UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUMIO CORP.,
Petitioner,

v.

FACETEC, INC.,
Patent Owner.

IPR2025-00106
U.S. Patent No. 10,776,471 B2

PETITIONER'S NOTICE OF APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

via P-TACTS
Patent Trial and Appeal Board

via Email
Director of the United States Patent and Trademark Office
efileSO@uspto.gov

via CM/ECF
United States Court of Appeals for the Federal Circuit

Pursuant to 28 U.S.C. § 1295(a)(4)(A), 35 U.S.C. §§ 141(c), 142, and 319, and 37 C.F.R. §§ 90.2(a), 90.3, 5 U.S.C. §§ 701–706, and Federal Circuit Rule 15(a)(1), Petitioner Jumio Corp. ("Petitioner") provides notice that it appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board ("Board") entered June 2, 2026 (Paper 86), and from all underlying and related orders, decisions, rulings, and opinions regarding U.S. Patent No. 10,776,471 B2 ("the '471 patent") in *Inter Partes* Review IPR2025-00106.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), the expected issues on appeal include, but are not limited to: the Board's error(s) in determining that Petitioner has failed to demonstrate that challenged claims 1–20 of the '471 patent are unpatentable, and any finding or determination supporting or related to those determinations, as well as all other issues decided adversely to Petitioner in any orders, decisions, rulings, or opinions in *Inter Partes* Review IPR2025-00106.

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), this Notice is being filed with the Director of the United States Patent and Trademark Office and with the Patent Trial and Appeal Board. In addition, a copy of this Notice and the required docketing fees are being filed with the Clerk's Office for the United States Court of Appeals for the Federal Circuit via CM/ECF.

Respectfully submitted,

Dated: July 30, 2026

/s/ Alex S. Yap
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CERTIFICATE OF FILING

The undersigned hereby certifies that, in addition to being electronically filed through PTAB P-TACTS, a true and correct copy of the above-captioned PETITIONER'S NOTICE OF APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT is being filed by email with the Director on July 30, 2026 at efileSO@uspto.gov.

The undersigned also hereby certifies that a true and correct copy of the above-captioned PETITIONER'S NOTICE OF APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT and the filing fee is being filed via CM/ECF with the Clerk's Office of the United States Court of Appeals for the Federal Circuit on July 30, 2026.

Respectfully submitted,

Dated: July 30, 2026

/s/ Alex S. Yap
Alex S. Yap
Counsel for Petitioner
Registration No. 60,609

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6, this is to certify that a true and correct copy of the foregoing "Petitioner's Notice of Appeal to the United States Court of Appeals for the Federal Circuit" was served on counsel for Patent Owner as detailed below:

Date of service: July 30, 2026

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Documents served: ***PETITIONER'S NOTICE OF APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT***

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Paper 86
Date: June 2, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUMIO CORP.,
Petitioner,

v.

FACETEC, INC.,
Patent Owner.

IPR2025-00106
Patent 10,776,471 B2

Before GARTH D. BAER, NABEEL U. KHAN, and BACH V. HOANG, *Administrative Patent Judges.*

Opinion for the Board filed by *Administrative Patent Judge* KHAN.

Opinion Dissenting filed by *Administrative Patent Judge* BAER.

KHAN, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

On June 6, 2025, we instituted an *inter partes* review of claims 1–20 of U.S. Patent No. 10,776,471 B2 ("the '471 patent," Ex. 1001). Paper 17 ("Inst. Dec."). Having considered the full record at trial, and for the reasons explained below, we, the majority, determine that Petitioner has not shown that any of claims 1–20 of the '471 patent are unpatentable.

A. Background and Summary

Jumio Corporation ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1–20 ("the challenged claims") of the '471 patent. FaceTec, Inc. ("Patent Owner") timely filed a Preliminary Response (Paper 6, "Prelim. Resp."). With our authorization, Petitioner filed a Preliminary Reply (Paper 10, "Prelim. Reply") and Patent Owner filed Preliminary Sur-Reply (Paper 14, "Prelim. Sur-Reply"). Based on the preliminary record, we determined that Petitioner demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of at least one challenged claim, and we instituted an *inter partes* review of all challenged claims on all asserted grounds. Inst. Dec. 1, 54.

After institution, Patent Owner filed a Response (Paper 44, "Response" or "PO Resp."), Petitioner filed a Reply (Paper 54, "Reply" or "Pet. Reply"), and Patent Owner filed a Sur-reply (Paper 60, "Sur-reply" or "PO Sur-reply"). An oral hearing in this proceeding was held on March 17, 2026, and a transcript of the hearing is included in the record. Paper 84 ("Tr.").

During trial, the parties filed several motions. We granted Petitioner's motion to enter its Protective Order. Paper 40; *see* Ex. 1053, Ex. 1054. We

also denied Patent Owner's request for Additional Discovery regarding alleged indemnification payments. Paper 35.

Further, Patent Owner filed a Motion to Exclude various exhibits (Paper 61), Petitioner opposed (Paper 66), and Patent Owner filed a reply (Paper 67). Even further, Patent Owner filed a Motion to Strike portions of Petitioner's Reply and an associated declaration (Paper 62) and Petitioner opposed (Paper 80). Still further, Patent Owner filed a Motion to File Supplemental Information (Paper 64) and Petitioner opposed (Paper 82). We address those motions in a separate order. *See* Paper 87.

Additionally, the parties filed a number of motions to seal. Paper 42 (Patent Owner's Motion to Seal); Paper 50 (Petitioner's Motion to Seal); Paper 58 (Patent Owner's Second Motion to Seal); Paper 63 (Patent Owner's Third Motion to Seal); Paper 68) (Patent Owner's Fourth Motion to Seal); Paper 71 (Petitioner's Motion to Seal Demonstratives); Paper 75 (Patent Owner's Fifth Motion to Seal); Paper 77 (Petitioner's Second Motion to Seal); Paper 81 (Petitioner's Motion to Seal Petitioner's Opposition to Patent Owner's Motion to File Supplemental Information). We addressed those motions to seal in a separate order. *See* Paper 85.

B. Related Proceedings

The parties identify the following pending matter as involving the '471 patent: *FaceTec, Inc. v. Jumio Corporation*, Case No. 5:24-cv-3623 (N.D. Cal.) ("California litigation"). Pet. 83; Paper 4, 2. Patent Owner additionally identifies *FaceTec, Inc. v. iProov Ltd.*, Case No. 2:21-cv-02252 (D. Nev) as related district court litigation ("Nevada litigation"). Patent Owner also identifies the following AIA proceedings as related to this

proceeding: IPR2025-00107, IPR2025-00108, IPR2025-00109. Paper 4, 2. Patent Owner also identifies other related U.S. and international patents and applications. Paper 4, 2–3.

C. Real Parties-in-Interest

Petitioner identifies itself as a real party in interest. Pet. 83. Patent Owner identifies itself as the real party in interest. Paper 4, 2.

D. The '471 Patent (Ex. 1001)

The '471 patent, titled "Facial Recognition Authentication System Including Path Parameters," issued September 15, 2020. Ex. 1001, codes (45), (54). The '471 patent describes itself as relating to:

> [s]ystems and methods for enrolling and authenticating a user in an authentication system via a user's camera of camera equipped mobile device include capturing and storing enrollment biometric information from at least one first image of the user taken via the camera of the mobile device, capturing authentication biometric information from at least one second image of the user, capturing, during imaging of the at least one second image, path parameters via at least one movement detecting sensor indicating an authentication movement of the mobile device, comparing the authentication biometric information to the stored enrollment biometric information, and comparing the authentication movement of the mobile device to an expected movement of the mobile device to determine whether the authentication movement sufficiently corresponds to the expected movement.

Id. at code (57).

The '471 patent generally relates to "facial recognition authentication systems." Ex. 1001, 1:29–30. Figure 1, reproduced below, illustrates an example facial recognition authentication system. *Id.* at 4:53–55, 5:40–41.

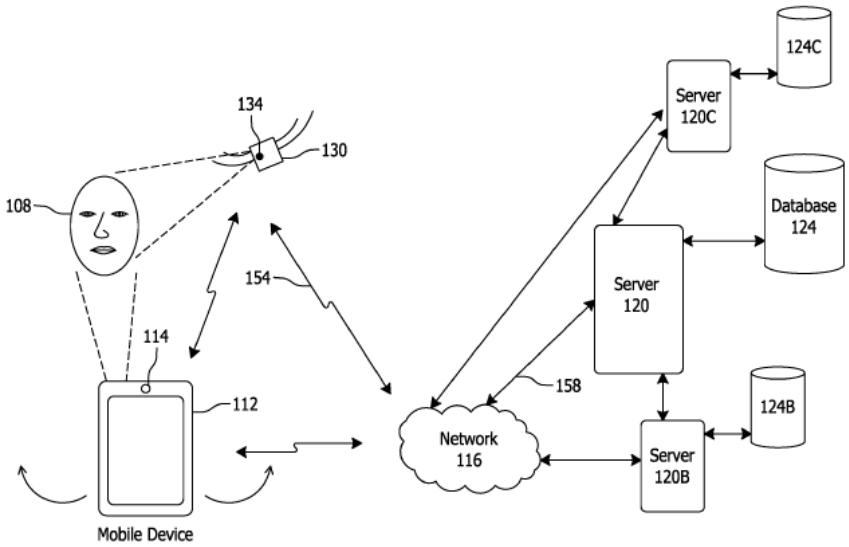


FIG. 1

Figure 1 illustrates a user 108, a mobile device 112 with a camera 114, and a network 116. *Id.* at 5:47–57. The mobile device 112 is used to access one or more user accounts. *Id.*

The patent explains two-dimensional facial recognition is unsecure because faces may be photographed or recorded and resulting prints or video displays of a user may be used to spoof the system. *Id.* at 1:64–67. The patent observes that when images are taken at relatively close distances between a subject and a camera (such as a mobile phone camera) the images are distorted by "the fish-eye effect" (we use the term "perspective distortion" to refer to this effect). *Id.* at 28:45–50. For example, a person's nose may appear as much wider and taller relative to a person's face when an image is taken at a close proximity as compared to when an image is taken at a distance. *Id.* at 28:50–53.

Embodiments take advantage of this distortion effect to increase security of an authentication system. *Id.* at 29:3–19. In such embodiments, images are obtained at both close and far distances during authentication.

Id. "[B]ecause the fish-eye effect is expected when an actual, three-dimensional person is present, an absence of the relative change in the dimensions of the facial features alerts the system to a fraudulent attempt at authentication." *Id.* According to the patent, the distortion effect could not easily be re-created with a two-dimensional picture and thus embodiments provide a secure test to prevent a two-dimensional picture (in place of a 3D face) from being used for authentication. *Id.*

E. Illustrative Claim

Claims 1 and 10 are the sole independent claims of the '471 patent and claim 1 is reproduced below with limitation identifiers in brackets corresponding to claim analysis headings in the Petition. *See, e.g.*, Pet. 16–27.

> 1. [pre] A system for authenticating three-dimensionality of a user via a user's camera equipped computing device, the computing device comprising:
>
> [1a] a processor configured to execute machine executable code;
>
> [1b] a screen configured to provide a user interface to the user;
>
> [1c] a camera configured to capture images;
>
> [1d] one or more memories configured to store machine readable instructions that are stored on the memory of the authentication server which when executed by the processor, cause the computing device to:
>
> [1d1] capturing at least one first image of the user taken with the camera of the computing device at a first location which is a first distance from the user;
>
> [1d2] processing the at least one first image or a portion to create first data;

[1d3] moving the camera from the first location to a second location, the second location being a second distance from the user, or the user moving from the first location to the second location to change the distance between the user and the camera from the first distance to a second distance;

[1d4] capturing at least one second image of the user taken with the camera of the computing device at the second distance from the user, the second distance being different than the first distance;

[1d5] processing the at least one second image or a portion thereof to create second data;

[1d6] comparing the first data to the second data to determine whether expected differences exist between the first data and the second data which indicates three-dimensionality of the user;

[1d7] authenticating the user when differences between the first data and the second data have expected distortion resulting from movement of the camera from the first location to the second location or movement of the user from the first location to the second location, which causes the change in distance between the user and the camera.

Ex. 1001, 38:7–45.

F. Evidence

The Petition relies on the following references:

Reference	**Exhibit No.**
US 8,437,513 B1; issued May 7, 2013 ("Derakhshani").	1005
US 2011/0299741 A1; filed June 8, 2010; published Dec. 8, 2011 ("Zhang").	1006
US 2002/0113884 A1; filed Feb. 15, 2002; published Aug. 22, 2002 ("Tanii").	1007
US 2014/0028823 A1; filed May 22, 2013; published Jan. 30, 2014 ("Tahk").	1008

Reference	Exhibit No.
US 2010/0014720 A1; filed Oct. 2, 2007; published Jan. 21, 2010 ("Hoyos").	1010

Petitioner also relies on declarations of Christopher Daft, D. Phil. (Ex. 1003; Ex. 1060) in support of its arguments. Patent Owner relies on declarations from Josh Rose (Ex. 2059), Mina Ching (Ex. 2060), and Matthew Turk (Ex. 2061). The parties rely on other exhibits as discussed below.

G. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–20 would have been unpatentable on the following grounds:

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1A	1–13, 15–17, 19, 20	103	Derakhshani, Tanii
1B	14	103	Derakhshani, Tanii, Tahk
1C	18	103	Derakhshani, Tanii, Hoyos
2A	1–3, 5, 7–12, 16, 17, 19, 20	103	Zhang, Tanii
2B	4, 6, 13–15	103	Zhang, Tanii, Tahk
2C	18	103	Zhang, Tanii, Hoyos

II. ANALYSIS OF ASSERTED GROUNDS

A. Principles of Law

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) any objective evidence of obviousness or non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner asserts a

> person of ordinary skill in the art ("POSITA") in August 2014 would have had a Bachelor's degree in electrical engineering, computer engineering, computer science, physics, or a related field, and two years' work experience related to biometrics, facial authentication, computer vision, and/or optics, such that they would have had significant academic and/or work experience in both software development and optics. Formal education can substitute for work experience and relevant work experience could substitute for formal education.

Pet. 5 (citing Ex. 1003 ¶¶ 129–131).

Patent Owner argues Petitioner's proffered level of skill is too broad with respect to work experience. PO Resp. 28. Patent Owner counters that a person having ordinary skill in the art would have had

> a Bachelor's degree in electrical engineering, computer engineering, computer science, physics, or a related field, and two years' work experience related to biometric **security**, facial authentication, **and three-dimensional computer vision** such that they would have had significant academic and/or work experience in both facial biometrics and **computer vision**.

Id. at 28–29.

Having considered the full record at trial, we maintain the preliminary finding regarding the level of ordinary skill in the art. *See* Inst. Dec. 11–12. In particular, based on the teachings of the '471 patent and the asserted prior art, we are persuaded that an ordinarily skilled artisan would have had a work experience related to biometrics, facial authentication, computer vision, and/or optics as at least one of those fields is respectively implicated by the '471 patent and the asserted prior at. Moreover, our decision would be the same under either proposed level of skill.

C. Claim Construction

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b). Under the principles set forth by the Federal Circuit, the "words of a claim 'are generally given their ordinary and customary meaning,'" as would be understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

The parties do not dispute any claim terms or phrases and our decision does not require construing any particular claim terms or phrases, therefore, we do not expressly construe any particular claim term or phrase. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that "we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Summary of Asserted Prior Art References

Below we summarize the asserted references. We discuss any additional pertinent details of the references in our patentability analysis.

1. Derakhshani (Ex. 1005)

Derakhshani is titled "Spoof Detection for Biometric Authentication," was filed August 10, 2012 and issued on May 7, 2013. Ex. 1005, codes (54), (22), (45). Derakhshani describes itself as relating to:

> technologies relating to biometric authentication based on images of the eye. In general, one aspect of the subject matter described in this specification can be embodied in methods that include obtaining images of a subject including a view of an eye. The methods may further include determining a behavioral metric based on detected movement of the eye as the eye appears in a plurality of the images, determining a spatial metric based on a distance from a sensor to a landmark that appears in a plurality of the images each having a different respective focus distance, and determining a reflectance metric based on detected changes in surface glare or specular reflection patterns on a surface of the eye. The methods may further include determining a score based on the behavioral, spatial, and reflectance metrics and rejecting or accepting the one or more images based on the score.

Ex. 1005, code (57).

Derakhshani describes embodiments that "may prevent spoofing of an eye biometric based authentication system using objects that are not a living human eye." Ex. 1005, 1:6–7, 3:46–48. Derakhshani describes verifying whether a user's face is 3D instead of a 2D photo by obtaining a plurality of images at different camera focus settings to determine distances to various facial landmarks and determining whether such distances deviate from a 2D plane. *Id.* at 16:44–17:44. Derakhshani describes an alternative embodiment where a camera obtains a plurality of images from different perspectives and the images are examined to determine whether the images exhibit parallax effects indicative of 3D objects. *Id.* at 17:45–18.4.

2. Zhang (Ex. 1006)

Zhang is titled "Distinguishing Live Faces from Flat Surfaces" and was filed on June 8, 2010 and was published on December 8, 2011. Ex. 1006, codes (54), (22), (43). Zhang describes itself as relating to:

> Multiple images including a face presented by a user are accessed. One or more determinations are made based on the multiple images, such as a determination of whether the face included in the multiple images is a 3-dimensional structure or a flat surface and/or a determination of whether motion is present in one or more face components (e.g., eyes or mouth). If it is determined that the face included in the multiple images is a 3-dimensional structure or that that motion is present in the one or more face components, then an indication is provided that the user can be authenticated. However, if it is determined that the face included in the multiple images is a flat surface or that motion is not present in the one or more face components, then an indication is provided that the user cannot be authenticated.

Ex. 1006, code (57).

Zhang describes a 3D structure determination module 112 that uses a homography-based technique for determining whether a face is a 3D structure or a flat surface. *Id.* ¶¶ 24–34. "The homography based technique leverages the fact that two views of a flat (planar) surface are related based on a homography matrix H." *Id.* ¶ 25. Figure 3, reproduced below, is a flowchart illustrating an example of Zhang's homography based technique.

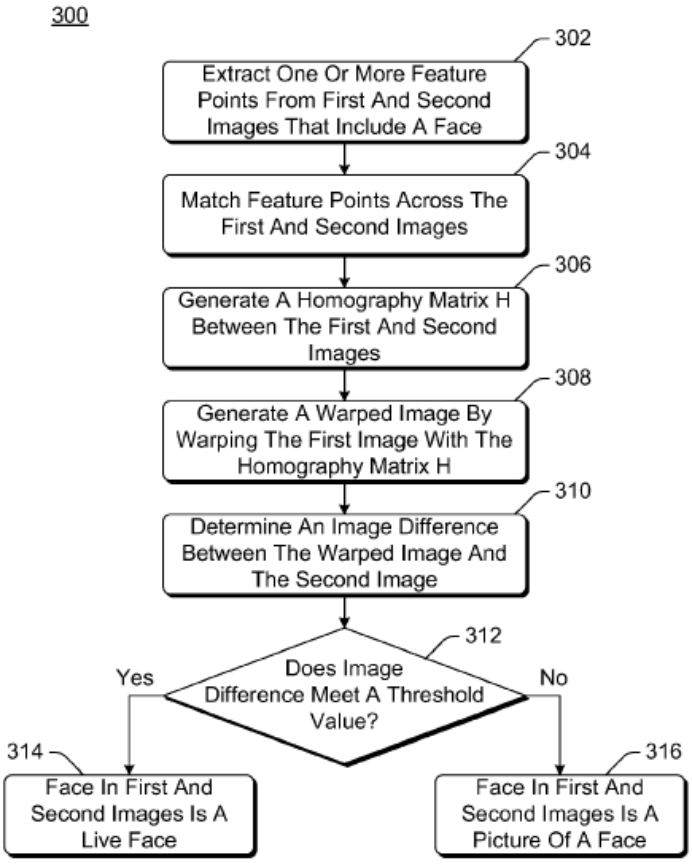


Fig. 3

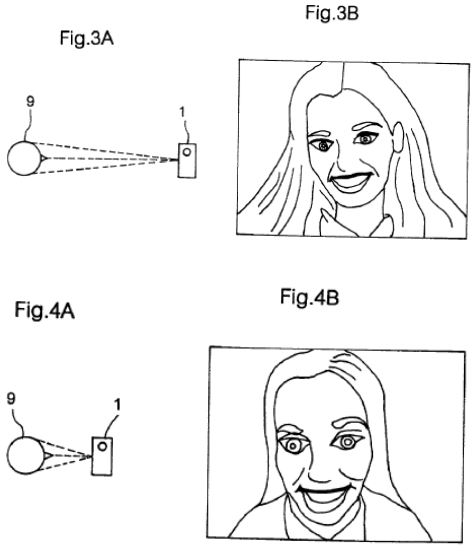
3. Tanii (Ex. 1007)

Tanii is titled "Data Recording and Playback System and Method," was filed on February 15, 2002 and was published on August 22, 2002. Ex. 1007, codes (54), (22), (43). Tanii describes itself as relating to:

> [a] warp corrector 201, which corrects warp in which the perspective is exaggerated when an image is captured with the user's face at close range, is included in a cellular phone 1 having an imaging portion 2. The warp corrector 201 performs processing to enlarge the peripheral areas of the image relative to the center, and generates corrected image data 232. As a result, a natural image of the user's face can be displayed on the display 11 of the cellular phone or sent.

Ex. 1007, code (57).

Figures 3A and 4A, reproduced below, illustrate arrangements when image capture is performed and Figures 3B and 4B, also reproduced below, illustrate the resulting images, respectively. *Id.* ¶ 47.



Figures 3A and 4A, above, illustrate a main object 9 and cellular phone 1 when image capture is performed and Figures 3B and 4B, above, illustrate the resulting images, respectively. *Id.* ¶¶ 47, 48, 56. Tanii

explains that Figure 4B shows a warped, distorted, or "unnatural image [that] results in which the perspective is exaggerated" because the user and the cell phone capturing the image of the user "are close together." *Id.* ¶¶ 6, 47–48. Tanii explains that such perspective distortions can be corrected by "enlarg[ing] the peripheral areas of the image relative to the center area." *Id.* ¶ 56.

4. Tahk (Ex. 1008)

Tahk generally relates to "mobile terminal having a face recognition function and a control method" using a photographic unit. Ex. 1008, code (57).

5. Hoyos (Ex. 1010)

Hoyos generally relates to a "method and system for authenticating financial transactions" based on "biometric data . . . acquired from a person and the probability of liveness of the person." Ex. 1008, code (57).

E. Obviousness

Petitioner contends that the subject matter of claims 1–20 would have been obvious over combinations based on Derakhshani and Tanii and combinations based on over Zhang and Tanii.[1] Pet. 3, 7–79. Patent Owner argues that a person having ordinary skill in the art would not have combined either Derakhshani or Zhang with Tanii. PO Resp. 57–64.

[1] For certain limitations, Petitioner states that Derakhshani or Zhang "alone or combined with Tanii" teaches the limitation, but all of Petitioner's grounds are on the basis of combining Derakhshani and Tanii or Zhang with Tanni. *See* Pet. 22–27, 40, 58–63, 74–75. As such, we address Petitioner's challenges with respect to the combinations it asserts.

Although our Institution Decision preliminarily determined that Petitioner's proffered motivations adequately supported its combinations (Inst. Dec. 31–33, 40–41), we did not yet have the benefit of the complete record, which now includes additional argument by Patent Owner and additional evidence Patent Owner presented during trial. Having considered the full record and arguments developed during trial, we find that Petitioner has failed to adequately show that a person having ordinary skill in the art would have been motived to combine either Derakhshani and Tanii or Zhang and Tanii. Our detailed analysis follows.

1. Combination of Derakhshani and Tanii

We find that Petitioner has not provided adequate motivation to support its proffered combination and modification of Derakhshani and Tanii.

We start with Petitioner's combination. Petitioner asserts that the combination Derakhshani and Tanii meet limitations 1[d3], 1[d4], 1[d6], and 1[d7], which, together, recite a number of steps describing a specific technique to verify that captured user images are of three dimensional users (i.e., are images of a live user, not images of a user photograph), i.e., verify three dimensionality. Pet. 23–27; *see* Ex. 1001, 46:6–25. More specifically, the limitations require a first user image and a second user image that are captured at different distances. *Id.* at 46:6–13. Then, those two images are compared for "expected differences" resulting from capturing three-dimensional images at different distances. *See id.* at 46:16–25. The existence of such expected differences thereby indicates and verifies that the captured user images are three dimensional. *See id.*

Petitioner relies on Derakhshani to teach a system that verifies that captured user images are three dimensional based on techniques using parallax or focus-distance. Pet 16. Petitioner acknowledges that Derakhshani does not describe a system that verifies that captured user images are three dimensional based on perspective distortion and, so, turns to Tanii. *See* Pet. 12; Tr. 17:1–12 ("JUDGE HOANG: . . . what's Tanii used for, then? [Petitioner's Counsel]: . . . Tanii is used for the fact that Derakhshani teaches the focus distance approach and the parallax approach, those are two approaches for determining three dimensionality. Tanii teaches a third approach, which is distance induced distortions . . . Derakhshani does not disclose distance induced distortions.").

Tanii, for its part, does not describe a technique for verifying that images are three dimensional—let alone a technique that captures two images at different distances, compares the images for certain differences, and verifies three dimensionality based on those differences, as recited by the claim. Instead, Tanii describes a system that "corrects warp in which the perspective is exaggerated when an image is captured with the user's face at close range." Ex. 1007, code (57). In particular, Tanii recognizes the physical phenomenon of perspective distortion (fish-eye distortion) where "[i]f the image of the face of a person or the like is captured from a point that is relatively nearby, an image is obtained in which the perspective appears exaggerated," i.e., the user image is warped or distorted. *Id.* ¶ 6; *see id.* ¶ 48, Fig. 4B. Tanii corrects such warped images by enlarging peripheral areas of the user image. *Id.* ¶¶ 55–56.

Petitioner states that its combination "incorporate[s] Tanii's evaluation into Derakhshani" and modifies Derakhshani to meet limitations

1[d3], 1[d5] and 1[d6]. Pet. 22–27. Petitioner offers a number of reasons to combine Derakhshani and Tanii: "Tanii merely teaches an obvious alternative to Derakhshani's existing two approaches to evaluate whether a face being captured is three-dimensional" (*id.* at 13, 15; Pet. Reply 6), the "modification would have been nothing more than the use of a known technique . . . to improve similar devices . . . or a simple substitution of elements" (Pet. 16) and "the techniques of Derakhshani and Tanii [are] complimentary and [the skilled artisan] would have been motivated to use both or either" (*id.* at 17). Petitioner also asserts there would have been motivation to combine because "evaluating for distance-induced distortion consistent with Tanii would be easier for users on a mobile device" or useful for mobile device with "wide angle lenses." *Id.* at 16; Pet. Reply 6

We find that these reasons would not have adequately motivated a person having ordinary skill in the art to combine and modify the references in Petitioner's asserted manner to reach the claimed features. Petitioner's motivations—"substitution," "obvious alternative . . . approaches," "use of a known technique," and "complimentary" techniques—are all similarly based on swapping or adding techniques for verifying three dimensionality. *See* Pet. 12–16; Pet. Reply 6–7. These motivations might have been suitable had Tanii described techniques for verifying three dimensionality, but Petitioner has not shown that Tanii describes any technique to verify three dimensionality. *See* Pet. 13–17, 25–28. Instead, as discussed above, Tanii describes the existence of the perspective distortion phenomenon and a technique for correcting it. As such, substituting the knowledge that perspective distortion exists and techniques to correct it does not correspond with approaches for verifying three-dimensionality, and so does not

adequately motivate Petitioner's combination. Put another way, because Tanii does not teach an approach for verifying three-dimensionality, Tanii's techniques cannot be used as a substitute for approaches that do verify three dimensionality simply because Tanii discloses the concept of perspective distortion.

Petitioner's proffered motivation that "evaluating for distance-induced distortion consistent with Tanii would be easier for users on a mobile device" than evaluating for parallax using Derakhshani's parallax approach is contradicted by Derakhshani's own description. Petitioner argues that "to evaluate for parallax approach in a face at hand-held distances with suitable accuracy, a user may need to move the device around their head (or vice versa)—out of their direct line of sight—to create substantial differences in perspective and thus more parallax to accurately verify the three dimensionality of the face." Pet. 15–16. Derakhshani explains, however, that even minimal movement of the camera may be enough to make use of the parallax approach. *See* Ex. 1005, 18:1–4 ("where the sensor is a camera in hand-held user device (e.g. a smartphone or tablet) the sensor may naturally move relative to the users face due to involuntary haptic motion.") Contrary to Petitioner's argument, Derakhshani implies that extensive movement of the device around the head and out of line of sight, would be unnecessary to create the differences in perspective needed to verify three-dimensionality. Using Tanii's distance-induced distortion, therefore, would not necessarily be any easier than using Derakhshani's parallax approach.

Furthermore, Petitioner's motivations rely on a factual allegation we disagree with, that "Tanii already taught a mechanism to identify such distance-induced distortions and thus indicate when the face being captured

has depth." Pet. 16. First, whether or not Tanii teaches identifying distance-induced distortions, Petitioner's proffered motivation is still inadequate because a technique to identify distortions is not a substitute for the claimed technique of verifying three dimensionality. Moreover, Petitioner has not shown that Tanii teaches identifying distance-induced distortions. The portions of Tanii cited by Petitioner and Dr. Daft discuss what perspective distortion is, its cause, and how to correct it. *See* Pet. 13–15 (citing Ex. 1007 ¶¶ 47–48, 56); Ex. 1003 ¶¶ 137, 139, 140. Although Petitioner and Dr. Daft assert that a person having ordinary skill in the art "would have understood, for instance, that distance-induced distortions indicate three-dimensionality of the object being captured, as Tanii teaches" (Pet. 24), that assertion reverses the causal relationship Tanii describes. Tanii discloses that capturing a three-dimensional object too closely *causes* perspective distortion. Ex. 1007 ¶ 47 ("where the main object 9 and the cellular phone 1 are close together . . . an unnatural image results in which the perspective is exaggerated"); *see id.* ¶ 48. Petitioner and Dr. Daft have not, however, sufficiently explained how Tanii teaches their asserted reverse causality, or why a person having ordinary skill in the art would have understood that reverse causality, i.e., that an image's distortion is caused by three dimensionality and not caused by something else such as movement during capture. *See* Pet. 13, 24; Ex. 1003 ¶¶ 141, 170. In any case, those cited portions do not describe any particular manner to identify perspective distortion.

Petitioner and Dr. Daft also assert that paragraph 56 of Tanii teaches "a mechanism to identify such distance-induced distortions and thus indicate when the face being captured has depth," but it does not. Pet. 15 (citing

Ex. 1007 ¶ 56); Ex. 1003 ¶ 141. That paragraph describes correcting perspective distortion that is caused by proximity, but it does not describe *identifying* perspective distortion. *See* Ex. 1007 ¶ 56. As such, that portion cannot also describe that identifying perspective distortion thereby shows a captured face has depth. *See id.*

Petitioner and Dr. Daft still further assert that Tanii's application of different levels of distortion correction is an identification of distortion. Pet. Reply 5 (citing Ex. 1007 ¶¶ 101, 137); Ex. 1060 ¶¶ 212–215. However, Tanii applies different levels of correction by measuring the distance to the object to be captured, rather than discussing any process that identifies perspective distortion in the captured image. Ex. 1007 ¶ 101 ("distance to the main object thus measured is input to the correction level selector 205, which selects a correction level").

Instead of Petitioner's allegation that Tanii identifies perspective distortion in images, we agree with Patent Owner and Dr. Turk that Tanii *assumes* perspective distortion and applies correction without determining whether there is perspective distortion in an image. PO Resp. 58–59, 61; Ex. 2061 ¶¶ 155–158, 166. As discussed above, Petitioner has not shown, and we do not readily find, where Tanii describes identifying perspective distortion in an image. Furthermore, Tanii's distortion correction is a user-selected option, suggesting that any perspective distortion analysis in an image is provided by the user, not by Tanii's system. Ex. 1007 ¶ 53 ("[I]t may be selected via the operation buttons 12 whether or not correction should be performed by the warp corrector 201."). Even further, Tanii explains that different correction levels are provided based on object size and distances, showing that Tanii assumes perspective distortion due to

object size and distance, rather than identifying perspective distortion in a captured image. *Id.* ¶ 101 ("The distance to the main object thus measured is input to the correction level selector 205, which selects a correction level. Selection of a correction level is performed by comparing the threshold values D1 and D2, which are predetermined distances, with the distance from the cellular phone 1 to the main object 9."); *see id.* ¶¶ 73, 95, 98. As such, Petitioner's motivations, relying on Tanii to teach identifying perspective distortion, are also inadequate because Tanii does not teach a technique to identify perspective distortion.

Additionally, Petitioner's motivations do not support the multiple modifications required to bridge the gap between recognizing the phenomenon of perspective distortion and applying that phenomenon to verify three dimensionality via the claimed technique. In *Kinetic Concepts, Inc. v. Smith & Nephew, Inc*., the Federal Circuit explained that the "creation of the claimed apparatus or method requires combining [references], which disclose treating or healing of wounds with [publications] that disclose a seal capable of maintaining negative pressure," but "[u]nless one knew that negative pressure could be used to treat wounds, there would be no reason to combine the prior art to arrive at the claimed device and methods." 688 F.3d 1342, 1369 (Fed. Cir. 2012). As discussed above, Petitioner has not adequately shown that Tanii teaches, or a person of ordinary skill in the art would have understood, that perspective distortion could have been used verify (or even identify) three dimensionality. Like *Kintec Concepts*, here, Petitioner leaps from the knowledge that a physical phenomenon exists (perspective distortion) to using that knowledge in a specific context

(verifying image three dimensionality) to achieve the claimed technique without adequate motivation. *See id.*

Nor do those motivations support the multiple modifications required to bridge the gap between Derakhshani and Tanii's teachings to meet the claimed verification technique. *See* Pet. 13–17, 25–28. To the extent that Petitioner relies on motivation to fill in missing limitations that go to the heart of the invention but are not taught by the references (*id.* at 13–17, 25–28), "knowledge of the goal does not render its achievement obvious." *Abbott Lab'ys v. Sandoz, Inc.*, 544 F.3d 1341, 1352 (Fed. Cir. 2008).

Finally, Petitioner's modifications to achieve the claimed technique require complexity further suggesting the shortcomings of Petitioner's motivations. Petitioner modifies Derakhshani's system, all on the basis of Tanii's description of perspective distortion and correcting it. In particular, Petitioner's modification makes a number of changes to Derakhshani by capturing a first image at a distance close enough to cause perspective distortion, capturing a second image at a different distance far away enough such that there would be differences between the images specifically attributable to perspective distortion, determining how those differences indicate perspective distortion, and finally verifying that the images are of a three dimensional object because of those differences. *See* Pet. 22–27. Notably, the modification requires comparing the two images to determine if their differences are indicative of three dimensionality but Petitioner has not pointed out at what different distances perspective distortion occurs and what particular differences would suggest that there is perspective distortion indicative of three dimensionality. Such added complexity suggests that Petitioner's proffered motivation is inadequate to support the combination.

See Henny Penny Corp. v. Frymaster LLC, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (affirming the Board's finding of no motivation to combine where the Board "credited Frymaster's expert's testimony that following Iwaguchi's method of diverting and cooling the oil in Kauffman's system would introduce 'additional plumbing and complexity'").

Accordingly, for the reasons discussed above, we determine that Petitioner fails to show by a preponderance of the evidence that a person of ordinary skill in the art would have been motivated to combine and modify Derakhshani and Tanii as proposed. Every challenged claim over the combination of Derakhshani and Tanii relies on the same flawed motivation and, as such, we determine that Petitioner fails to show by a preponderance of the evidence that claims 1–20 would have been obvious over Derakhshani and Tanii or Derakhshani, Tanii, and Tahk or Derakhshani, Tanii, Hoyos.

2. Combination of Zhang and Tanii

We find that Petitioner has not provided adequate motivation to support its proffered combination and modification of Zhang and Tanii. While Petitioner's proffered motivations in this combination are somewhat different than its proffered motivations in the Derakhshani and Tanii combination, Petitioner's motivations suffer from similar deficiencies for similar reasons as discussed above.

Like its combination of Derakhshani and Tanii, Petitioner relies on the combination of Zhang and Tanii to meet limitations 1[d3], 1[d4], 1[d6], and 1[d7]. Pet. 61–66. And, like Derakhshani, Petitioner asserts Zhang teaches a system that verifies that captured user images are three dimensional, in Zhang's case, using homography-based techniques. Pet. 50 (citing Ex. 1006

¶ 24). Continuing the similarity, Petitioner acknowledges that Zhang does not teach verifying three dimensionality based on perspective distortion and, so, turns to Tanii, in combination with Derakhshani, to reach that verification technique. *See* Pet. 52–53.

Petitioner asserts that a person of ordinary skill in the art would have been motivated to combine Zhang and Tanii to: "*enhance* Zhang's process" (Pet. 50–51), "take advantage of the distance-induced distortions identified by Tanii" (*id.* at 51), "reduce spoofing of Zhang's system" (*id.* at 53), "provide[] a simpler mathematical operation that may require less computational resources" (*id.*), "tak[e] advantage of these distance-induced distortions to distinguish between live, three-dimensional faces and two-dimensional pictures" (*id.* at 59–60), and "to utilize these expected distortions as either a supplemental or alternative verification of three-dimensionality of a face" (*id.* at 61–62).

For similar reasons as our discussion of Derakhshani and Tanii in § II.E.1, Petitioner's proffered motivations do not adequately support its combination of Zhang and Tanii. As discussed above, Petitioner's stated motivations rely on an insight that Tanii does not teach, namely, using perspective distortion to identify or verify three dimensionality. As such, those motivations do not match Petitioner's combination and modifications.

Furthermore, Petitioner's combination requires modifications that its proffered motivations do not support. In one suggestion, Petitioner asserts its combination "perform[s] Zhang's three-dimensional verification process, but rather than 'warp' one image using a homography transform to compare it to the second image and evaluate the two for differences, a POSITA would 'warp' (i.e., correct) the 'close' image using Tanii's distortion-correction

procedure to compare it to the 'far' image and evaluate the two for differences." Pet. 52. In another suggestion, Petitioner asserts "a POSITA would have been motivated to use Zhang's existing process, but take advantage of the distance-induced distortions identified by Tanii by using a (wide-angle) camera that induces these distortions at different distances, and capturing two images of the face at different distances." *Id.* at 51. But, as Patent Owner and Dr. Turk point out, there are unacknowledged complexities to those modifications, which seemingly "create[] features out of thin air during distortion correction in an attempt to compare it to a second photo," e.g., ears missing from one image which are used in another image. PO Resp. 62; Ex. 2061 ¶¶ 170–176. Similarly, Patent Owner and Dr. Turk point out that Petitioner's modifications must compare images based on perspective distortions and, so, require "manufactur[ing] an entire set of operations and evaluations that do not appear in either reference." PO Resp. 63; Ex. 2061 ¶ 177. As above, Petitioner's motivations do not support its leap from the knowledge of the perspective distortion phenomenon to the use of that knowledge to verify three dimensionality. *See Kinetic* Concepts, 688 F.3d 1369. Further, such added complexity suggests that Petitioner's proffered motivations inadequately support the combination. *See Henny Penny*, 938 F.3d 1332.

Accordingly, for the reasons discussed above, we determine that Petitioner fails to show by a preponderance of the evidence that a person of ordinary skill in the art would have been motivated to combine and modify Zhang and Tanii as proposed. Every challenged claim over the combination of Zhang and Tanii relies on the same flawed motivation and, as such, we determine that Petitioner fails to show by a preponderance of the evidence

that claims 1–20 would have been obvious over Zhang and Tanii or Zhang, Tanii, and Tahk, or Zhang, Tanii, and Hoyos.

3. Limitations 1[d3] and 1[d4] – Second Image at Second Distance from the User

We are unpersuaded by Petitioner's contentions for another reason—none of the relied upon references teach capturing two images at two different distances, as required by limitations 1[d3] and 1[d4]. These limitations recite "moving the camera from a first location to a second location, the second location being a second distance from the user" and "capturing at least one second image of the user taken with the camera of the computing device at the second distance from the user, the second distance being different than the first distance."

Derakhshani does not teach capturing a second image at a second distance from the user. Derakhshani teaches two different approaches: (1) focus-distance approach and (2) parallax approach. Petitioner acknowledges that the focus-distance approach does not expressly disclose capturing a second image at a second distance. Pet. 13 (distinguishing "*focus* distances" from "*actual* distances."). This is because focus-distance, by definition, is not actual distance. Ex. 1005, 16:47–48 ("Focus distance is the distance from a sensor to a point in its field of view that is perfectly in focus.") In Derakhshani's focus-distance approach the camera stays the same distance from its subject—only the focus distance changes. *Id.* at 16:66–17:2 ("By comparing degree of focus for a landmark in images with different focus distances, the distance from the sensor to the landmark may be estimated.")

Derakhshani's parallax approach also does not expressly disclose capturing a second image at a second distance. In the parallax approach the camera is rotated or slid about the user to create images with different perspectives. Ex. 1005, 17:59–64 ("In some implementations, the sensor is moved about the subject during image capture to collect image data from different orientations relative to the subject. For example, a single camera may be rotated or slid slightly or multiple cameras at different positions may be used for image capture."). Rotating a camera around a user does not change the distance of the camera from the user. At the hearing Petitioner, instead, focused specifically on the use of the word "slid" in Derakhshani as indicating that Derakhshani takes a second image at a second distance. Tr. 16:9–12 ("[Petitioner's Counsel: . . . Dr. Daft is talking about some of the terms that Derakhshani is using. For example, the term slid and shown in the images, he talks about how slid refers to the different distances between the sensor and the user."). We determine that it is more likely that the word "slid," as used in the relevant portion of Derakhshani, further describes the rotation of the camera about the user. Derakhshani indicates as much by describing that both rotating and sliding the camera are examples of how the camera sensor is "moved about the subject during image capture." Derakhshani, 17:60–61. Thus, sliding the camera does not necessarily disclose moving the camera to a second distance from the subject.

Zhang also does not expressly disclose capturing a second image at a second distance. Petitioner acknowledges as much stating "[a]lthough Zhang does not expressly say that the second image is captured at a second distance different from the distance of the first image, this would have been obvious to a POSITA." Pet. 58 (citing Ex. 1003 ¶ 293). Because Zhang

does not expressly disclose capturing a second image at a second distance, Petitioner once again relies on expert testimony to argue that the multiple images disclosed in Zhang would have been taken at different perspectives resulting from rotating or translating the position of the camera and that taking images at different distances would have enhanced Zhang's homography-transformation procedure. Pet. 58–59 (citing Ex. 1003 ¶ 293). From here Petitioner repeats many of the same arguments it made regarding the parallax approach from Derakhshani, except that these arguments are on even weaker footing because Zhang does not mention taking images by sliding the camera as Derakhshani did, nor does it mention rotating or translating the position of the camera, nor even that the multiple images taken should be from different perspectives. Each of these assertions are made solely on the basis of Petitioner's expert testimony, and as such are not persuasive. Pet. 58–60 (citing Ex. 1003 ¶¶ 292–296). Petitioner's argument that Zhang teaches capturing a second image at a second distance simply lacks sufficient support from Zhang's disclosure.

Finally, Tanii also does not expressly disclose capturing a second image at a second distance, nor does Petitioner rely on Tanii as expressly doing so.[2] *See* Pet. 22–24, 58–60 (mostly relying on Derakhshani alone or

[2] The dissent states that Tanii discloses capturing two images at different distances in figures 3A–B, and 4A–B and the accompanying text. Leaving aside the issue of whether Petitioner relies on this disclosure for teaching two images at two different distances, we respectfully disagree that Tanii does so. Tanii contrasts figures 3A–B and 4A–B merely to describe the concept of perspective distortion and to introduce the problem that Tanii is intended to solve. *See* Ex. 1007 ¶ 47 (contrasting natural and unnatural images). Tanii's technique does not actually capture both of these images.

Zhang alone as teaching capturing two images at two different distances, but arguing that to the extent they do not do so, it would have been obvious to modify them to take advantage of Tanii's distance-induced perspective distortion.) This is because, as explained above, Tanii is not concerned with detecting whether the subject is three-dimensional. *Supra* §§ II.E.1, II.E.2. Tanii, therefore, does not, and has no need to, capture a second image at all, let alone a second image at a second distance.

Because none of the references teaches capturing a second image at a second distance from the user, Petitioner relies on expert testimony to bridge the gap. Some of the instances of gap filling are described above. In other instances, Petitioner argues that a person of ordinary skill would have been motivated to modify Derakhshani and Zhang to capture two images at two different distances to take advantage of Tanii's teaching of distance-based perspective distortions. *See* Pet. 24 (citing Ex. 1003 ¶ 170) ("a POSITA would have been motivated to modify Derakhshani in view of Tanii to expressly capture a second image at a second distance, and look for different degree of distance-induced distortions to verify the face is three-dimensional"); *id.* at 59 (citing Ex. 1003 ¶ 293) ("to the extent Zhang does not disclose or suggest this limitation, a POSITA would have been motivated to modify Zhang in view of Tanii to capture a second image at a second distance while taking advantage of these distance-induced distortions to distinguish between live, three-dimensional faces and two-dimensional

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Instead, the remainder of Tanii's disclosure shows that only one image is captured by Tanii, an image that is assumed to be unnatural and to have perspective distortion that Tanii then corrects for. *See* Ex. 1007 ¶¶ 48–50, 56.

pictures."). But as we explain above, Tanii does not disclose capturing a second image at a second distance, and we are unpersuaded that a person of ordinary skill would have modified Derakhshani and Zhang merely because Tanii discloses perspective distortion. *Supra* §§ II.E.1, II.E.2.

Regardless, Petitioner's reliance on Dr. Daft's testimony amounts to more than just providing a motivation to combine the prior art. Here, it amounts to relying on expert testimony to supply a missing limitation. As such, Petitioner's arguments are not persuasive to demonstrate that the prior art teaches the limitations of the claim by a preponderance of the evidence. *See Xerox Corp. v. Bytemark, Inc.* IPR2022-00624, Paper 9, 16 (PTAB Aug. 24, 2022) (precedential) (explaining that relying on expert testimony "is particularly problematic in cases where, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art.")

Independent claim 10 includes limitations identical to limitations 1[d3] and 1[d4]. *See* Ex. 1001, 39:28–37. We, therefore, determine that the prior art does not teach these limitations of both independent claims of the '471 patent, and for the same reasons, all dependent claims of the '471 patent.

4. Objective Indicia of Nonobviousness

As discussed above, Petitioner has not set forth adequate motivation to support its challenges based on the combination of Derakhshani and Tanii or Zhang and Tanii nor has Petitioner shown that limitations 1[d3] and 1[d4] are taught by any of the references. Although these failures alone defeat Petitioner's challenges, Patent Owner's objective indicia, i.e., secondary

considerations, are also probative of nonobviousness. In particular, Patent Owner's evidence on commercial success, industry praise, and skepticism weigh heavily in favor of nonobviousness.

"For objective evidence of secondary considerations to be relevant, there must be a nexus between the merits of the claimed invention and the objective evidence." *Volvo Penta of the Americas, LLC v. Brunswick Corp.*, 81 F.4th 1202, 1210 (Fed. Cir. 2023). Furthermore, the "patentee bears the burden of showing that a nexus exists." *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). Patent Owner may prove nexus, even absent a presumption of nexus, by showing that the objective indicia evidence is the "direct result of the unique characteristics of the claimed invention." *Id.* at 1373–74.

Patent Owner has demonstrated a nexus by showing that certain objective indicia, discussed below, are the direct result of the unique characteristics of the claimed invention. As discussed above in our summary of the '471 patent and reflected in our discussion of Petitioner's obviousness challenges (*see* §§ I.D, II.E.1, II.E.2, II.E.3), the unique characteristics of the claim relate to verification of three dimensionality by comparing two images taken at different distances for perspective distortion. Indeed, those features are what distinguish over the prior art. *See id.* Furthermore, Patent Owner, supported by testimony from its Chief Technology Officer, Mr. Rose, asserts the unique characteristics claimed are reflected in the "3D liveness checks" its ZoOm software product provides because ZoOm "confirms that a user is 3D by comparing images taken at different distances for expected differences in biometric data, such as the presence of appropriate perspective distortion and differences." PO Resp.

25 (citing Ex. 2059 ¶ 49). Patent Owner's assertion is further supported by a "FaceTec Software Explanation" stating that its software uses "near & far image data . . . to determine if the expected differences in perspective distortion are present in the image data" and, from that, "decides if there is sufficient evidence in the image data to conclude with a high degree [of] confidence that the image data contains first-generation biometric data captured in real-time from a live, physically present user." Ex. 2067; *see* PO Resp. 22, 27. As such, the 3D liveness checks provided by Patent Owner's software are indicative of the unique characteristics of the claimed invention and, as we discuss below, certain objective indicia of nonobviousness have a direct nexus to the 3D liveness checks of its software.

Turning to commercial success, Patent Owner has shown that its evidence of commercial success is directly attributable to those 3D liveness checks, i.e., the unique characteristics of the claimed invention. Patent Owner, supported by Mr. Rose, points out that its revenues from selling its 3D liveness checks have [redacted] PO Resp. 24 (citing Ex. 2059 ¶ 52). Patent Owner further points out that a number of "global" customers pay for its 3D liveness checks, "including PayPal, Experian, Match Group, U.S. Department of Homeland Security, and Canadian Parliament;" that list of paying customers also includes Petitioner. *Id.* at 24–25 (citing Ex. 2059 ¶ 53). The large and steadily increasing amount of revenue from a global customer base show commercial success and that the commercial success is specifically attributable to the 3D liveness checks provided by Patent Owner's product. Patent Owner and Mr. Rose point out that "the

performance of 3D liveness checks was the only feature that customers paid for, and in fact, many customers use only this feature." PO Resp. 25; Ex. 2059 ¶ 48. Mr. Rose supports his testimony with a price quote sheet showing that "3D Liveness Checks" are the only paid features. Ex. 2068, 1. That evidence shows that customers paid specifically for access to Patent Owner's 3D liveness checks. As such, Patent Owner's evidence of commercial success is directly attributable to the unique characteristics of the claimed invention and is strong evidence favoring nonobviousness.

We also find Patent Owner's evidence of industry praise is directly attributable to the unique characteristics of the claimed invention. Patent Owner highlights a publication, which states that Patent Owner's software was the "first and only face authenticator certified to Level 1 and 2 in the iBeta/NIST Presentation Attack Detection test based on the ISO 30107-3 standard." PO Resp. 7–8; Ex. 2064. Patent Owner provides two certifications from iBeta, accredited by NIST/NVLAP, confirming that Patent Owner's ZoOm software product achieved such success. PO Resp. 7–8; Ex. 2037; Ex. 2078. In fact, Petitioner itself touted that accreditation in a press release, stating "FaceTec recently announced that ZoOm is the first face biometric authentication software to achieve a Level 1 rating in the iBeta (NIST/NVLAP) Presentation Attack Detection (PAD) certification test," which "determines the real-world effectiveness of anti-spoofing technology in compliance with the ISO 30107-3 global standard." Ex. 2079, 2; *see also* Ex. 2057 (Petitioner's Chief Product Office praising Patent Owner's product as "the most accurate and secure solution" and an "advantage."). In fact, Petitioner's press release went on to even more vociferously praise Patent Owner's 3D liveliness check. *See* Ex. 2079.

Petitioner's assertion that that its praise was for "something more than just the check for three-dimensionality" is contradicted by the press release itself, which directly praises the 3D liveliness check reflecting the unique characteristics of the claim, stating "the liveness detection AI is by far the strongest we have ever seen," "FaceTec's liveness detection offers some very tangible benefits in terms of a more streamlined user experience and omnichannel support," and such "upgraded liveness detection functionality provides a more seamless experience that helps convert more legitimate customers and better flags suspicious accounts who attempt to spoof the liveness detection process. These advanced liveness detection technologies provide Jumio a significant competitive advantage in terms of speed, accuracy, and anti-spoofing capabilities." Ex. 2079, 2. Petitioner asserts that it made such praise when it "was not a competitor" (Pet. Reply 30), but that is of little moment as Petitioner was at least in the same industry, describing itself as "the leading AI-powered trusted identity as a service provider" in its press release praising ZoOm. Ex. 2079, 1. As discussed above, the unique aspects of the claimed invention match the 3D liveliness check features in the ZoOm software product — and it is those features which drive the aforementioned industry praise. We determine the evidence is industry praise is strong evidence favoring nonobviousness.

Patent Owner's evidence of skepticism is also tied to the unique characteristics of the claimed invention. Patent Owner provides an MIT Technology Review article, which discusses the unique characteristics of the claimed invention and explains that Patent Owner's face verification system "collects a handful of video frames and then sees how face features like the tip of your nose change as you move the camera lens closer." Ex. 2050, 1–2.

The article then provides a skeptical quote from Marios Savvides. *See id.* Petitioner argues Mr. Savvides's quote does not show skepticism because Mr. Savvides acknowledges that Patent Owner's approach "makes sense" (Pet. 33), but that acknowledgement was limited to a specific type of attack and Mr. Savvides expressed skepticism as to whether Patent Owner's system "could prevent someone with a 3-D mask" from defeating Patent Owner's system. Ex. 2050, 2. Petitioner's other attempt to cast a quote from Rich Mogull as a lack of enthusiasm (Pet. Reply 33) also lacks context. Although Mr. Mogull stated that "FaceTec can surely get its technology to work" that statement was made in reference to "simple two-dimensional facial recognition." Ex. 2050, 3. Mr. Mogull went on to say "[b]ut I'd be shocked if it was as usable or secure as alternative methods we now see being adopted." *Id.* That is, Mr. Mogull stated that Patent Owner's approach was workable, but was skeptical that it was as good as other methods. As such, Patent Owner has presented evidence of industry skepticism favoring nonobviounsess.

Patent Owner provides strong evidence of commercial success and industry praise; it also provides favorable evidence of industry skepticism. We determine that evidence, considered together, weighs heavily in favor of nonobviousness. As the combined weight of that evidence is already substantial, Patent Owner's remaining evidence regarding copying, long-felt need, and failure by others does not change our determination and we need not opine on that evidence.

Accordingly, Patent Owner's objective indicia evidence strongly bolsters our discussion above that Petitioner has not shown, by a preponderance of the evidence, that the challenged claims would have been

obvious over its combinations based on Derakhshani and Tanii or Zhang and Tanii.

III. CONCLUSION

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has not shown by a preponderance of the evidence that any of claims 1–20 are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–13, 15–17, 19, 20	103	Derakhshani, Tanii		1–13, 15–17, 19, 20
14	103	Derakhshani, Tanii, Tahk		14
18	103	Derakhshani, Tanii, Hoyos		18
1–3, 5, 7–12, 16, 17, 19, 20	103	Zhang, Tanii		1–3, 5, 7–12, 16, 17, 19, 20
4, 6, 13–15	103	Zhang, Tanii, Tahk		4, 6, 13–15
18	103	Zhang, Tanii, Hoyos		18
Overall Outcome				1–20

IV. ORDER

It is:

ORDERED that claims 1–20 of U.S. Patent No. 10,776,471 B2 are not determined to be unpatentable;

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2; and

FURTHER ORDERED that the parties shall jointly email a proposed redacted version of this paper no later than 14 days from the entry of this Decision to Trials@uspto.gov, and if no redacted version is received within that time period, this Decision shall be made public.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUMIO CORP.,
Petitioner,

v.

FACETEC, INC.,
Patent Owner.

IPR2025-00106
Patent 10,776,471 B2

Before GARTH D. BAER, NABEEL U. KHAN, and BACH V. HOANG, *Administrative Patent Judges.*

BAER, *Administrative Patent Judge*, dissenting.

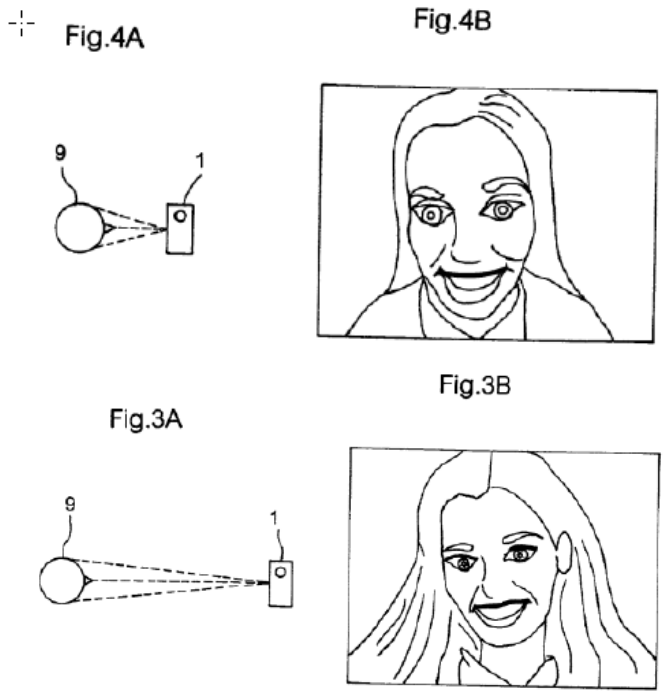
I respectfully dissent from the majority's decision finding none of the challenged claims are unpatentable.

A. Petitioner's Rationale for Combining Tanii and Derakhshani

The majority finds Petitioner did not show a sufficient motivation to combine Tanii's distance-induced distortion teaching with Derakhshani's system for verifying that captured user images are three dimensional. I disagree.

Derakhshani teaches verifying whether a user's face is three-dimensional using two known optical effects—changes in focus distance and

parallax effects—that objects with depth exhibit across different images. Ex. 1005, 16:44–18:4. The only claimed feature arguably missing from Derakhshani is that its three-dimensionality verification does not use images of objects captured at different distances. Tanii teaches another known optical effect (this time a distance-based one) that objects with depth exhibit across different images. Specifically, Tanii teaches that the convex shape of a three-dimensional face near a lens exacerbates distortion arising from the interaction between the shapes of objects being imaged and the camera's lens. Ex. 1007 ¶ 48, Ex. 1003 ¶ 137. When, however, a face is farther from the camera and occupies less of the image, a more natural image with less distortion results. Ex. 1007 ¶ 47, Ex. 1003 ¶ 137. Tanii illustrates this phenomenon in Figures 4A–4B and 3A–3B, reproduced below.



Figures 4A and 4B depict an "unnatural image . . . in which the perspective is exaggerated" when the object and camera are close together, whereas

Figures 3A and 3B depict "a natural image" when an object is farther from the camera. Ex. 1007 ¶ 47.

Because Tanii's distance-based perspective distortion is, like Derakhshani's focus-distance and parallax effects, a known optical effect of three-dimensional faces, I agree with Petitioner that "a POSITA would have understood Tanii merely teaches an obvious alternative to Derakhshani's existing two approaches to evaluate whether a face being captured is three-dimensional." Pet. 14; *see also id.* at 15 (explaining that both techniques involve the application of well-known optics principles that indicate when the face being captured has depth); Ex. 1003 ¶¶ 134–138. With that rationale, in my view, Petitioner articulated sufficient reasoning with rational underpinning to support the legal conclusion that its proffered combination would have been obvious to one skilled in the art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

I do not share the majority's concerns for Petitioner's rationale. For example, the majority emphasizes that Tanii does not describe verifying that captured user images are three dimensional. That, however, does not undermine Petitioner's challenge in my view because, as Petitioner explains, "although Tanii is not expressly directed to *evaluating* whether a face has depth," it teaches an alternative known optical effect that "provide[s] information about an object's depth," and thus provides an "obvious alternative to Derakhshani's existing two approaches to evaluate whether a face being captured is three-dimensional." Ex. 1007 ¶¶ 134, 138. I also disagree with the majority that Tanii's distance-based perspective distortions do not indicate three dimensionality because an object's depth causes distance-based distortions, rather than vice versa. The challenged claims

recite authenticating a user when "expected distortion" occurs. Ex. 1001, 38:40–41. Derakhshani is no different from Tanii in this regard as it describes verifying three dimensionality with known "optical effects" because they "indicate a three-dimensional subject." Ex. 1005, 16:58–59, 17:22–23; *see id.* at 16:44–18:4. Last, although the majority highlights differences between Derakhshani's and Tanii's approaches, I do not agree that those differences mean Tanii's approach is more complex. On that issue, I find nothing in the record to undermine Dr. Daft's testimony that skilled artisans "would have had a reasonable expectation of success" in using Tanii's and Derakhshani's approaches because "both techniques merely involve the application of different well-known optics principles relating camera design and object's distance from the camera." Ex. 1003 ¶ 141.

B. Petitioner's Challenges based on Zhang

Because the majority's criticism for Petitioner's Zhang-based challenges largely parallels that for Petitioner's Derakhshani-based challenges, I disagree for the same reasons outlined above.

C. Capturing Images at Different Distances

I also disagree with the majority that the asserted references do not teach capturing two images at two different distances. Both Derakhshani and Zhang disclose capturing multiple images of a subject. *See* Ex. 1005, 16:44–17:11, 17:45–18:4; Ex. 1006 ¶ 16. Tanii's figures 3A–B, and 4A–B, along with the accompanying text, describe differences in images captured at different distances, one where object is at "a sufficient distance" from a phone to produce a natural image, and another in which perspective is

exaggerated because the object and phone "are close together." Ex. 1007 ¶ 47. Given those disclosures, I agree with Petitioner that its asserted combinations teach capturing two images at two different distances, as claimed.

D. Objective Indicia

In my view, Patent Owner has not shown that its proffered objective indicia relate to the unique characteristics of the claimed invention, rather than what was already known in the prior art. *See Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023, 1034 (Fed. Cir. 2016) (explaining that objective evidence lacks nexus if it relates to a known feature). I find nothing in the asserted evidence that ties the alleged commercial success, industry praise, or skepticism to 3D checks using distance-varying optical effects, as compared to other non-distance-varying effects like Derakhshani's. Because, in my view, Patent Owner's objective indicia lack the required nexus, I do not find that they weigh in favor of nonobviousness.

For these reasons, I respectfully dissent from the majority's decision finding none of the challenged claims are unpatentable.

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