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*Unified Patents, LLC*

*v.*

*DigiMedia Tech, LLC*

U.S. Patent No. 6,573,532

**Patent Owner's Demonstratives**

**October 19, 2023**

# Claim Construction – “details”

<b>DigiMedia’s Construction</b>	<b>Unified’s Construction</b>
elements of an image composed of pixels that have high frequency content	a pixel or a group of pixels that is detectable or distinguishable by the human visual system.

# “Details”

As discussed hereinabove, details which the human eye distinguishes are ones of high contrast and ones whose details have small dimensions. Areas of high contrast are areas with a lot of high frequency content. Thus, spatial-temporal analyzer 50 generates a plurality of filtered frames from the current frame, each filtered through a different high pass filter (HPF), where each high pass filter retains a different range of frequencies therein.

The present invention is a method for describing, and then encoding, images based on which details in the image can be distinguished by the human eye and which ones, can only be detected by it.

The present invention is a method and system for syntactic encoding of video frames before they are sent to a standard video compression unit. The present invention separates the details of a frame into two different types, those that can only be detected (for which only one bit will suffice to describe each of their pixels) and those which can be distinguished (for which at least three bits are needed to describe the intensity of each of their pixels).

# “Details”

For the example provided above, if the pixel is not present in any of the filtered frames, the pixel must belong to an object of large size or the detail is only detected but not distinguished. If the pixel is only found in the filtered frame

for that pixel. Pixels whose contrast is lower than the threshold (i.e. details which were detected only) are trans-

# Claim Construction – “spatially and temporally separating ... details of said frames”

<b>DigiMedia’s Construction</b>	<b>Unified’s Construction</b>
set apart, isolate, or divide into parts the spatial details from the frame and to set apart, isolate, or divide into parts the temporal details from the frame relative to an earlier frame	analysis to describe spatial and temporal characteristics of pixels on a per pixel basis

# '532 Patent – FIG. 3

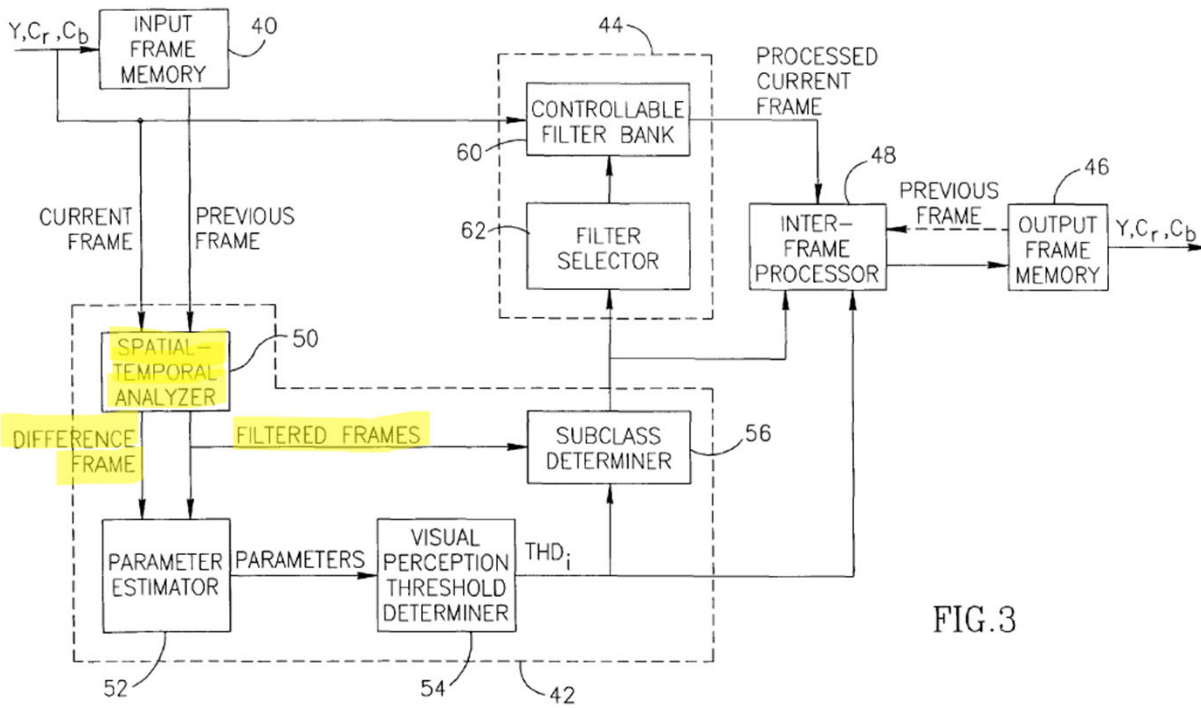


FIG.3

# “spatially and temporally separating ... details of said frames”

pixels cannot be distinguished from each other. Intra-frame processor 44 spatially filters each pixel of the frame according to its subclass and, optionally, also provides each pixel of the frame with the appropriate number of bits. Inter-frame processor 48 provides temporal filtering (i.e. inter-frame filtering) and updates output frame memory 46 with the elements of the current frame which are different than those of the previous frame.

details have small dimensions. Areas of high contrast are areas with a lot of high frequency content. Thus, spatial-temporal analyzer 50 generates a plurality of filtered frames from the current frame, each filtered through a different high pass filter (HPF), where each high pass filter retains a different range of frequencies therein.

Intra-frame processor 44 performs spatial filtering of the frame, where the type of filter utilized varies in accordance with the subclass to which the pixel belongs.

# “spatially and temporally separating ... details of said frames”

pixels cannot be distinguished from each other. Intra-frame processor **44** spatially filters each pixel of the frame according to its subclass and, optionally, also provides each pixel of the frame with the appropriate number of bits. Inter-frame processor **48** provides temporal filtering (i.e. inter-frame filtering) and updates output frame memory **46** with the elements of the current frame which are different than those of the previous frame.

Returning to FIG. 3, analyzer **50** also generates difference frames between the current frame and another, earlier frame.

illustrate three alternative embodiments for inter-frame processor **48** which provides temporal filtering (i.e. inter-frame filtering) to further process the current frame. Since the



# Claim Construction – “subclass”

<b>DigiMedia’s Construction</b>	<b>Unified’s Construction</b>
an area with pixels related to the same detail and which cannot be distinguished from each other	characteristic of a macroblock as containing small, random details or large, connected details

# '532 Patent – FIG. 3

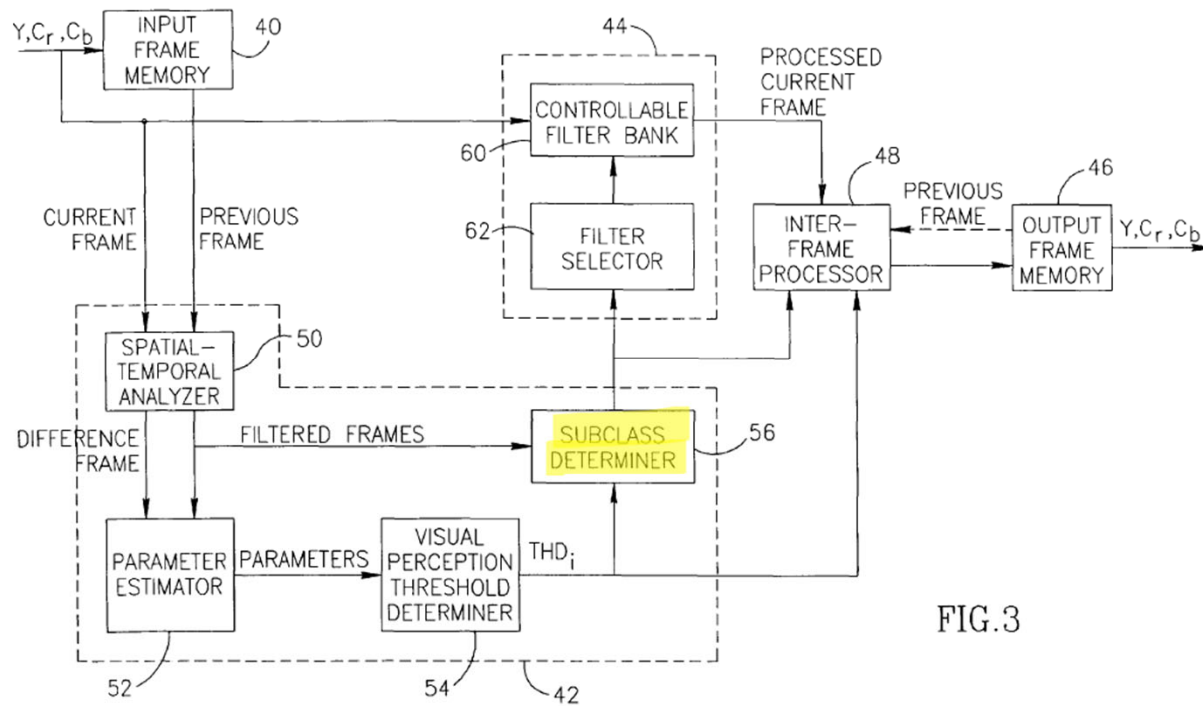


FIG.3

# “subclass”

associate the pixels of the video frame into subclasses. Each subclass includes pixels related to the same detail and which generally cannot be distinguished from each other. The

it into subclasses, where subclasses define areas whose pixels cannot be distinguished from each other. Intra-frame

Subclass determiner **56** compares each pixel  $i$  of each high pass filtered frame HPF- $X$  to its associated threshold  $THD_i$  to determine whether or not that pixel is significantly present in each filtered frame, where “significantly present” is defined by the threshold level and by the “detail dimension” (i.e. the size of the object or detail in the image of which the pixel forms a part). Subclass determiner **56** then defines the subclass to which the pixel belongs.

# Prior Art – Chui and Gu

Neither *Chiu* nor *Gu* provide any teaching of setting apart, isolating, or dividing into parts the spatial elements of an image composed of pixels that have high frequency content of frames and setting apart, isolating, or dividing into parts the temporal elements of an image composed of pixels that have high frequency content of frames relative to an earlier frame. Additionally, neither Petitioner nor its expert have asserted that *Chiu* nor *Gu* provide any such disclosure.

surviving pixels). Neither *Chiu* nor *Gu* disclose or teach classifying the calculations of  $mg(x,y)$ ,  $bg(x,y)$ , and  $ild(x,y,n)$  “into *subclasses* in accordance with said visual perception thresholds,” as claimed. Nor do Petitioner nor Dr. Karam assert that this is taught by the prior art.