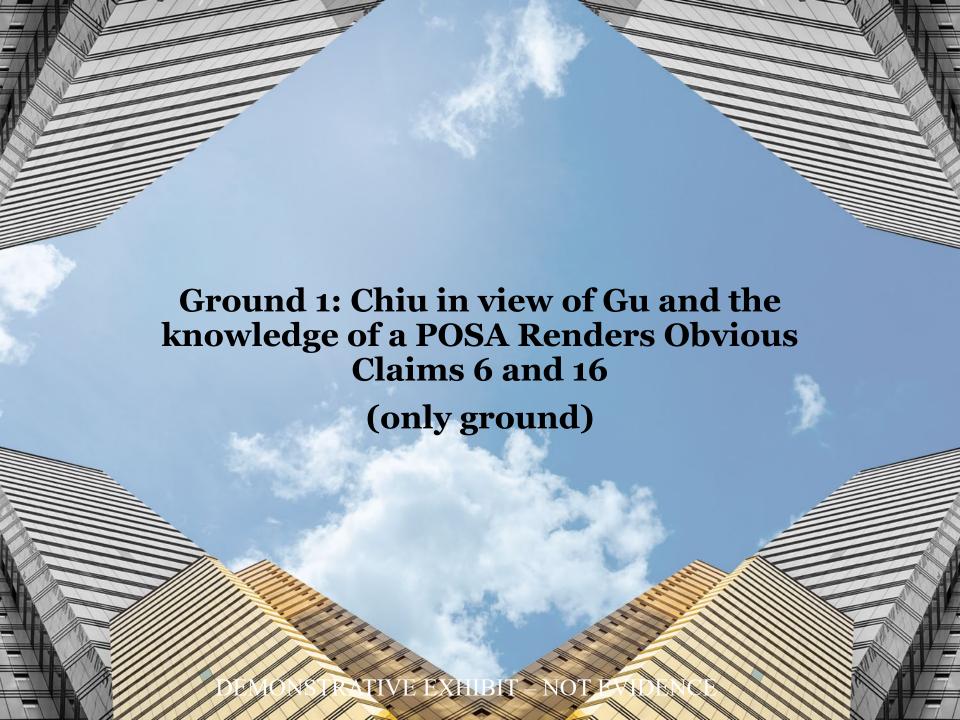


Oral Argument

Trenton Ward | trenton.ward@gtlaw.com

OCTOBER 16, 2023 www.gtlaw.com



Patent Owner Only Raises Three Arguments

- PO Argument #1: Chiu and Gu does not teach or suggest "spatially and temporally separating and analyzing details of said frames." POR, 20.
- PO Argument #2: The proposed combination of Chiu and Gu does not teach or suggest "classifying said frame picture details into subclasses in accordance with said visual perception thresholds and said detail parameters." POR, 25.
- PO Argument #3: Claim 16 has not been shown to be unpatentable as obvious based on its dependency from claim 6. POR, 28.

- PO Argument #1: Chiu and Gu does not teach or suggest "spatially and temporally separating and analyzing details of said frames." POR, 20.
 - Specifically, Patent Owner argues that the cited prior art does not disclose the "separating" step under its proffered construction— "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." POR, 22.
 - "Even if this overly narrow and unsupported claim construction were correct, which it is not, the proposed combination of Chiu in view of Gu and the knowledge of a POSA teaches the proposed limitations." Reply, 18.

Argument #1 – Separating Step:

"Gu teaches the claimed 'spatially and temporally separating . . . details of said frames' by disclosing transforming the pixel information in each video frame n into:

- mg(x,y): spatial texture characteristics due to local luminance changes;
- bg(x,y): spatial average background luminance;
- ild(x,y,n): temporal characteristics due to motion or due to temporal intensity changes." Reply, 18-19.

"Thus, Gu teaches the claimed 'spatially and temporally separating . . . details of said frames' by disclosing calculating, respectively, mg(x,y) (which involves spatial highpass filtering) and bg(x,y) (which involves spatial lowpass filtering) in the spatial domain and ild(x,y,n) (which involves creating a difference frame) in the temporal domain." Reply, 18-19.

Argument #1 – Separating Step:

- Dr. Karam testified that "[a] POSA would have understood these functions to be forms of separating details because they relate neighboring pixels to one another, both within the frame to which they belong and between frames." *Karam*, ¶ 84.
- This testimony from Dr. Karam is unrebutted by Patent Owner. Reply, 19.

Argument #1 – Pixel Based Analysis:

- "Patent Owner's emphasis on the distinction of per-frame filtering and per-pixel filtering is not persuasive because the **claim does not exclude separating or filtering based on pixels**." Reply, 21.
- "Specifically, Patent Owner cites the following disclosure in the '532 patent: 'spatial temporal analyzer 50 generates a plurality of filtered frames from the current frame, each filtered through a different high pass filter (HPF).' *Id*. (citing '532 patent, 6:31-34). As noted in the Petition, the '532 patent discloses an example of this analysis as follows: 'For example, a filter implementing cosiox takes 10 pixels around the pixel of interest, five to one side and five to the other side of the pixel of interest.' Pet., 35, (citing '532 patent, 6:51-54) (emphasis added). Thus, the '532 patent discloses that its spatial temporal analyzer 50 performs the 'separating' step based on calculations and processing performed on pixels. *Id*." Reply, 20.

Argument #1 – Pixel Based Analysis:

- "Patent Owner also argues that it is wrong to view 'the thing from which the 'details'... are 'separated' are pixels as opposed to frames.' POR, 24. Yet, Patent Owner's position is contrary to disclosure from the '532 patent above that expressly discloses that the 'separating' step is performed on pixels. See '532 patent, 6:51-54." Reply, 21.
- "Furthermore . . . even if it is used to filter an entire frame, still needs to be applied at the pixel level." Reply, 21.

Argument #1 – Pixel Based Analysis:

- Patent Owner also asserts that "calculating characteristics of pixels based on neighboring pixels is not a disclosure of separating pixels from a frame—as claim 6 requires." POR, 23.
- "This attorney argument is not supported by any evidence. On the contrary, Dr. Karam testified that the characteristics of neighboring pixels are correlated, thus the per frame analysis entails local analysis. Karam, ¶ 84 ('A POSA would have understood these functions to be forms of separating details because they relate neighboring pixels to one another, both within the frame to which they belong and between frames.')." Reply, 22.
- "Patent Owner suggests that Dr. Karam's testimony shifts from analysis of local characteristics of pixels to the per frame analysis. POR, 27. However, Patent Owner fails to offer any testimony to rebut Dr. Karam. As Dr. Karam explains, 'relat[ing] neighboring pixels to one another' means that the analysis will ultimately reach the entire frame. *See* Karam, ¶¶ 81-84." Reply, 22.

Argument #1 – Separating Details:

- Patent Owner further asserts that Petitioner is internally inconsistent with its interpretation of "details" because "Petitioner is reinterpreting 'details' to mean the calculation of mg(x,y), bg(x,y), and ild(x,y,n)," which is inconsistent with Petitioner's position that "details' are 'a pixel or a group of pixels that is detectable or distinguishable by the human visual system." POR, 24.
- "Patent Owner is incorrect because, as discussed above, the Petition mapped the separate of mg(x,y), bg(x,y), and ild(x,y,n) to the act of 'separating,' rather than the 'details." Pet., 35-40." Reply, 22-23.
- "details' in the '532 patent claims at least encompasses a pixel or a group of pixels that is detectable or distinguishable by the human visual system." Pet., 29.

Argument #1 – "Details":

- Petitioner's expert, Dr. Karam, testified that the '532 patent specification "describes 'details' as pixels or groups of pixels that are related based on human visual perception," and can be processed and characterized by a computer. Karam, ¶¶ 30-32.
- Importantly, **Patent Owner never disputes Dr. Karam's testimony** here as to the term "details," and Patent Owner does not provide any countervailing expert testimony of its own. See POR, 6-11.
- Furthermore, Patent Owner elected not to cross-examine Dr. Karam's testimony on this point or any issue raised in her Declaration; thus, Dr. Karam's testimony stands unrebutted. Reply, 2.
- "Patent Owner argues that Petitioner's interpretation of 'details' is too broad, asserting that this term should be construed as 'elements of an image composed of pixels that have high frequency content.' Patent Owner's Response ('POR'), Paper 10, 6. But Patent Owner's construction is not supported by the record." Reply, 2-3.

Argument #1 – "Details":

- "Patent Owner does not cite to a single use of the term 'element' in the '532 patent specification nor does it attempt to explain what constitutes an 'element." Reply, 3.
- "In fact, there is no description in the '532 patent specification of the 'details' being 'elements of an image,' but rather—in support of Petitioner's understanding—the claims and specification do expressly describe 'details' as 'pixels or groups of pixels.' See Ex. 1001 '532 patent, 5:28-33." Reply, 3.
- "Patent Owner concedes that 'the '532 patent discloses that 'details' are composed of **multiple pixels**." Reply, 4 (citing POR, 7).

Examples in the 532 Patent of Details as Pixel Based Parameters:

- Claim 11 recites "wherein said step of classifying includes the steps of comparing multiple spatial high frequency levels of **a pixel** against its associated visual perception threshold and processing said comparison results to associate said **pixel** with one of said subclasses." 532 patent, 14:12-16.
- "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)." 532 patent, 5:28-33.
- In discussing the "details," the '532 patent refers to them as groups of pixels: "filters HPF-R1 and HPF-C1 retain only very small details in the frame (of 1-4 pixels in size) while filter HPF-R3 retains much larger details (of up to 11 pixels)." *Id.*, 6:66-7:2 (emphasis added).

Reply, 3-4.

PO's only support for "elements of an image" is extrinsic evidence after the priority date:

- "Moreover, Patent Owner's **only** attempt to overcome the lack of intrinsic evidence to support its 'elements of an image' construction is with citations to two extrinsic evidence exhibits. But both exhibits, Exhibit 2001 (Merriam-Webster's Dictionary) and Exhibit 2003 (College Course Notes), are after the '532 patent's claimed priority date, and are unsupported by any expert testimony. POR, 11." Reply, 4-5.
- "Patent Owner fails to offer any explanation of how these post-priority date materials would be relevant to the understanding of an ordinary artisan as of the priority date of the '532 patent." Reply, 5.
- Furthermore, Petitioner has moved to exclude Exhibits 2001 and 2003 as irrelevant, among other things. Paper 19.

"high frequency content":

- Patent Owner also argues that "details" should be limited to "high frequency content." POR, 6.
- "But the '532 patent specification also made it clear that there are two kinds of "details"—'[t]he 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).' '532 patent, 5:28-33; Pet., 7." Reply, 6-7.
- "Patent Owner has not explained how high is the alleged 'high frequency.' Such uncertainty renders Patent Owner's claim construction inoperable. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014) (the claims and their constructions must 'inform those skilled in the art about the scope of the invention with reasonable certainty')." Reply, 8.

Not all pixels are details:

- Patent Owner asserts that "all pixels . . . are classified as either detected or distinguished." POR, 8-9.
- "This is contrary to the '532 patent specification, which states that 'there are large swaths of the image (in the background) which have no details in them.' '532 patent, 5:24-25. Thus, some of the pixels of the image (some of the background pixels) do not constitute the claimed 'details.' See id." Reply, 8.

- PO Argument #1: Chiu and Gu does not teach or suggest "spatially and temporally separating and analyzing details of said frames."
- PO Argument #2: The proposed combination of Chiu and Gu does not teach or suggest "classifying said frame picture details into subclasses in accordance with said visual perception thresholds and said detail parameters." POR, 25.
- PO Argument #3: Claim 16 has not been shown to be unpatentable as obvious based on its dependency from claim 6.

Argument #2 – Subclasses:

- Patent Owner argues that "[n]either *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." POR, 27.
- "This assertion is misplaced because the Petition mapped Gu's mg(x,y), bg(x,y), and ild(x,y,n) filters to the claimed 'spatially and temporally separating and analyzing,' not 'classifying said frame picture details.' Compare Pet., 32-45, with id., 51-59." Reply, 23.

Argument #2 – Subclasses:

- "Patent Owner agrees with Petitioner that the details are composed of pixels. *See* POR, 7. Thus, any processing of the details, whether it being '*separating*,' '*analyzing*,' or '*classifying*,' can be performed on the pixels." Reply, 23.
- "Petition mapped Chiu's surviving pixels, not the macroblocks or their characteristics, to the claimed 'subclass.' Pet. 51-59. This mapping is consistent with the 'subclass' disclosed in the '532 patent. Supra, Section II.C. The Petition demonstrated that Chiu discloses that the surviving pixels in a macroblock are classified into small, random details or large, connected details, thereby disclosing the claimed 'classifying said frame picture details into subclasses.' See Pet., 58 (citing Chiu, 11:15-25)." Reply, 24.

- PO Argument #1: Chiu and Gu does not teach or suggest "spatially and temporally separating and analyzing details of said frames."
- PO Argument #2: The proposed combination of Chiu and Gu does not teach or suggest "classifying said frame picture details into subclasses in accordance with said visual perception thresholds and said detail parameters."
- PO Argument #3: Claim 16 has not been shown to be unpatentable as obvious based on its dependency from claim 6. POR, 28.

- "Patent Owner responds that claim 16 has not been shown to be obvious over these references for the same reasons as claim 6, from which claim 16 depends." POR, 28.
- PO does not make any additional arguments regarding claim 16.

