I | 2013-01-01 |
| G06F | | 3 | | 14 | I | 2013-01-01 |
| G09G | | 5 | | 003 | I | 2013-01-01 |
| G09G | | 2370 | | 16 | A | 2013-01-01 |
| G09G | | 2370 | | 02 | A | 2013-01-01 |
| G06T | | 11 | | 60 | A | 2013-01-01 |
| G06T | | 2207 | | 10032 | A | 2013-01-01 |
| G06T | | 15 | | 04 | A | 2013-01-01 |
| G06F | | 17 | | 241 | A | 2013-01-01 |
| G06T | | 19 | | 003 | A | 2013-01-01 |
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| NONE | | Total Claims Allowed: | |
| (Assistant Examiner) | (Date) | 27 | |
| /DAVID LAZARO/ Primary Examiner.Art Unit 2455 | 03/06/2017 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 3 |

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| Issue Classification  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

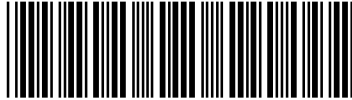
| US ORIGINAL CLASSIFICATION | | | | | | INTERNATIONAL CLASSIFICATION | | | | | | | | |
|----------------------------|-----------------------------------|----------|--|--|--|------------------------------|---|---|---|----------------------|--|--|--|--|
| CLASS | | SUBCLASS | | | | CLAIMED | | | | NON-CLAIMED | | | | |
| 709 | | 217 | | | | G | 0 | 6 | F | 15 / 16 (2006.01.01) | | | | |
| CROSS REFERENCE(S) | | | | | | | | | | | | | | |
| CLASS | SUBCLASS (ONE SUBCLASS PER BLOCK) | | | | | | | | | | | | | |
| 709 | 203 | | | | | | | | | | | | | |
| 345 | 625 | | | | | | | | | | | | | |
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| NONE | | Total Claims Allowed: | |
| | | 27 | |
| (Assistant Examiner) | (Date) | O.G. Print Claim(s) | O.G. Print Figure |
| /DAVID LAZARO/ Primary Examiner.Art Unit 2455 | 03/06/2017 | 1 | 3 |
| (Primary Examiner) | (Date) | | |

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| Issue Classification  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

| <input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant | | | | | | | | | | | | | | | | <input type="checkbox"/> CPA | | <input checked="" type="checkbox"/> T.D. | | <input type="checkbox"/> R.1.47 | |
|--|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------------------------------------|--|---|--|--|--|
| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | | | | | | |
| | 1 | | 17 | | | | | | | | | | | | | | | | | | |
| | 2 | | 18 | | | | | | | | | | | | | | | | | | |
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| | | | |
|--|------------|------------------------------|-------------------|
| NONE | | Total Claims Allowed: | |
| | | 27 | |
| (Assistant Examiner) | (Date) | O.G. Print Claim(s) | O.G. Print Figure |
| /DAVID LAZARO/ Primary Examiner.Art Unit 2455 | 03/06/2017 | 1 | 3 |
| (Primary Examiner) | (Date) | | |

| | | |
|---|--|--|
| Index of Claims  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

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|---|-----------------|
| ✓ | Rejected |
| = | Allowed |


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|---|-------------------|
| - | Cancelled |
| ÷ | Restricted |

| | |
|---|---------------------|
| N | Non-Elected |
| I | Interference |

| | |
|---|-----------------|
| A | Appeal |
| O | Objected |

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

| CLAIM | | DATE | | | | | | | |
|-------|----------|------------|------------|--|--|--|--|--|--|
| Final | Original | 02/06/2017 | 03/06/2017 | | | | | | |
| | 1 | ✓ | = | | | | | | |
| | 2 | ✓ | = | | | | | | |
| | 3 | ✓ | = | | | | | | |
| | 4 | ✓ | = | | | | | | |
| | 5 | ✓ | = | | | | | | |
| | 6 | ✓ | = | | | | | | |
| | 7 | ✓ | = | | | | | | |
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| | 9 | ✓ | = | | | | | | |
| | 10 | ✓ | = | | | | | | |
| | 11 | ✓ | = | | | | | | |
| | 12 | ✓ | = | | | | | | |
| | 13 | ✓ | = | | | | | | |
| | 14 | ✓ | = | | | | | | |
| | 15 | ✓ | = | | | | | | |
| | 16 | ✓ | = | | | | | | |
| | 17 | ✓ | = | | | | | | |
| | 18 | ✓ | = | | | | | | |
| | 19 | ✓ | = | | | | | | |
| | 20 | ✓ | = | | | | | | |
| | 21 | ✓ | = | | | | | | |
| | 22 | ✓ | = | | | | | | |
| | 23 | ✓ | = | | | | | | |
| | 24 | ✓ | = | | | | | | |
| | 25 | ✓ | = | | | | | | |
| | 26 | ✓ | = | | | | | | |
| | 27 | ✓ | = | | | | | | |

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|--|--|--|
| Search Notes  | Application/Control No. 15343052 | Applicant(s)/Patent Under Reexamination LEVANON ET AL. |
| | Examiner DAVID LAZARO | Art Unit 2455 |

| CPC- SEARCHED | | |
|--|----------|----------|
| Symbol | Date | Examiner |
| H04N1/40068 H04N1/4172 H04N1/64 H04N21/234345 H04N21/234363 H04N21/25825 G06F17/30241 G06F3/04815 G06T3/4092 OG06T19/00 G06T19/003 | 2/6/2017 | DRL |

| CPC COMBINATION SETS - SEARCHED | | |
|---------------------------------|------|----------|
| Symbol | Date | Examiner |
| | | |

| US CLASSIFICATION SEARCHED | | | |
|----------------------------|-------------------------|----------|----------|
| Class | Subclass | Date | Examiner |
| 709 | 202,203,217,218,230,231 | 3/6/2017 | DRL |
| 382 | 305, 232 | 3/6/2017 | DRL |
| 345 | 428, 581, 625 | 3/6/2017 | DRL |

| SEARCH NOTES | | |
|---|----------|----------|
| Search Notes | Date | Examiner |
| EAST: USPAT, USPGPUB - subject matter and inventor search | 2/6/2017 | DRL |
| EAST UPDATE | 3/6/2017 | DRL |

| INTERFERENCE SEARCH | | | |
|-------------------------|-------------------------|----------|----------|
| US Class/ CPC Symbol | US Subclass / CPC Group | Date | Examiner |
| 709 | 202,203,217,218,230,231 | 3/6/2017 | DRL |
| 382 | 305, 232 | 3/6/2017 | DRL |
| 345 | 428, 581, 625 | 3/6/2017 | DRL |

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| | |
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PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

137611 7590 03/10/2017
Bradium Technologies LLC
 75 Montebello Road
 Suffern, NY 10901

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

| | | | | |
|-----------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 15/343,052 | 11/03/2016 | Isaac Levanon | AP026CON4 | 8491 |

TITLE OF INVENTION: OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS

| | | | | | | |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
| nonprovisional | SMALL | \$480 | \$0 | \$0 | \$480 | 06/12/2017 |

| | | |
|-----------------|----------|----------------|
| EXAMINER | ART UNIT | CLASS-SUBCLASS |
| LAZARO, DAVID R | 2455 | 709-217000 |

| | |
|---|---|
| <p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p> | <p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,</p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.</p> <p>1 <u>ANATOLY S. WEISER, ESQ.</u></p> <p>2 <u>TECHLAW LLP.</u></p> <p>3 <u>---</u></p> |
|---|---|

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE BRADIUM TECHNOLOGIES LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY) SUFFERN, NY

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

| | |
|--|---|
| <p>4a. The following fee(s) are submitted:</p> <p><input checked="" type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p> | <p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input checked="" type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input checked="" type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number <u>50-3196</u> (enclose an extra copy of this form).</p> |
|--|---|

50-3196

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 /Anatoly S. Weiser/ Date March 10, 2017

Typed or printed name Anatoly S. Weiser Registration No. 43,229

Electronic Patent Application Fee Transmittal

| | | | | |
|--|--|-----------------|---------------|-----------------------------|
| Application Number: | 15343052 | | | |
| Filing Date: | 03-Nov-2016 | | | |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | | |
| First Named Inventor/Applicant Name: | Isaac Levanon | | | |
| Filer: | Anatoly Weiser. | | | |
| Attorney Docket Number: | AP026CON4 | | | |
| 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 | 480 | 480 |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|---------------------------|----------|----------|--------|----------------------|
| Extension-of-Time: | | | | |
| Miscellaneous: | | | | |
| Total in USD (\$) | | | | 480 |

Electronic Acknowledgement Receipt

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|---|--|
| EFS ID: | 28601872 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser. |
| Filer Authorized By: | |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 10-MAR-2017 |
| Filing Date: | 03-NOV-2016 |
| Time Stamp: | 19:11:36 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

| | |
|--|-----------------------|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | \$480 |
| RAM confirmation Number | 031317INTEFSW19134000 |
| Deposit Account | |
| Authorized User | |

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

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File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|-----------------------------|---------------------------|--|------------------|------------------|
| 1 | Issue Fee Payment (PTO-85B) | IssueFeePayment-PartB.pdf | 112035 | no | 1 |
| | | | d6ba543b93ee7446c8bb6e412363584b30a6da8c | | |

Warnings:

Information:

| | | | | | |
|---|----------------------|--------------|--|----|---|
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 30427 | no | 2 |
| | | | 9d727f31e0dec64f4824e9e8934db95910aa6c64 | | |

Warnings:

Information:

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|-------------------------------------|--------|
| Total Files Size (in bytes): | 142462 |
|-------------------------------------|--------|

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.



| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|------------|---------------------|------------------|
| 15/343,052 | 04/25/2017 | 9635136 | AP026CON4 | 8491 |

137611 7590 04/05/2017
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

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):

Bradium Technologies LLC, Suffern, NY;
Isaac Levanon, Raanana, ISRAEL;
Yonatan Lavi, Raanana, ISRAEL;

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.

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 9,635,136
 APPLICATION NO.: 15/343,052
 ISSUE DATE : April 25, 2017
 INVENTOR(S) : Isaac Levanon, Yonatan Lavi

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column 13, line 3, cancel "a wireless" and replace the cancelled text with --a first wireless--;

Column 13, line 54, cancel "parcel store" and replace the cancelled text with --parcel storage--;

Column 14, line 14, cancel "the wireless" and replace the cancelled text with --the first wireless--;

Column 15, line 20, cancel "parcel store" and replace the cancelled text with --parcel storage--;

Column 16, line 41, cancel "parcel store" and replace the cancelled text with --parcel storage--.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Anatoly S. Weiser
 3525 Del Mar Heights Rd., #295
 San Diego, CA 92130

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: **Attention Certificate of Corrections Branch, 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.

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.
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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public 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.

Electronic Patent Application Fee Transmittal

| | | | | |
|--|--|-----------------|---------------|-----------------------------|
| Application Number: | 15343052 | | | |
| Filing Date: | 03-Nov-2016 | | | |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS | | | |
| First Named Inventor/Applicant Name: | Isaac Levanon | | | |
| Filer: | Anatoly Weiser. | | | |
| Attorney Docket Number: | AP026CON4 | | | |
| 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: | | | | |
| CERTIFICATE OF CORRECTION | 2811 | 1 | 100 | 100 |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|---------------------------|----------|----------|--------|----------------------|
| Extension-of-Time: | | | | |
| Miscellaneous: | | | | |
| Total in USD (\$) | | | | 100 |

Electronic Acknowledgement Receipt

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|---|--|
| EFS ID: | 29348472 |
| Application Number: | 15343052 |
| International Application Number: | |
| Confirmation Number: | 8491 |
| Title of Invention: | OPTIMIZED IMAGE DELIVERY OVER LIMITED BANDWIDTH COMMUNICATION CHANNELS |
| First Named Inventor/Applicant Name: | Isaac Levanon |
| Customer Number: | 137611 |
| Filer: | Anatoly Weiser. |
| Filer Authorized By: | |
| Attorney Docket Number: | AP026CON4 |
| Receipt Date: | 30-MAY-2017 |
| Filing Date: | 03-NOV-2016 |
| Time Stamp: | 22:29:57 |
| Application Type: | Utility under 35 USC 111(a) |

Payment information:

| | |
|--|-----------------------------|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | \$100 |
| RAM confirmation Number | 053117INTEFSW00008017503196 |
| Deposit Account | |
| Authorized User | |

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

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File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|-------------------------|--|------------------|------------------|
| 1 | Transmittal Letter | RequestForCoC-Image.pdf | 152396 | no | 2 |
| | | | 0d8134553bd34ef6f21b2b387818a2697e4a1d73 | | |

Warnings:

Information:

| | | | | | |
|---|---------------------------------------|--|---|----|---|
| 2 | Request for Certificate of Correction | CertificateOfCorrectionAsRequested.pdf | 164473 | no | 2 |
| | | | d09ab13321cffbf38086945d8c5a89aefcfe4df | | |

Warnings:

Information:

| | | | | | |
|---|----------------------|--------------|--|----|---|
| 3 | Fee Worksheet (SB06) | fee-info.pdf | 30220 | no | 2 |
| | | | 84d84bacd82aee6d571933c270e80d12afbd68db | | |

Warnings:

Information:

| | |
|-------------------------------------|--------|
| Total Files Size (in bytes): | 347089 |
|-------------------------------------|--------|

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | |
|--------------------------------------|---|----------------------------------|
| In re Application of: |) | |
| |) | Group Art Unit: 2455 |
| Levanon et al. |) | |
| |) | Examiner: David R. Lazaro |
| |) | |
| Appl. Ser. No.: 15/343,052 |) | Attorney File No.: AP026CON4 |
| |) | |
| Appl. Filed: November 3, 2016 |) | Office Action Mailed On: N/A |
| |) | |
| Pat. No.: 9,635,136 |) | Confirmation No.: 8491 |
| |) | |
| Pat. Issued: April 25, 2017 |) | |
| |) | |
| For: OPTIMIZED IMAGE DELIVERY |) | |
| OVER LIMITED BANDWIDTH |) | |
| COMMUNICATION CHANNELS |) | |
| |) | |

.....

Commissioner for Patents
Office of Patent Publications
ATTN: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION

Dear Commissioner:

Patentee herein requests issuance of a Certificate of Correction in the above-referenced patent.

Form PTO/SB/44, a proposed Certificate of Correction, is filed herewith. The proposed Certificate corrects several minor clerical errors in the claims.

Please charge any deficiency in the fee for the Certificate of Correction, as such deficiency applies to a small entity, to Deposit Account No. 50-3196.

Respectfully submitted,

Dated: May 30, 2017

/Anatoly S. Weiser/
Anatoly S. Weiser, Reg. No. 43,229
TechLaw LLP
3525 Del Mar Heights Road, #295
San Diego, CA 92130



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/343.052, 11/03/2016, Isaac Levanon, AP026CON4, 8491

137611 7590 06/19/2017
Bradium Technologies LLC
75 Montebello Road
Suffern, NY 10901

EXAMINER

LAZARO, DAVID R

ART UNIT PAPER NUMBER

2455

MAIL DATE DELIVERY MODE

06/19/2017

PAPER

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

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

Patent No. 9635136
Issued Date: 25 April, 2017
Appl. No: 15/343,052
Filed.: 03 November 2016

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 30 May 2017.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)

Approved Approved in Part Denied

Comments:

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

This is a decision on the petition filed _____ to correct inventorship under 37 CFR 1.324.

This is a decision on the request under 37 CFR 1.48, petition filed _____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: Granted Dismissed

Comment:

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/EMMANUEL L. MOISE/
Supervisory Patent Examiner, Art Unit 2455
Technology Center 2400
Phone: (571)272-3865

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 9,635,136 B2
APPLICATION NO. : 15/343052
DATED : April 25, 2017
INVENTOR(S) : Isaac Levanon et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column 13, Line 3, cancel “a wireless” and replace the cancelled text with --a first wireless--;

Column 13, Line 54, cancel “parcel store” and replace the cancelled text with --parcel storage--;

Column 14, Line 14, cancel “the wireless” and replace the cancelled text with --the first wireless--;

Column 15, Line 20, cancel “parcel store” and replace the cancelled text with --parcel storage--;

Column 16, Line 41, cancel “parcel store” and replace the cancelled text with --parcel storage--.

Signed and Sealed this
Eleventh Day of July, 2017



Joseph Matal
*Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office*