

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

138 EAST LCD ADVANCEMENTS LIMITED,

Patent Owner.

Case No. IPR2024-00958

U.S. Patent No. 8,482,638

**PATENT OWNER'S REPLY TO OPPOSITION TO NON-CONTINGENT
MOTION TO AMEND**

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I. INTRODUCTION

Petitioner's Opposition to the Revised Non-Contingent Motion to Amend ("Opp.") fails to establish by a preponderance of the evidence that the proposed substitute claims are unpatentable. *See* 37 C.F.R. § 42.121(d)(2). Specifically, the cited combinations fail to render obvious "a composite image generating unit configured to generate a composite image by superimposing the partial image on the main image by mixing pixel values of the partial image with pixel values of the main image." *See* Revised Motion to Amend ("RMTA") at Appendix A.

Petitioner relies on Parulski (EX1005) as a primary reference in each of the combinations. *See* Opp. at i-ii. Petitioner admits that Parulski fails to teach the claimed "mixing pixel values of the partial image with the pixel values of the main image." Opp. at 4-6, 18-20. Instead, Petitioner attempts to combine Parulski with various other references to allegedly render the proposed amended claims obvious.

First, Petitioner's primary ground contends that a POSITA would have found it obvious to use Safonov's (EX1007) method of correcting highlights and shadows in a single image according to a particular algorithm in conjunction with Parulski's "replacing" of pixels. Opp. at 4-16. Safonov would not have rendered the missing claim element of Parulski obvious because Parulski and Safonov cannot be combined, and therefore a POSITA would not have been motivated to make the proposed combination. Neither Parulski nor Safonov, individually or in

combination, disclose the proposed amended composite image generating section. Further, a POSITA would not have been motivated to combine the references as suggested to achieve the claimed invention with a reasonable expectation of success.

Second, Petitioner seeks to combine Parulski with Johnson (EX1018). Petitioner errs because neither of these references teaches mixing pixel values at all. Therefore, this combination also fails. Third, Petitioner seeks to combine Parulski, Safonov, and Johnson. This combination fails to remedy the shortcomings of the proposed combinations of Parulski with Safonov or Johnson, individually. Fourth, Petitioner seeks to combine Parulski with Hoshino (EX1021). This combination is not a proper combination of references under 35 U.S.C. § 103 because Hoshino is not prior art to the '638 patent.

The Board should reject Petitioner's arguments and find that the proposed substitute claims of the '638 patent are patentable.

II. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE OVER PARULSKI AND SAFONOV.

A. Parulski Does Not Disclose the Proposed Amended “composite image generating unit.”

Petitioner does not dispute that Parulski fails to disclose “a composite image generating unit configured to ... generate a composite image by superimposing the partial image on the main image by mixing pixel values of the partial image with pixel values of the main image.” *See Opp.* at 4, 6. Petitioner also does not dispute

that Parulski only teaches that portions of a first image are *completely* “replaced” by portions of a second image. *See* Opp. at 4.

B. Safonov Does Not Remedy Parulski’s Shortcomings.

Petitioner argues that it would have been obvious to use Safonov’s implementation of “alpha blending” to mix the pixel values of Parulski’s two images. Opp. at 4. Safonov, however, does not teach using alpha blending to mix pixel values for the purpose of combining portions of one image with corresponding portions of another image. Instead, Safonov discloses that alpha blending can be used to combine a source image with a filtered version of that same image. *Id.* As explained below, Safonov’s disclosure of alpha blending is different from the proposed substitute claims. Thus, Safonov also does not disclose “generat[ing] a composite image by superimposing the partial image on the main image by mixing pixel values of the partial image with pixel values of the main image.”

According to Safonov, a single image is passed through different filters to generate intermediate versions of that single image with high contrast in shadowed and highlighted areas. EX1007 at 1, 7. The intermediate images are then recombined using the luminance values resulting from the filtering as alpha coefficients to perform alpha blending to “increase local contrast in the shadow and highlight areas, increase luminance within the shadow, and also decrease luminance in the

highlight.” *Id.* at 7. Safonov uses “alpha blending” according to a particular formula (shown below) to correct shadows and highlights in a single image:

$$I_c(r, c) = (I_{cs}(r, c) + I_{ch}(r, c)) / 2 = \\ = I(r, c) + k_s * (1 - \alpha_s(r, c)) * (D_s(r, c) - I(r, c)) - k_h * (1 - \alpha_h(r, c)) * (I(r, c) - D_h(r, c)), (4)$$

Id. This formula requires creation of a “detail image D_s ” and a “digital image D_h ” by passing a “source image I ” through bilateral filters, as well as alpha coefficients α_s and α_h that are determined as part of a bilateral filtering process. *Id.* Thus, Safonov uses alpha blending as part of a feedback loop according to a particular formula that is used to correct highlights and shadows within a *single* image, not to combine a partial image and main image. EX1007 at 7; RMTA at 18-19.

A POSITA would not have found it obvious to use Safonov’s alpha blending with Parulski’s combination of a primary and secondary image because the very alpha coefficients used in Safonov depend on the filtering operation (within Safonov’s feedback loop) performed on a single source image. EX1007 at 10 (“Image I_f **filtered by a bilateral filter** can be used as an alpha-channel α_s . The negative of I_f can be used as an alpha channel α_h .” (emphasis added)). Without filtering, Safonov’s alpha blending has no α -coefficients. *Id.* Parulski, starts with two images, a primary and secondary image. Petitioner does not explain why a POSITA would have found it obvious to use (or even **could** have used) Safonov’s filtering and alpha blending adapted for a single input image with Parulski’s **two** images.

Petitioner offers a hand-waiving assertion that alpha blending was generally known to exist prior to the earliest priority date of the proposed substitute claims. Opp. at 5. While alpha blending may have been *generally* known to exist, the *specific use* of alpha blending to generate a composite image by superimposing a partial image on a main image by mixing pixel values, in addition to the remaining elements of the proposed substitute claims, was *not* known or obvious. In any event, “[a] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1369 (Fed. Cir. 2012) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007)).

C. There Is No Motivation to Combine Parulski and Safonov.

Despite neither Parulski nor Safonov individually disclosing the claimed composite image generating unit, Petitioner asserts that the combination of the two references renders the proposed substitute claims obvious. Petitioner asserts that a POSITA would have disregarded Parulski’s teaching to replace (*i.e.*, completely replace) pixels of a primary image with corresponding pixels of a secondary image in favor of “alpha blending” as taught in Safonov out of a POSITA’s desire “to minimize or hide at least the edges where the main image and the sub-image meet.” *Id.* 7. Petitioner’s alleged motivation to combine fails for two reasons.

First, Petitioner fails to demonstrate that, as of 2009, a POSITA would have been motivated to modify Parulski to minimize or hide edges where the primary image and the secondary image meet. Petitioner first cites to Yadav (EX1009) as allegedly providing this motivation. Opp. at 7. Petitioner simply cites two paragraphs of Yadav without explanation. Because Petitioner does not explain the citation, it should be disregarded by the Board. *Gracernote, Inc. v. Iceberg Indus., LLC*, IPR2013-00552, Paper 6 at 22 (March 7, 2014). Further, Yadav cannot demonstrate the knowledge of a POSITA because it was secret when the '638 patent was filed. Yadav was not published until May 16, 2013, more than three years after the priority date of the '638 patent. A POSITA, who could not have read Yadav at the time the '638 patent was filed, therefore could not have been motivated based upon it.

Petitioner also provides unexplained citations to several paragraphs of its expert, Dr. Stevenson's declarations. Opp. at 7-8. Again, these unexplained citations are insufficient to establish a motivation to modify the cited references. *Gracernote*, IPR2013-00552, Paper 6 at 22. Further, each of the cited paragraphs fails to provide the factual basis for Dr. Stevenson's opinion and therefore is entitled to little or no weight. 37 C.F.R. § 42.65(a). The only exception is a single citation to Yadav, which as discussed above, was secret at the time the '638 patent was filed. Petitioner also provides two unexplained citations to two new references, Porter (EX1025) and Image and Video Matting (EX1026). These citations also fail. *Gracernote*, IPR2013-

00552, Paper 6 at 22. Stripped of the improper, unexplained citations, Petitioner is left only with unsupported expert testimony, which is insufficient. *TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019).

Second, even if a POSITA would have been motivated to modify Parulski “to minimize or hide at least the edges where the main image and the sub-image meet,” a POSITA would not have looked to Safonov to do so because Safonov’s alpha blending does not achieve this motivation. To support its obviousness combination, Petitioner must “explain how specific references could be combined, which combination(s) of elements in specific references would yield a predictable result, [and] how any specific combination would operate or read on the asserted claims.” *TQ Delta*, 942 F.3d at 1360 (citing *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1373–74 (Fed. Cir. 2008)). Petitioner fails at least to explain “how any specific combination would operate or read on the asserted claims.” As discussed above, Safonov’s alpha blending fixes shadows and highlights within a *single* image using a particular algorithm to generate intermediate images from which the alpha coefficients are derived. EX1007 at 7, 10. Parulski begins with two images, neither of which are subject to the bilateral filtering necessary to create the alpha coefficients in Safonov, nor could they be, because under Parulski, the two images already exist, whereas in Safonov, the alpha coefficients are created as a byproduct of bilateral filtering that generates the intermediate “detail image” and “digital image.” *Id.*

Additionally, nothing in Safonov indicates that the alpha blending algorithm disclosed is usable to minimize or hide edges from multiple images, which is Petitioner's alleged motivation to combine. On the contrary, Safonov is explicit that the disclosed alpha blending method corrects highlights and shadows within a single source image. EX1007 at 1. Indeed, there is no need to hide edges in Safonov because the images being combined are the same image (albeit filtered). Petitioner also generically cites to a desire to improve "dynamic range." Opp. at 7. This argument also fails because, as discussed above, Safonov's alpha blending in the context of a single image by a particular method would have motivated a POSITA to use alpha blending in the context of Parulski's multiple image combination. Thus, a POSITA would not have been motivated to combine Parulski and Safonov.

Petitioner accuses Patent Owner of attacking the references individually. Opp. at 12. Petitioner is incorrect. Patent Owner demonstrates that the references neither alone "***or in combination***" teach or suggest the claimed composite image generating unit. RMTA at 22. In light of the lack of motivation to combine and the substantial differences between Parulski and Safonov, Petitioner "impermissibly use[s] Parulski] and [Safonov] as a starting point and retrace[s] the path of the inventor with hindsight." *See In re Entresto*, 125 F.4th 1090, 1100 (Fed. Cir. 2025) (cleaned up).

III. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE OVER PARULSKI AND JOHNSON.

Petitioner relies on Johnson as allegedly disclosing the claimed mixing of pixel values that is not present in Parulski. *Id.* Petitioner's argument fails because it misinterprets Johnson and supports its argument with unsupported expert testimony.

Petitioner argues that Johnson's discussion of "blending" *images* is the same as "mixing pixel values." *Id.* at 18. Petitioner is wrong. Petitioner admits that Johnson "effectively replace[s]" a portion of one image with a corresponding portion of another image. *Id.* According to petitioner, the fact that Johnson says *effectively* means that the portion of the image is not *completely* replaced. Opp. at 18. Petitioner is incorrect. Johnson repeatedly refers to its process as blending *images*, but is silent as to mixing *pixel values*. In other words, when a portion of one image completely replaces a corresponding portion of another image, it can be said that the two *images* have been blended. That replacement, however, does not teach that the replacement is done by mixing *pixel* values. Indeed, Johnson never uses the words "pixel," "mix," "mixed," or "mixing" or "alpha blending." *See generally*, EX1018.

Johnson teaches "the first image 46 is used as a base image 74, and the preferred regions from the second image are blended into the first image 76. This creates a single blended third image 82." EX1018 at 3:16-19; *see also id.* at 3:21-25. In other words, Johnson uses "blending" as a synonym for combining images, but

does not explain how to do so, let alone doing so by mixing pixel values. Johnson teaches that the “blending” operation “effectively replaces” a portion of the first image with a portion of the second image. *Id.* at 3:39-40. Johnson’s sole embodiment teaches that “[t]he region of each eye from Subject C 32 is blended 84 into the content of the second image 36, which effectively replaces the closed eyes of Subject C 42, creating a single final image 86 *where all subjects have open eyes.*” *Id.* at 3:47-50. If the pixel values of the two images were mixed, then the image would show a mixed image in which the eyes are *both* open and closed. In other words, both eyes would not be open. Thus, Johnson uses “blending” as a synonym for combining images (or portions of images), and not to describe mixing of pixel values. Johnson performs the same complete replacement as Parulski.

Petitioner does not attempt to assert that a POSITA would have been motivated to combine Parulski and Johnson to achieve the invention claimed in the RMTA, and therefore fails to meet its burden under 37 C.F.R. 42.121(d)(2). *See* Opp. 17-18. Even so, Dr. Stevenson’s uncited testimony regarding motivation to combine is unavailing. Dr. Stevenson asserts, without explanation, that a POSITA would have understood Johnson’s discussion of blending (*e.g.*, combining) two images to constitute alpha blending pixels, despite no disclosure in Johnson regarding pixels or alpha blending. This testimony is unsupported, based on impermissible hindsight, and entitled to little or no weight. “Crediting such

testimony risks allowing the challenger to use the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—i.e., the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.” *TQ Delta*, 942 F.3d at 1361.

IV. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE OVER PARULSKI, JOHNSON, AND SAFONOV.

The combination of Parulski, Johnson, and Safonov fails to disclose the proposed amended claims because there is no motivation to combine the references as asserted by Petitioner. Petitioner asserts that a POSITA “because alpha blending was known to allow, and would have allowed, the partial image (in the Parulski-Johnson combination) to be more seamlessly integrated into the main image and minimized or mitigated the visual transition between the superimposed portion and the main image.” Opp. at 21. Petitioner’s assertion is wrong for the same reasons stated above. Safonov cannot and would not have been extended to combine multiple images (as in Parulski or Johnson) due to Safonov’s specific filtering requirements, and neither Parulski nor Johnson teach mixing pixel values.

V. THE PROPOSED SUBSTITUTE CLAIMS ARE PATENTABLE OVER PARULSKI AND HOSHINO.

Petitioner fails to establish that Hoshino is prior art. Petitioner admits that Hoshino was filed on March 19, 2010, four months after December 25, 2009, the earliest claimed priority date of substitute claims 7-12. Opp. at 22-23. Nevertheless,

Petitioner asserts that Patent Owner has not established that the substitute claims are entitled to the December 25, 2009 priority date. Petitioner's argument fails.

First, Petitioner asserts that Patent Owner has not provided a "proper" certified translation because the declarant does not speak Japanese. Petitioner's argument fails because the declarant need not have personal knowledge of the translation. *Globus Medical, Inc. v. Moskowitz Family LLC*, IPR2020-01306, Paper 7 at 18-20, (P.T.A.B. Jan. 8, 2021). *Globus*, which dealt with a near identical set of facts (including a declaration from the exact same translation company), confirms that Patent Owner's submitted Certificate of Translation satisfies the Board's rules.

Second, Petitioner asserts that Patent Owner violated the Board's rules on routine discovery. Petitioner is incorrect. Patent Owner produced Mr. Sam Wu, a representative of Morningside Translations to testify regarding the Certificate of Translation. Petitioner accepted the deposition and deposed Mr. Wu. Petitioner raises no issues regarding Mr. Wu's testimony, nor does Petitioner raise any alleged errors or deficiencies with the translation of the priority application. Accordingly, Petitioner fails to rebut Patent Owner's showing that substitute claims 7-12 are entitled to a priority date of December 25, 2009, and Hoshino is not prior art.

VI. CONCLUSION

For the reasons set forth herein and in Patent Owner's Revised Motion to Amend, the Revised Motion to Amend should be granted.

IPR2024-00958
U.S. Patent No. 8,482,638

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that on October 6, 2025, a copy of PATENT OWNER'S REPLY TO PETITIONER'S OPPOSITION TO THE REVISED NON-CONTINGENT MOTION TO AMEND was served by electronic mail on Petitioner's counsel at the following addresses indicated in Petitioner's Mandatory Notices:

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