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U.S. Patent 8,035,644

U.S. Patent 8,035,644 ("*Douglas G Richardson*" or the "patent-at-issue") was filed on June 16, 2008 and claims an earliest priority date of April 12, 2005. Claim 1 of the patent-at-issue discloses a method for providing animation in an electronic message. The method includes capturing a first image and a subsequent series of images in sequence using a defined set of photographic parameters. Portions of the sequential images that differ from the first image are identified and cut out based on a sensitivity level corresponding to pixel blocks of the images. The cut images are then superimposed onto the first image as layers onto the first image as layers such that each cut image is displayed in the first image in a position corresponding to the position of the cut image in the corresponding sequential image and displayed in a time sequence corresponding to the timing between corresponding sequential images and the first image. The resulting first image and layers are saved as a single, web-enabled graphic file. This invention provides an efficient method for wired/wireless transmission of dynamic images.

The primary reference, U.S. Patent 6,278,466 ("*Cisco*"), was filed on June 11, 1998 and claims priority on the same date. The patent is directed to a computer-implemented method of creating an animation through overlaying of images. Animations use keyframes and interpolation to create video effects which require less bandwidth to transmit versus a video file. The method disclosed in the *Cisco* reference includes inspection of a sequence of video images which can be associated to keyframes. Each image is compared, and transformation information is gathered. This information is related to the interpolation of images and is used to produce a video effect that approximates display of the sequence of video images.

The secondary reference, "Representing Moving Images with Layers" ("*Wang*"), was published in September 1994. The *Wang* reference describes the representation moving images with sets of overlapping layers. The method used for decomposing image sequences into layers include these two stages: robust motion segmentation and synthesis of the layered representation. Robust motion segmentation involves the use of motion estimation techniques which identifies a set of nonoverlapping regions. The segmented regions are tracked and processed to create individual layers.

Patent Owner is now on notice that claims of this patent are invalid; as a result, any new or continued assertion of this patent may be considered meritless or brought in bad faith. *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 554 (2014). Such considerations are relevant to whether a case is deemed "exceptional" for purposes of awarding attorneys' fees. 35 U.S.C. § 285; *see, e.g.*, *WPEM, LLC v. SOTI Inc.*, 2020 WL 555545, at *7 (E.D. Tex. Feb. 4, 2020), *aff'd*, 837 F. App'x 773 (Fed. Cir. 2020) (awarding fees for an exceptional case where plaintiff "failed to conduct an invalidity and enforceability pre-filing investigation"); *Energy Heating, LLC v. Heat On-The-Fly, LLC*, 15 F.4th 1378, 1383 (Fed. Cir. 2021) (affirming award of fees where, *inter alia*, the plaintiff knew "that its patent was invalid").

A sample claim chart comparing claim 1 of *Douglas G Richardson* to *Cisco* and *Wang* is provided below.

US8035644 ("*Douglas G Richardson*")	**A. US6278466** (*"Cisco"*) **B. "Representing Moving Images with Layers"** (*"Wang"*)
1.pre. A **method for providing animation in an electronic message**, comprising:	**A. US6278466** "A **method and apparatus for creating an animation** are disclosed." *Cisco* at col. 1:65-66. "FIG. 1 illustrates **creation of an animation 14 and delivery of the animation 14 to a playback system** 18 . . . For example, a **web browsing application program may be executed on** any number of different types of computers to realize **an animation playback system** (e.g., Apple Macintosh computers, IBM compatible personal computers, workstations, and so forth)." *Cisco* at col. 4:53-5:8. **B. "Representing Moving Images with Layers"** "We describe a system for representing **moving images with sets of overlapping layers**. Each layer contains an intensity map that defines the additive values of each pixel, along with an alpha map that serves as a mask indicating the transparency." *Wang* at Abstract.
1.a. **capturing a first image of a scene from a particular location using a defined set of photographic parameters**;	**A. US6278466** "1. A computer-implemented method of creating an animation, the method comprising: inspecting a sequence of video images to identify a first transformation of a scene depicted in the sequence of video images; **obtaining a first image** and a second image **from the sequence of video images, the first image representing the scene** before the first transformation and the second image representing the scene after the first transformation; . . . ." *Cisco* at claim 1. "Herein, the term "video" refers to a **sequence of images that have been captured by a camera at a predetermined rate or generated by an image generator for playback at a predetermined rate**." *Cisco* at col. 3:49-52. **B. "Representing Moving Images with Layers"** "Let us begin by considering the **first layer: the background**. Sometimes the background is stationary but often it is undergoing a smooth motion due, for example, to a camera pan." *Wang* at p. 627.

(cont.) 1.a. **capturing a first image of a scene from a particular location using a defined set of photographic parameters**;	"However, with layers it is preferable to represent the **background** as it really is: an extended image that is larger than the viewing frame. Having built up this extended background, one can simply move the viewing frame over it, thereby requiring a minimal amount of data." *Wang* at p. 627.
1.b. **capturing a plurality of images in a sequential order from the particular location using the defined set of photographic parameters**;	**A. US6278466** "7. The method of claim 2 wherein the difference between the selected one of the video images and the subsequent one of the video images includes a difference caused by a change in disposition of **a camera used to record the sequence of video images**." *Cisco* at claim 7. "2. The method of claim 1 wherein inspecting a **sequence of video images** to identify a first transformation **of a scene** comprises determining when a difference between a selected one of the video images and a subsequent one of the video images exceeds a threshold, the selected one of the video images and the subsequent one of the video images indicating a starting image and an ending image, respectively, of a segment of the video images." *Cisco* at claim 2. "Herein, the term "video" refers to a **sequence of images that have been captured by a camera at a predetermined rate or generated by an image generator for playback at a predetermined rate**." *Cisco* at col. 3:49-52. **B. "Representing Moving Images with Layers"** "The same process can be used for any region whose motion has been identified. Thus we may **build up separate images** for several regions. These **become the layers** that we will composite in resynthesizing the scene. Fig. 12 shows **the other layers** that we extract: one for the house region; one for the tree. We will now describe how we use motion analysis to perform the layered decomposition." *Wang* at p. 627-628. "Fig. 1 illustrates the concept. Fig. l(a) shows an image sequence of a waving hand moving against a moving background, shown in Fig. l(b). Suppose that both the hand and the background execute simple motions as shown. The resultant **image sequence** is shown in Fig. I(c) In the representation that we use, following Adelson [11] each layer contains three different maps: (1) the **intensity** map,

(cont.) 1.b. **capturing a plurality of images in a sequential order from the particular location using the defined set of photographic parameters**;	(often called a "texture map" in computer graphics); (2) the alpha map, which defines the **opacity or transparency** of the layer at each point; and (3) the **velocity** map, which describes how the map should be warped over time. In addition, the layers are assumed to be ordered in depth." *Wang* at p. 625
1.c. **defining a sensitivity level corresponding to pixel blocks of the plurality of images**;	**A. US6278466** "When applied to an entire video source 10, the effect of the scene change estimator 41 is to segment the sequence of frames in the video source 10 into one or more subsequences of video frames (i.e., video segments), each of which exhibits a scene transformation that is less than a **predetermined threshold**." *Cisco* at col. 6:52-57. "Thus, the **predetermined threshold** applied by the scene change estimator 41 **defines the incremental transformation of a scene** which results in construction of a new background frame." *Cisco* at col. 6:62-65. "The **object track generator 27 identifies dynamic objects in the scene based on differences between the background track 33 and the video source 10, and records object frames (OF) containing the dynamic objects along with object motion (OM) and object blending (OB) information** in an object track 35." *Cisco* at col. 10:29-34. **B. "Representing Moving Images with Layers"** "In our algorithm, motion smoothness is imposed only within the layer and by having multiple layers we can describe the discontinuities in motion. In addition, we **impose constraints on coherent region size and local connectivity by applying simple thresholds** to reject outliers at different stages in the algorithm, thus providing stability and robustness." *Wang* at p. 630. "These **constraints are applied to the** segmentation before the **models** are reestimated. Because the **affine motion classification is performed at every point in the image with models** that span globally, a model may coincidentally support points in regions undergoing a different coherent motion or it may support points that have inaccurate motion estimates." *Wang* at p. 632.

1.d. **identifying portions of the sequential images that differ from the first image to a degree corresponding to the sensitivity level**;	**A. US6278466** "2. The method of claim 1 wherein **inspecting a sequence of video images to identify a first transformation of a scene comprises determining when a difference between a selected one of the video images and a subsequent one of the video images exceeds a threshold**, the selected one of the video images and the subsequent one of the video images indicating a starting image and an ending image, respectively, of a segment of the video images." *Cisco* at claim 2. "FIG. 6 is a block diagram of an object track generator 27 according to one embodiment. The object track generator 27 receives a background track 33 generated by the background track generator (e.g., element 25 of FIG. 2) and the video source 10 as inputs. The object track generator 27 **identifies dynamic objects in the scene based on differences between the background track 33 and the video source 10, and records object frames (OF) containing the dynamic objects along with object motion (OM) and object blending (OB) information** in an object track 35." *Cisco* at col. 10:25-34. **B. "Representing Moving Images with Layers"** "To avoid the problems resulting from estimating a single global motion, we use a gradual migration from a local representation to a global representation. We begin with a conventional optic flow representation of motion. Because optic flow estimation is carried out over a local neighborhood, we can minimize the problems of mixing multiple motions within a given analysis region. From optic flow, we determine a set of affine motions that are likely to be observed. Segmentation is obtained by **classifying regions to the motion model** that provides the best description of the motion within the region." *Wang* at p. 630. "These **constraints are applied to the** segmentation before the **models** are reestimated." *Wang* at p. 632. "In our algorithm, motion smoothness is imposed only within the layer and by having multiple layers we can describe the discontinuities in motion. In addition, we **impose constraints on coherent region size and local connectivity by applying simple thresholds** to reject outliers at different stages in the algorithm, thus providing stability and robustness." *Wang* at p. 630.

1.e. **cutting the identified portions of the sequential images to produce cut images**;	**A. US6278466** "After a **dynamic object has been identified and framed in an object frame** 56 by the object frame constructor, the motion of the dynamic object is determined by tracking positional changes in the object frame 56 through the frame progression in video segment 54." *Cisco* at col. 11:32-36. "At block 107, the object frame constructor selects a **region within video frame** VFj that corresponds to the concentrated region of differences 92 in filtered difference frame 93 **to be an object frame** 56." *Cisco* at col. 11:14-17. **B. "Representing Moving Images with Layers"** "Thus, our **analysis of an image sequence into layers consists of** two stages: **1) robust motion segmentation** and 2) synthesis of the layered representation." *Wang* at p. 628. "To avoid the problems resulting from estimating a single global motion, we use a gradual migration from a local representation to a global representation. We begin with a conventional optic flow representation of motion. Because optic flow estimation is carried out over a local neighborhood, we can minimize the problems of mixing multiple motions within a given analysis region. From optic flow, we **determine a set of affine motions that are likely to be observed. Segmentation is obtained by classifying regions to the motion model that provides the best description of the motion within the region**." *Wang* at p. 630. "Given the optic flow field, the task of segmentation is to **identify the coherent motion regions**. When a set of motion models is known, classification based on motion can directly follow to identify the corresponding regions." *Wang* at p. 630. "Referring to Fig. 10, the **region generator initially divides the image into several arbitrary regions**. Within each region, the model estimator calculates the model parameters producing one motion hypothesis for each region." *Wang* at p. 630.

1.f. **superimposing, the cut images onto the first image as layers such that each cut image is displayed in the first image in a position corresponding to the position of the cut image in the corresponding sequential image** and **displayed in a time sequence corresponding to the timing between corresponding sequential images and the first image**; and	**A. US6278466** "The resulting **interpolated object frame is then overlaid on the interpolated background frame** 151A to produce an interpolated frame 151B that includes an interpolated background and an interpolated dynamic object." *Cisco* at 16:49-52. "For example, **object frame data structure 127 includes** a pointer to the next object frame in the object track (NEXT PTR), a pointer the previous object frame in the object track (PREV PTR), an image pointer (IMAGE PTR), an interpolation pointer (INTERP PTR) and **a timestamp (TIMESTAMP)**, each of which performs a function similar to the functions of the same members within the background track data structure 123." *Cisco* at 13:60-67. "24. The animation authoring system of claim 22 wherein **playback timing information is stored in the animation object to indicate relative playback times for the object track and the background track**." *Cisco* at claim 24. **B. "Representing Moving Images with Layers"** "We do perform such a segmentation initially, but our ultimate goal is a layered representation whereby the **segmented regions are tracked and processed over many frames to form layers of surface intensity that have overlapping regions** ordered in depth. Thus, our analysis of an image sequence into layers consists of two stages: 1) robust motion segmentation and 2) **synthesis of the layered representation**." *Wang* at p. 628. "The layered decomposition can be used for image compression. In the case of the Flower Garden sequence, we are able to **synthesize a full 30 frame sequence starting with only a single still image of each of the layers**. The layers can be compressed using conventional still image compression schemes." *Wang* at p. 635-636. "**Velocity maps define how the layers are to be warped over time**." *Wang* at Abstract. "For dealing with image sequences, we allow a **velocity map to operate on the layers over time**. It is as if the cel animator were allowed to apply simple distortions to his cels." *Wang* at p. 626.

1.g. **saving the first image and the layers as a single, web-enabled graphic file**.	**A. US6278466** "Another use of the server system 16 is to provide the **animation 14 to the playback system 18 in one of a variety of different animation formats**. The particular format used may be determined based on transmission network bandwidth and playback system capabilities. For example, a given playback system 18 may require the **animation 14 to be described in a particular format or language that the playback system 18 can understand (e.g., Java, dynamic hypertext markup language (D-HTML), virtual reality modeling language (VRML), Macromedia Flash format and so forth)**." *Cisco* at 5:36-46. **B. "Representing Moving Images with Layers"** "The layered representation can be used for image coding. One can represent a 30-frame sequence of the **MPEG** Flower Garden sequence using four layers, along with affine motion parameters for each layer; each layer is represented by a single still image. The **layers can be coded using traditional still frame coding techniques**." *Wang* at p. 637.