

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.

KHAN, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

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 U.S. Patent No. 10,776,471 B2 (“the ’471 patent,” Ex. 1001). 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”).

An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Per Board practice, if the Board institutes trial, it will institute “on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” *See* 37 C.F.R. § 42.108(a). Having considered the arguments and evidence presented by Petitioner and Patent Owner, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’471 patent. We exercise our discretion to institute *inter partes* review and, as required, we do so as to all the challenged claims of the ’471 patent on all the grounds of unpatentability set forth in the Petition.

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).

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
US 2010/0014720 A1; filed Oct. 2, 2007; published Jan. 21, 2010 (“Hoyos”).	1010

Petitioner also relies on the Declaration of Christopher Daft, D. Phil. (Ex. 1003) in support of its arguments. 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. EXERCISE OF DISCRETION

A. 35 U.S.C. § 314(a)

Patent Owner argues the Board should exercise its discretion to deny institution under 35 U.S.C. § 314(a) in light of two co-pending district court cases. Prelim. Resp. 47–56. Patent Owner filed the Nevada litigation in 2021 against iProov. Paper 4, 2; Prelim. Resp. 56. Patent Owner filed the California litigation against Petitioner in 2024. Paper 4, 2; Prelim. Resp. 11 (citing Ex. 2008, 5). iProov moved to intervene in the California litigation and the court granted the motion. Prelim. Resp. 11; Ex. 2009, 6; Ex. 2010, 4. iProov moved to stay the Nevada litigation pending IPR(s) in February 2025 and the court has not decided whether to stay the case. Prelim. Resp. 57.

We consider the following factors to assess “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.”

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;

4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple, Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”).

1. *Factor 1 – Whether the Court Granted Stay or Evidence Exists That One May Be Granted If a Proceeding is Instituted*

In the California litigation, the case is currently stayed pending appointment of new counsel for Petitioner and a motion to stay pending IPR(s) was denied without prejudice to being refiled once new counsel has appeared for Petitioner. Ex. 2030. In the Nevada litigation, iProov moved to stay the case pending IPR(s) in February 2025, but the court has not decided whether to grant the stay. Prelim. Resp. 57. We decline to speculate about how the district court might rule on any refiled motion to stay in the California litigation (or the pending motion to stay in the Nevada litigation). Thus, the first factor is neutral.

2. *Factor 2 – Proximity of the Court's Trial Date to the Board's Projected Statutory Deadline for a Final Written Decision*

Our final written decision is due to be issued mid-June 2026, approximately two months before the August 10, 2026 scheduled trial date in the California litigation. Moreover, as Petitioner notes, the trial date is likely to be delayed because the case is stayed and the district court granted Patent Owner's disqualification motion. Prelim. Reply 5. In addition, no trial date has been set in the Nevada litigation. Prelim. Resp. 58–59. In these circumstances, this second factor favors institution.

3. *Factor 3 - Investment in the Parallel Proceeding by the Court and the Parties*

Patent Owner argues this factor favors denial because in both the California and Nevada litigations, the parties have served infringement/invalidity contentions and fact discovery is ongoing. Prelim. Resp. 59–61. We disagree.

Although the parties and the court have invested in the related district court litigation, much remains to be done, including claim construction decision and expert discovery in the California litigation. *See* Ex. 2008, 8 (docket entry 38). No substantive decisions have been rendered in the California litigation. *See generally* Ex. 2008. In addition, Petitioner exercised diligence in filing its Petition less than five months after it was served—i.e. more than seven months before the statutory deadline. *See* Ex. 2008, 5 (docket entry 9), Paper 5, 1. In these circumstances, this factor weighs in favor of institution.

4. *Factor 4 - Overlap Between Issues Raised in the Petition and in the Parallel Proceeding*

Patent Owner argues “iProov’s and Jumio’s recently updated invalidity contentions collectively cover all of the asserted references in the Petition [and] the arguments presented here completely overlap with the district court litigations.” Prelim. Resp. 61–62. For these reasons, this factor weighs against institution.

5. *Factor 5 – Whether the Petitioner and the Defendant in the Parallel Proceeding Are the Same Party*

The Petitioner is a defendant in the California litigation but is not a defendant in the Nevada litigation. Under the circumstances, the fifth *Fintiv* factor is either neutral or weighs marginally in favor of denial.

6. *Factor 6 – Other Circumstances That Impact the Board’s Exercise of Discretion, Including the Merits*

The sixth *Fintiv* factor takes into account other circumstances that may bear on our decision whether to exercise discretion to deny, such as whether the merits of the challenges are particularly strong. *Fintiv* at 14–16. As outlined below, we find Petitioner’s analysis shows a reasonable likelihood of prevailing. Beyond that, we do not find the merits in this case to be of particular significance such as to weigh this sixth factor for or against exercising discretion to deny the Petition.

7. *Conclusion*

On balance, after weighing the *Fintiv* factors, we decline to exercise our discretion to deny institution. As discussed above, factors 2 and 3 weigh in favor of not exercising discretion to deny. Factors 1 and 6 are neutral. Factors 4 weighs in favor of exercising discretion to deny. Factor 5, at best, weighs marginally in favor of exercising discretion to deny. Weighing the favors holistically, the factors favoring discretionary denial do not outweigh the strength of the reasons not to discretionarily deny institution. We particularly note the early stage of the district court cases and district court trial dates which are either unscheduled or are scheduled to occur after our final written decision. Accordingly, we do not exercise discretion to deny institution under 35 U.S.C. § 314(a).

B. *35 U.S.C. § 325(d)*

Patent Owner argues that “[n]early every reference Petitioner relies on was already considered by the Office during prosecution or is cumulative of a considered reference.” Prelim. Resp. 22. Specifically, Patent Owner argues that (1) an application related to, and with the same disclosure as, Derakhshani was considered by the Office during prosecution; (2) that

Zhang is cumulative of Derakhshani; (3) that Tanii is cumulative of Todoroki¹, a reference used by the Examiner in a rejection during prosecution; and (4) Hoyos was previously considered by the Examiner. *Id.* at 22–31. Our analysis focuses on the Tanii reference because it is relied upon in all of Petitioner’s challenges and because our determination that Tanii is not cumulative of Todoroki resolves the 35 U.S.C. § 325(d) analysis. For the reasons given below, we decline exercising our discretion to deny institution.

Section 325(d) of Title 35 of the United States Code addresses the relationship of proceedings before the Board with other proceedings in the Office, and provides, in part, that

[i]n determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31,^[2] the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.

35 U.S.C. § 325(d).

In evaluating arguments under Section 325(d), we use a two-part framework, determining, first, “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). That first determination considers: (a) the similarities and material differences between the asserted art and the prior art involved

¹ US Publication 2014/0169643 A1 (“Todoroki”).

² Chapter 31 (35 U.S.C. §§ 311–319) relates to *inter partes* review.

during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; and (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art. *Advanced Bionics* at 9–10 (citing *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17–18 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (“*Becton, Dickinson*”).

If either condition of the first part of the framework is satisfied, we turn to the second part of the framework and determine “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics* at 8.

Our § 325(d) analysis of Tanii begins, and ends, with the first part of the framework.

*1. Whether the Same or Substantially the Same Art
Previously Was Presented to the Office*

Petitioner relies on Tanii in combination with other references for all its challenges. Pet. 3. There is no dispute that Tanii was not previously presented to the Office. *See* Pet. 82–83; Prelim. Resp. 28; Prelim. Reply 4–5; Prelim. Sur-Reply 3–4. Instead, the dispute is whether the first part of the *Advanced Bionics* framework is satisfied because Tanii is cumulative of Todoroki. Prelim. Resp. 28–30; Prelim. Reply 4; Prelim. Sur-Reply 3–4; *see* Pet. 82–83.

We determine that Tanii is not substantially the same art as Todoroki because the teachings Tanii is relied upon for are materially different than the teachings Todoroki was relied upon for and Petitioner applies Tanii’s different teachings to reach different claim limitations. We detail those two points in turn below.

a) The References Teach Different Types of Image Distortion

Although both Todorki and Tanii teach image distortion, the types of distortion the references are cited for are materially different.

Patent Owner states the Examiner cited paragraphs 18, 19, 64, and 89 of Todoroki in a rejection during prosecution of a related application. Prelim. Resp. 28. These paragraphs of Todoroki teach “position distortion” correction using a motion vector calculated between two images of a face. Prelim Resp. 28–29 (citing Ex. 2018 ¶¶ 18–19, 57, 64, 67–69, 89).³ Patent Owner points out an example of position distortion when a face image is not captured “in a front-oriented state in a predetermined range.” *Id.* at 28–29; Ex. 2018 ¶ 57. Figure 4, reproduced in relevant part below, shows position distortion of a captured face image as compared to another face image. Ex. 2018 ¶ 57.

FIG.4

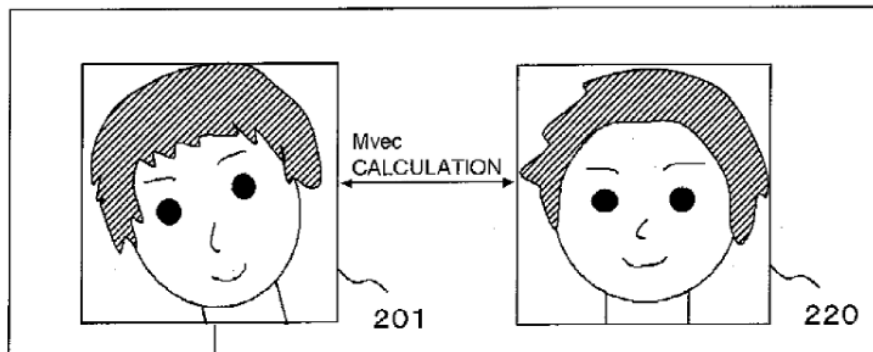


Figure 4 is a schematic view showing a face image with position distortion. Ex. 2018 ¶¶ 30, 64

³ Petitioner characterizes this distortion “motion-induced” distortion. Prelim. Reply 4 (citing Ex. 2018 ¶ 68); Ex. 2018 ¶ 65. We use Todorki’s terminology, “position distortion.” Ex. 2018 ¶ 57.

Figure 4 shows input face region image 201, i.e., the imaged face, having a position distortion as compared to average face image 220, i.e., a stored reference face image. Ex. 2018 ¶¶ 64; *see id.* ¶¶ 40, 61, 63, 67.

Petitioner’s use of Tanii, on the other hand, relies on a different type of face distortion where “an unnatural image results in which the perspective is exaggerated” because a camera images a face too closely. Ex. 1007 ¶¶ 5–7, 47; *see* Pet. 10. Figures 3B and 4B of Tanii are reproduced side-by-side below to illustrate Tanii’s perspective exaggeration.

Fig.3B

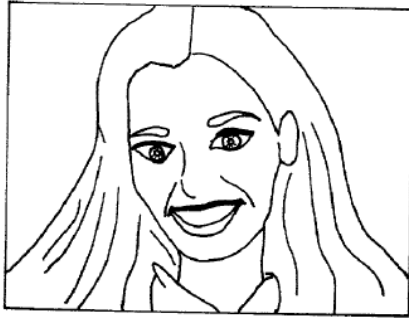


Fig.4B



Figures 3B and 4B are drawings show, respectively, not warped and warped images of a face. Ex. 1007 ¶¶ 19–20.

Figure 3B of Tanii shows an imaged face which is “natural” and undistorted; Figure 4B, in comparison, shows a distorted, “unnatural,” or “warp[ed]” image exhibiting perspective distortion. Ex. 1007 ¶¶ 19, 21, 47–48. Tanii recognizes that the perspective distortion shown in Figure 4B is caused when a three-dimensional object imaged by a cellular phone is too close to the cellular phone. Ex. 1007 ¶¶ 47–48; *see id.* ¶¶ 5–7.

Patent Owner’s characterization that Tanii and Todoroki both correct “forward and rearward distortion” of face images is too reductive, ignoring the material differences in the relied upon information. Prelim. Resp. 29; Prelim. Sur-Reply 4. Todoroki’s “forward and rearward distortion” is an

“enlargement or reduction” in the size of the captured face, suggesting distortion resulting from the change in apparent size of the face when it is captured at different distances from the camera. *See* Ex. 2018 ¶ 68. Tanii’s perspective distortion, on the other hand, is an “exaggerated” face resulting from the three-dimensionality of the captured face. Ex. 1007 ¶ 48 (“this unnatural image is caused because, where the center area of the main object protrudes toward the imaging portion 2 relative to the peripheral areas, i.e., where the main object has an essentially convex configuration that protrudes toward the imaging portion 2”); *see id.* ¶ 49, Fig. 5. Accordingly, Todoroki and Tanii do not teach the same types of distortion.

Patent Owner asserts those differences are irrelevant. Prelim. Sur-Reply. 3–4. They are not; those differences are reflected in the manner in which Petitioner applies Tanii.

*b) The References’ Different Teachings Are
Relied Upon in Different Manners*

Todoroki and Tanii’s different teachings reach different limitations, in different claims, in different patents, and for different reasons. During prosecution of a related patent, the Examiner relied on Todoroki to reach a claim limitation reciting “distorting the at least one first image and the at least one second image prior to processing.” Ex. 2013, 408–409 (citing Ex. 2018 ¶¶ 18, 19, 64, 89).⁴ In this proceeding, Petitioner relies on Tanii (in combination with other references) to reach different claim features relating to capturing images at different distances and “comparing the first data to the second data to determine whether expected differences exist between the

⁴ Appellant cancelled the claim Todoroki applied to (claim 19) in its next response to the Examiner’s rejection, leaving the merits of Examiner’s reliance on Todoroki unresolved. Ex. 2013, 138, 142.

first data and the second data which indicates three-dimensionality of the user,” i.e., limitations [1d3], [1d4], [1d6], [1d7]. Pet. 22–27, 58–63 (citations omitted). That is, the Examiner relied on Todoroki to *apply distortion* to images whereas Petitioner relies on Tanii to *determine three-dimensionality based on expected distortion* between images.

Furthermore, Petitioner relies on materially different information to reach those different limitations. Petitioner discusses at length how its combination relies on the specific type of perspective distortion Tanii teaches. Pet. 13 (“Tanii . . . leverages geometric distortion arising from the interaction between the shapes of objects being imaged and the camera’s lens.”) (citation omitted); *see id.* 13–16, 22–27. Petitioner also bases its motivation to combine Derakhshani and Tanii on a specific characteristic of Tanii’s geometric distortion. *See* Pet. 12–16. Tanii discloses that “images of a face close to the camera—in which the face occupies most the image—will exhibit significant distortion. . . . But when the face is further from the camera and occupies less of the image, less distortion will be apparent.” Pet. 12 (citing Ex. 1007 ¶ 47). This characteristic of geometric distortion is relied upon by Petitioner for motivation to modify Derakhshani from using different focus distances to using different actual distances. These specific disclosures relied upon by Petitioner from Tanii demonstrate that Petitioner does not rely on Tanii in the same manner as the Examiner relied on Todoroki for during prosecution.

2. Conclusion

For the above reasons, we determine Tanii is not substantially the same art as Todorki. Patent Owner does not argue that Petitioner presents the same or substantially the same arguments previously presented to the

Office and we do not discern overlap between the arguments. *See* Prelim. Resp.

Accordingly, we determine that Tanii is not the same or substantially the same art as Todoroki and that Petitioner does not present the same or substantially the same arguments previously presented to the Office. Because the first part of the *Advanced Bionics* framework is not met, we need to reach the second part. We therefore decline exercising our discretion to deny institution under § 325(d).

III. TIME-BAR UNDER 35 U.S.C. § 315(B)

35 U.S.C. § 315(b) provides that an “inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, *real party in interest*, or *privy* of the petitioner is served with a complaint alleging infringement of the patent.” 35 U.S.C. § 315(b) (emphases added).

Patent Owner argues that iProov, Ltd. (“iProov”) is a real party in interest to this proceeding and is in privity with Petitioner and that the Petition is time-barred under 35 U.S.C. § 315(b) because it served iProov with a complaint for infringement of the ’471 patent in the Nevada litigation more than one year before this Petition was filed. Prelim. Resp. 5.

We disagree with Patent Owner’s arguments and we determine that Petitioner has demonstrated that this Petition is not time-barred under 35 U.S.C. § 315(b). Below we separately analyze whether iProov is a real party in interest to this proceeding and whether iProov is a privy of Petitioner.

A. *Background*

Patent Owner argues that on November 23, 2020, iProov and Petitioner entered into an agreement pursuant to which iProov provides its “Liveness Detection Software” to Petitioner for use in Petitioner’s products.

Prelim. Resp. 10 (citing Ex. 2006, 23). The agreement includes an indemnification obligation from iProov to Petitioner. *Id.* Patent Owner does not have access to the indemnification provisions of the agreement. *Id.* at 15.

In December of 2021, Patent Owner sued iProov in Nevada for infringement of the '471 patent and iProov accepted service on January 26, 2022. Prelim. Resp. 9 (citing Ex. 2025). In defending the infringement lawsuit in Nevada, iProov relied on Zhang and a continuation patent of Derakhshani (having the same disclosure as Derakhshani) in its invalidity contentions. *Id.* (citing Ex. 2003, 14; Ex. 2005, 1–2).

In June of 2024, Patent Owner sued Petitioner in California for infringement of the '471 patent based, in part, on Petitioner's use of iProov's technology. Prelim. Resp. 11 (citing Ex. 2008, 5). In September of 2024, iProov moved to intervene in the California litigation and the district court granted iProov's motion to intervene on November 1, 2024. *Id.* at 11; Ex. 2009, 6; Ex. 2010, 4. Petitioner and iProov each separately served invalidity contentions on Patent Owner in the California litigation in January of 2025. Ex. 2011; Ex. 2012. The invalidity contentions for both Petitioner and iProov rely on all, or nearly all, of the references relied upon in this Petition. Ex. 2011, 15, 127, 128; Ex. 2012, 18.

B. Whether iProov Is a Real Party in Interest

“[T]he heart of the [real party in interest] inquiry [is] focused on ‘whether a petition has been filed at a []party’s behest.’” *Uniloc 2017 LLC v. Facebook Inc.*, 989 F.3d 1018, 1028 (Fed. Cir. 2021) (“*Uniloc*”) (quoting *Applications in Internet Time, LLC v. RPX Corp.*, 897 F.3d 1336, 1351 (Fed. Cir. 2018) (“*AIT*”)); *see also Wi-Fi One, LLC v. Broadcom Corp.*, 887 F.3d 1329, 1336 (Fed. Cir. 2018) (“*Wi-Fi Remand*”) (“To decide whether a party

other than the petitioner is the real party in interest, the Board seeks to determine whether some party other than the petitioner is the ‘party or parties at whose behest the petition has been filed.’” (quoting Trial Practice Guide, 77 Fed. Reg. 48,757, 48,759 (Aug. 14, 2012)); *see also* Patent Trial and Appeal Board Consolidated Trial Practice Guide 14 (Nov. 2019) (“[A]t a general level, the ‘real party in interest’ is the party that desires review of the patent. Thus, the ‘real party in interest’ may be the petitioner itself, and/or it may be the party or parties at whose behest the petition has been filed”) (“TPG”). Relevant considerations may include whether the non-party is controlling, funding, or directing the IPR proceeding. *Uniloc*, 938 F.3d at 1028 (quoting *AIT*, 897 F.3d at 1342–32).

Patent Owner focuses its arguments on a few key issues that it contends indicate that iProov is a real party in interest to this proceeding. For example, Patent Owner points to the overlap in prior art references asserted in this Petition and the prior art references relied upon in the California and Nevada litigations. Prelim. Resp. 14–15, 18. Patent Owner also points to indemnity obligations between iProov and Petitioner. *Id.* at 15–16. And finally, Patent Owner emphasizes the benefit that iProov would get from this Petition. *Id.* at 17–18. Having reviewed these arguments and evidence of record we determine that, even in light of the issues raised by Patent Owner, Petitioner was not acting at the behest of iProov in filing this Petition and that iProov did not direct, control, or fund this Petition. Ex. 1049 ¶ 4 (counsel for Petitioner attesting that “iProov did not direct, control, or fund the Petitions. iProov did not work on the Petitions nor was it involved with the Petitions in any way. Petitioner never provided drafts of the IPR Petitions to iProov, and Petitioner never discussed the IPR Petitions or their substance with iProov.”) We, therefore, determine that iProov is not

a real party in interest to this proceeding. Below we analyze the key issues raised by Patent Owner.

Patent Owner argues that iProov is a real party in interest because it challenged the validity of the '471 patent in both the Nevada and California litigations based primarily on the same references asserted in this Petition. Prelim. Resp. 14–15 (citing Ex. 2003, 14, 17–18; Ex. 2004). This is especially so because, according to Patent Owner, iProov's invalidity contentions in the Nevada litigation were not filed publicly, indicating that iProov is controlling or, at least suggesting, the prior art relied on in this Petition. *Id.* at 15. Patent Owner also argues that the overlap indicates that Petitioner is representing iProov's interests. *Id.* at 18.

We disagree. The overlap in the prior art asserted in this proceeding and in the Nevada litigation is insufficient to demonstrate that iProov was directing Petitioner to file this Petition. Petitioner argues that it did not review iProov's invalidity contentions in the Nevada litigation before filing this Petition and at least some of the overlap in prior art can be explained by the fact that Petitioner, itself, owns one of the primary prior art references relied upon in this Petition. Prelim. Reply 3 (citing Ex. 1049 ¶¶ 5, 6). Patent Owner admits that “we do not have details about any communications that may have occurred” between iProov and Petitioner that discuss the overlapping prior art (Prelim. Resp. 15) and we decline to interpret the absence of communication information as evidence that there was indeed communication.

Patent Owner also highlights an indemnification agreement between iProov and Petitioner as evidence that iProov is controlling or funding this Petition. Prelim. Resp. 15–16. Patent Owner, however, acknowledges that it does not have access to the indemnity agreement and has not described

any specifics about the indemnity obligations. *Id.* at 15. Still, Patent Owner argues that indemnity agreements commonly require the indemnitor to “directly defend, have the opportunity to defend, or pay the costs of defending against patent assertions, including funding IPRs as part of an overall litigation strategy.” *Id.* at 15–16. Petitioner, for its part, argues that the indemnity agreement is a standard agreement. Prelim. Reply 2.

Although an indemnification agreement can, in some instances, support a finding that an indemnitor is a real party in interest, the analysis is highly fact-dependent and often based on the specifics of the indemnity obligation and additional facts regarding the relationship between the parties. *See Ventex Co. v. Columbia Sportswear N. Am., Inc.*, IPR2017-00651, Paper 148 (PTAB Jan. 24, 2019) (precedential) (evidence of indemnity agreement along with an exclusive manufacturing agreement, funding of the petition, and of manufacturer’s desire to shield its customers, supported finding that customer was a real party in interest). Under the circumstances present here, where we have no details about the indemnity obligations (other than Petitioner’s characterization that it is a standard agreement), and indeed no indication of the extent to which iProov is fulfilling those obligations, we determine that such a bare indemnity obligation is insufficient to demonstrate that iProov is a real party in interest to this proceeding. *WesternGeco LLC v. Ion Geophysical Corp.*, 889 F.3d 1308, 1321 (Fed. Cir. 2018) (agreeing with the Board that “ambiguous, undefined” indemnity agreement is insufficient to demonstrate privity and real parties-in-interest); *see also Luminex Int’l Co., Ltd. v. Signify Holdings B.V.*, IPR2024-00101, Paper 20 at 11–14 (Decision on Director Review) (PTAB Nov. 21, 2024) (standard indemnity agreement is insufficient to show that indemnitor is a real party in interest); *Wi-Fi Remand*, 887 F.3d at

1341 (explaining that indemnity agreements did not show right to control and were insufficient to show indemnitees were real parties-in-interest); *ASSA ABLOY AB et al. v. CPC Patent Tech. PTY, Ltd.*, IPR2022-01093, Paper 20 at 22–25 (PTAB Feb. 2, 2023) (“[A]n indemnification agreement, without something more, is insufficient to establish a RPI relationship.”).

Patent Owner’s argument that indemnity agreements commonly require the indemnitor to directly defend and fund the IPR is based on speculation about an indemnity agreement that Patent Owner admits it has not had access to. Prelim Resp. 15. We decline to determine iProov is a real party in interest based on such speculation.

Finally, Patent Owner argues that iProov would stand to benefit from this Petition, perhaps even more than Petitioner, because it has customers beyond just Petitioner. Prelim. Resp. 17, 18. While it may be true that iProov would benefit if the challenged claims were held to be unpatentable, this fact alone does not demonstrate that Petitioner filed this Petition at the behest of iProov. *WesternGeco*, 889 F.3d at 1321 (“[A] common desire among multiple parties to see a patent invalidated, without more, does not establish privity.”).

In sum, we determine that an overlap in prior art between this Petition and the related litigations, mere generic indemnity obligations, and the partial overlap in iProov’s interests with Petitioner’s, are insufficient to outweigh iProov’s un rebutted evidence that it does not direct, control, or fund this proceeding and insufficient to show that iProov is a real party in interest. Ex. 1049 ¶ 4.

C. Whether iProov is a Privy of Petitioner

“Privity is essentially a shorthand statement that collateral estoppel is to be applied in a given case.” *WesternGeco*, 889 F.3d at 1318 (quoting TPG

at 15). The privity “analysis seeks to determine whether the relationship between the purported ‘privy’ and the relevant other party is sufficiently close such that both should be bound by the trial outcome and related estoppels.” TPG 14–15. “[T]he rationale behind § 315(b)’s preclusion provision is to prevent successive challenges to a patent by those who previously have had the opportunity to make such challenges in the prior litigation.” *WesternGeco*, 889 F.3d at 1319. Therefore, “it is important to determine whether the petitioner and the prior litigant’s relationship—as it relates to the lawsuit—is sufficiently close that it can be fairly said that the petitioner had a full and fair opportunity to litigate the validity of the patent in that lawsuit.” *Id.*

Depending upon the circumstances, a number of factors may be relevant to the RPI or privity analysis, and relevant considerations include:

- (1) an agreement to be bound; (2) pre-existing substantive legal relationships between the person to be bound and a party to the judgment (e.g., “preceding and succeeding owners of property”); (3) adequate representation by someone with the same interests who was a party (e.g., “class actions” and “suits brought by trustees, guardians, and other fiduciaries”); (4) assumption of control over the litigation in which the judgment was rendered; (5) where the nonparty to an earlier litigation acts as a proxy for the named party to relitigate the same issues; and (6) a special statutory scheme expressly foreclosing successive litigation by nonlitigants.

WesternGeco, 889 F.3d at 1319 (citing *Taylor v. Sturgell*, 553 U.S. 880, 894–95 (2008)).

Patent Owner points to the indemnity agreement, under the first *Taylor* factor, as an agreement to be bound because iProov used the agreement as a basis for intervening in the California litigation. Prelim. Resp. 19. Patent Owner also argues that this indemnity agreement

establishes a substantive legal relationship between Petitioner and iProov under the second *Taylor* factor. *Id.* at 19–20. As with the real party in interest analysis, we determine that mere existence of an indemnity agreement without any specifics about the obligations or other circumstances surrounding the agreement does not support a finding that iProov is a privy of Petitioner. *WesternGeco*, 889 F.3d at 1321 (agreeing with the Board that undefined indemnity agreement is insufficient to demonstrate privity); *see also Luminex*, Paper 20 at 23 (“Petitioner and Menard are parties to a standard, non-exclusive, manufacturer-customer indemnification agreement relating to patent infringement and Menard’s unilateral requests for indemnification and defense, without more, do not support a finding that Menard is a privy of Petitioner.”).

Patent Owner cites the Board’s precedential *Ventex* decision to support its argument that indemnity agreements establish privity. Prelim. Resp. 19–20. The facts in *Ventex* are distinguishable from those here. In *Ventex* the relationship between the petitioner and the unnamed, time-barred party went far beyond a standard manufacturer-customer relationship and indemnity agreement. The Board determined that unnamed party Seirus was a real party in interest to petitioner Ventex based on an “Exclusive Manufacturing Arrangement,” whereby Ventex agreed to only manufacture its fabric for Seirus, in exchange for the payment of “an exclusivity fee.” *Ventex*, Paper 152 at 7–11, 13–14. Significantly, there was also evidence that Seirus was funding Ventex’s *inter partes* reviews with payments whose “timing, structure and amounts . . . suggest a correlation with legal fees incurred by Ventex in connection with the preparation and prosecution of these IPRs.” *Id.* In contrast, here the relationship between iProov and Petitioner is *non-exclusive*. Patent Owner itself acknowledges that iProov

has customers other than Petitioner (Prelim. Resp. 17, 18) and, as explained above, Petitioner has products that rely on its own liveness technology and do not rely on iProov's technology (Ex. 1048, 5). Moreover, there is no evidence that iProov is funding Petitioner in this proceeding. Ex. 1049 ¶ 4.

Under the second *Taylor* factor (pre-existing substantive legal relationships), Patent Owner argues that the relationship between iProov and Petitioner goes well beyond a traditional supplier/customer and indemnitor/indemnitee relationship, pointing to a statement by Petitioner's Chief Revenue Officer describing Petitioner and iProov as "kind of one team." Prelim. Resp. 20. The evidence of record, however, does not indicate that iProov and Petitioner had anything more than a standard supplier-customer relationship. The statement referred to by Patent Owner was made in iProov's marketing materials where Petitioner's Chief Revenue Officer stated "I really enjoy working with the iProov team. So far everyone has proven to be really good to deal with. We're working together, kind of one team, and I just can't emphasize it enough: it's great to be working with a bunch of people that you really enjoy spending time with." Ex. 2001, 2. The statement appears along with statements from other iProov customers each similarly praising their experience working with iProov. *Id.* We agree with Petitioner that this statement is not sufficient to show the kind of substantive legal relationship that the second *Taylor* factor calls for. *WesternGeco* 889 F.3d at 1321 ("[P]re-existing business alliance between ION and PGS . . . as well as indemnity provisions" are "insufficient to make PGS and ION privies within the meaning of the statute."). If anything, the marketing materials show that iProov and Petitioner did not have an exclusive business relationship that might have factored into the *Taylor* analysis.

For the third *Taylor* factor (adequate representation by someone with the same interests who was a party) Patent Owner argues that the fact that iProov moved to intervene in the California litigation shows that it was “looking out for” and representing Petitioner’s interests. Prelim. Resp. 20–21. We agree with Petitioner, however, that iProov intervening in the California litigation shows that iProov has interests that diverge from those of Petitioner in that litigation. Indeed, this divergence in interests is the reason that the district court granted iProov’s motion to intervene. Ex. 1048, 5 (“Jumio may have diverging interests from iProov that affect how it litigates this case.”). This divergence supports Petitioner’s argument that iProov does not adequately represent Petitioner’s interests.

For the fourth *Taylor* factor (assumption of control over the litigation in which the judgment was rendered), Patent Owner argues that the fact that iProov moved to intervene in the California litigation shows that it controlled at least the invalidity issues in that lawsuit. Prelim. Resp. 21 (citing Ex. 2006, 7). Patent Owner’s argument confuses two crucial elements of the inquiry under the fourth *Taylor* factor.

First, Patent Owner focuses on the incorrect party, arguing that *iProov* had control over the invalidity issues in the California litigation. The fourth factor asks whether the “nonparty” to the previous litigation assumed control over that previous litigation and therefore should be bound by the judgment in that previous litigation. *Taylor*, 553 U.S. at 895 (“Because such a person has had ‘the opportunity to present proofs and argument,’ he has already ‘had his day in court’ even though he was not a formal party to the litigation”); *WesternGeco LLC*, 889 F.3d at 1319 (“[T]he privity inquiry in this context naturally focuses on the relationship between the named IPR petitioner and the party in the *prior* lawsuit.” (emphasis added)). That

nonparty, in this case, must be Petitioner, not iProov, because it is Petitioner that Patent Owner seeks to bind by the prior litigation.

Second, Patent Owner's argument focuses on the wrong previous litigation. Here, the relevant previous litigation is the Nevada litigation, not the California litigation. This is because the California litigation, which was filed less than year before the Petition, cannot be the basis for a time bar under 35 U.S.C. § 315(b).⁵ The correct inquiry is whether Petitioner has had a full and fair opportunity to litigate its interests in the Nevada litigation through iProov's participation as a party in that lawsuit. iProov's intervention in the later California litigation does not support an implication that Petitioner should be bound by the results of the earlier Nevada litigation.

Patent Owner does not present arguments under the fifth and sixth *Taylor* factors. Regardless, the facts do not support a determination that Petitioner is acting as a proxy for iProov in filing this Petition, under the fifth *Taylor* factor, for the reasons set out in our analysis of whether iProov is a real party in interest, nor has evidence been presented supporting a determination that Petitioner and iProov are in privity under the sixth *Taylor* factor.

Having reviewed the parties' arguments and evidence of record we determine that Petitioner's relationship with iProov is not sufficiently close enough as it relates to the Nevada litigation that it can fairly be said that Petitioner had a full and fair opportunity to litigate the validity of the patent

⁵ The California litigation was filed in June of 2024 and iProov moved to intervene in September of that year. Prelim. Resp. 11 (citing Ex. 2008, 5). This Petition was filed in November 2024, well within the one-year time limit set out in 35 U.S.C. § 315(b).

in that lawsuit. We, therefore, determine that iProov and Petitioner are not in privity with each other.

D. Conclusion

For the reasons stated above, we determine that this Petition is not time-barred under 35 U.S.C. 315(b).

IV. 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-obviousness⁶. *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;

⁶ Neither party has introduced any objective evidence of nonobviousness.

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’ declarant, Dr. Sarhan, opines that a person of ordinary skill in the art in the field “would have been a person having at least a Bachelor’s Degree in electrical engineering, computer science, or computer engineering, or undergraduate training in an equivalent field and at least two years of relevant experience in electronics technology.” Ex. 1051 ¶ 30. Dr. Sarhan further opines that “[a]dditional graduate education could substitute for professional experience, and significant work experience could substitute for formal education.” *Id.*

Patent Owner does not contest Petitioner’s proposed level of ordinary skill. *See generally* Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s proposed level of ordinary skill, which is supported by Dr. Sarhan’s testimony, except that we find that the phrase “at least” in Petitioner’s proposed definition creates a vague, open-ended upper bound for the level of ordinary skill, and we therefore do not adopt that aspect of the proposal.

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2020).

In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of

the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Only claim terms in controversy require express construction, “and only to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *see also Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

Neither Petitioner nor Patent Owner identify any terms for construction. *See* Pet. 6–7; Prelim. Resp. Petitioner notes, that “there are several indefiniteness issues” but argues that none preclude the Board from evaluating patentability. Pet. 6 (citing *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 813 (Fed. Cir. 2021) (“[I]ndefiniteness . . . precludes a patentability determination only when the indefiniteness renders it logically impossible for the Board to reach . . . a decision”)).

At this stage of the proceeding, we do not see the need to expressly construe any claim terms, as the threshold question of institution can be decided without doing so. A final determination as to claim construction will be made at the close of the proceeding, after any hearing, based on all the evidence of record. The parties are expected to assert all their claim construction arguments and evidence in the Petition, Patent Owner’s Response, Petitioner’s Reply, Patent Owner’s Sur-reply, or otherwise during trial, as permitted by our rules.

*D. Obviousness over the Combination of Derakhshani and Tanii
(Ground 1A)*

Petitioner argues claims 1–13, 15–17, and 19–20 of the ’471 patent would have been obvious over Derakhshani in combination with Tanii. Pet. 7–41. Below we provide a brief overview of Derakhshani and Tanii and then analyze Petitioner’s contentions in light of Patent Owner’s arguments.

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).

2. 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).

3. *Combination of Derakhshani and Tanii*

Petitioner argues that “a POSITA would have been motivated to combine Derakhshani and Tanii because both identify and account for the three-dimensionality of a face when capturing an image.” Pet. 12 (citing Ex. 1003 ¶ 134). According to Petitioner, Derakhshani uses changes in focus distance and/or parallax effect, whereas Tanii looks for distortions in a face caused by the interaction between the camera's lens and the distance from the imaged object. *Id.* Petitioner argues that Tanii merely recognizes an obvious alternative to evaluating the depth of a face and Petitioner contends that “a POSITA would have been motivated to incorporate Tanii's evaluation into Derakhshani.” *Id.* Thus, when evaluating multiple images taken at either different focus distances, as Derakhshani teaches, or actual distances, as Tanii teaches, the different types of diffraction in these images provide information about an object's depth. *Id.* at 13–14 (citing Ex. 1003 ¶ 138).

Petitioner notes that to implement Derakhshani's focus-distance approach requires a camera with the ability to set a focal plane with extreme sensitivity and that cameras in mobile phones often do not have this ability. Pet. 14 (citing Ex. 1003 ¶ 140; Ex. 1007 ¶ 7). Therefore, especially in the case of mobile phones, “a POSITA would have been motivated to modify Derakhshani . . . to capture at least two images at different *actual* distances

and evaluate whether they exhibit different degrees of distance-induced (barrel/fish-eye) distortion, as Tanii suggests.” *Id.* at 14–15 (citing Ex. 1003 ¶ 141). Petitioner argues that both techniques involve the application of well-known optics principles and Tanii already taught a mechanism to identify such distance-induced distortions and thus indicate when the face being captured has depth. Ex. 1003 ¶ 141; Ex. 1007 ¶ 56. Thus, the modification would have been nothing more than the use of known technique to improve similar devices or a simple substitution. *Id.* at 15.

Patent Owner argues that the combination of Tanii with Derakhshani would destroy the basic objective of Derakhshani. Prelim. Resp. 44. This is because Derakhshani, according to Patent Owner, requires distortion to determine whether a face is three-dimensional. *Id.* at 45 (citing Ex. 1003 ¶¶ 182, 400, 885). Tanii, however, works to correct the distortion that Derakhshani requires to operate. *Id.* at 45 (citing Ex. 1003 ¶ 110–112).

At this stage of the proceeding, we are persuaded that Petitioner has established a reasonable likelihood that a person of ordinary skill would have combined the teachings of Derakhshani and Tanii for the reasons provided by Petitioner and summarized above. Patent Owner’s argument that Tanii would destroy Derakhshani’s basic objective does not address Petitioner’s specifically proposed combination. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). As noted above, Petitioner proposes to modify “Derakhshani . . . to capture at least two images at different *actual* distances and evaluate whether they exhibit different degrees of distance-induced (barrel/fish-eye)

distortion, as Tanii suggests.” *Id.* at 14–15 (citing Ex. 1003 ¶ 141). Thus, Petitioner relies on Tanii for its teaching of evaluating distance induced distortions in a face caused by the camera’s lens and the distance from the object. Pet. 12. Petitioner does not propose to modify Derakhshani by incorporating Tanii’s teaching of correcting the distortion. At this stage of the proceeding, we do not agree with Patent Owner that combining Tanii with Derakhshani would destroy Derakhshani’s basic objective. Further, at this stage, we also agree that improving Derakhshani’s spoof detection and substituting techniques for spoof detection adequately supports the combination. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

4. *Analysis of Claim 1*

Petitioner contends that the combination of Derakhshani and Tanii teaches each of the limitations of claim 1, supporting its contentions with evidence from the asserted prior art and from the testimony of Dr. Daft. Pet. 16–27. Patent Owner raises arguments regarding claim 1 which we address in a separate section below. *See infra* § IV.G. None of these arguments directly dispute whether the cited portions of the relied upon references disclose the respective limitations of claim 1 for which they are relied upon. Thus, Petitioner’s contentions with respect to the limitations of claim 1, which we summarize below, are undisputed at this stage of the proceeding.

We have reviewed Petitioner’s contentions and determine that, at this stage of the proceeding, Petitioner has demonstrated a reasonable likelihood that the combination of Derakhshani and Tanii teaches the preamble and limitations of claim 1 for the reasons provided by Petitioner, summarized below. Our determination is not final and based only on the current record and arguments. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims.

- a) *1[pre] – “A system for authenticating three-dimensionality of a user via a user’s camera equipped computing device, the computing device comprising”*

Petitioner contends that Derakhshani teaches the preamble⁷ by disclosing a biometric authentication system using a camera-equipped computing device which verifies that a user’s face is three-dimensional by “capturing multiple images of the user’s face to calculate a ‘spatial metric’ representing the face’s three-dimensionality.” Pet. 16 (citing Ex. 1005, 1:11–25, 2:4–30, 3:14–15, 5:22–27, 6:3–5, 9:10–22, 16:44–18:4; Ex. 1003 ¶ 145).

- b) *[1a] – “a processor configured to execute machine executable code”*

Petitioner relies on Derakhshani’s disclosure of a “smart phone, a tablet computer, a television, a laptop computer, or a personal computer” or a server as teaching a processor as recited. Pet. 17 (citing Ex. 1005, 5:22–27, 10:16–19).

- c) *[1b] – “a screen configured to provide a user interface to the user”*

Petitioner argues the computing devices disclosed in Derakhshani incorporate a display as recited in claim 1. Pet. 18 (citing Ex. 1005, 6:8–11, 9:22–24, 14:35–37, 22:33–38, 23:48–52, 23:14–44).

- d) *[1c] – “a camera configured to capture images”*

Petitioner argues Derakhshani’s computing devices incorporate a camera as recited in claim 1. Pet. 18 (citing Ex. 1005, 5:23–27, 6:3–10).

⁷ Because we determine that Petitioner has demonstrated a reasonable likelihood that Derakhshani teaches the preamble, we need not make a determination, at this stage of the proceeding, whether the preamble is limiting.

- e) [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”

Petitioner argues “Derakhshani’s computing device (e.g., a personal computer or phone) has memory that stores machine-readable instructions that are executed by the processor.” Pet. 19 (citing Ex. 1005, 2:4–12, 2:31–38, 22:26–44, 24:49–25:8). Petitioner further argues that Derakhshani discloses a computing device that interfaces with a server or one that itself can be a server. *Id.* at 19–20 (citing Ex. 1005, 9:27–58, 10:1–24, 22:12–18, 23:14–25; Ex. 1003 ¶ 154–6).

- f) [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”

Petitioner argues that Derakhshani teaches limitation [1d1] by disclosing that “two or more images of a subject” are captured during the verification process. Pet. 21 (citing Ex. 1005, 1:44–46, 16:44–17:11, 17:45–18:4). Based on this, Petitioner argues that “POSITA would have understood Derakhshani captures an image at a first location at a first distance because some distance must exist between the user and camera to capture a picture of the user’s face.” *Id.* (citing Ex. 1005, 1:44–46, 16:44–17:11, 17:45–18:4); Ex. 1003 ¶ 159–60).

- g) [1d2] – “processing the at least one first image or a portion to create first data”

Derakhshani discloses “a landmark (e.g., an iris, an eye corner, a nose, an ear, or a background object) may be identified and located in the plurality of images.” Pet. 21 (citing Ex. 1005, 16:44–54, 17:45–64). Petitioner argues that a “POSITA would have understood Derakhshani’s identification of landmarks constitutes creating data (specifically biometric data) because

the identification uses a computer (which operates on data) to characterize the unique physical characteristics of an individual, which would include the positions of ‘landmarks’ such as a user’s eyes, nose ears, and other features.” *Id.* at 21–22 (citing Ex. 1003 ¶¶ 162–163).

h) [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”

Petitioner contends that Derakhshani alone or in combination with Tanii discloses limitations [1d3] and [1d4]. Pet. 22–24. When relying on Derakhshani alone, Petitioner cites to Derakhshani’s focus-distance approach and Derakhshani’s parallax approach. *Id.* at 22–24.

For Derakhshani’s focus-distance approach, Petitioner contends that a POSITA would have understood the distance between the user and the camera would need to change if the camera has a fixed focus distance (like in many mobile devices).” Pet. 22 (citing Ex. 1003 ¶ 165). Thus, Petitioner argues that it would have been obvious that when using the focus-distance approach with a fixed-focus-distance camera, Derakhshani captures multiple images from multiple distances. *Id.* at 22 (citing Ex. 1003 ¶ 165).

For Derakhshani’s parallax approach, Petitioner contends that Derakhshani’s disclosure that a “plurality of images are taken from different perspectives” due to the camera being “rotated or slid,” or moved naturally due to “involuntary haptic motion,” teaches taking a second image of user from a second distance that is different than the first to evaluate for parallax. Pet. 22–23 (quoting Ex. 1005, 17:45–18:4).

When relying on the combination of Derakhshani and Tanii, Petitioner argues that 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 degrees of distance-induced distortions to verify the face is three-dimensional. Pet. 24 (citing Ex. 1007 ¶ 48; Ex. 1003 ¶ 170).

- i) [1d5] – “*processing the at least one second image or a portion thereof to create second data*”

Petitioner argues that “Derakhshani discloses processing the captured images (which would include the second image) to identify data ‘landmarks’ in the face (‘second [biometric] data’) as part of the three-dimensional verification process.” Pet. 24–25 (citing Ex. 1005, 16:44–54⁸, 17:45–52; Ex. 1003 ¶ 174).

- j) [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*”

Petitioner argues that Derakhshani alone or in combination with Tanii teaches this limitation. Pet. 25. Specifically, Petitioner argues that for either the focus-distance or parallax approach, biometric features are compared between each of the images to match them and to determine whether expected differences between the two exits. *Id.* at 25–26 (citing Ex. 1005, 16:66–17:2, 17:45–64; Ex. 1003 ¶ 176). Petitioner argues that when combining Derakhshani with Tanii a POSITA would have understood that the biometric data from the first and second images would be compared to determine whether the images exhibit expected differences in the amount of

⁸ Petitioner cites back to its contentions for limitation 1[d2] which cite to Ex. 1005, 16:44–54.

distance-induced distortion present in the image as described by Tanii. *Id.* at 26 (citing Ex. 1003 ¶ 180).

k) [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*”

Petitioner argues that “[f]or at least the focus-distance approach, Derakhshani discloses that the ‘expected differences’ are ‘expected distortions’: the blurriness/clearness of facial landmarks resulting from movement of a fixed-focus camera to different distances.” Pet. 27 (citing Ex. 1003 ¶ 182).

For the combination of Derakhshani and Tanii, Petitioner argues that a POSITA would have understood that the expected differences are expected distortions. Pet. 27 (citing Ex. 1003 ¶ 183).

According to Petitioner, “after determining that expected distortions between first and second data exist, the user can be authenticated if the user’s face also matches the one presented during enrollment.” Pet. 27 (citing Ex. 1005, 9:59–67, 11:17–26, 11:42–45, 13:62–66, 14:45–48).

l) Conclusion – Claim 1

For the foregoing reasons, we determine Petitioner has established a reasonable likelihood that the combination of Derakhshani and Tanii teaches the limitations of claim 1 and a reasonable likelihood that Petitioner will prevail in demonstrating that claim 1 is unpatentable as obvious over Derakhshani and Tanii. Our determination is not final and based only on the current record and arguments. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims.

5. *Analysis of Dependent Claims 2–13, 15–17, and 19–20*

Petitioner addresses each of the limitations of dependent claims 2–13, 15–17, and 19–20 providing support from Derakhshani in combination with Tanii and from Dr. Daft’s testimony. Pet. 28–35, 37–41. Because Petitioner demonstrates a reasonable likelihood of success in proving that at least one claim of the ’471 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a). Therefore, at this stage of the proceeding, it is not necessary for us to provide an assessment of every claim in the ground challenged by Petitioner, especially, as in this case, when Patent Owner does not separately argue those claims. Those challenges, in our view, are best left for trial after full development of the record.

E. *Obviousness over the Combination of Zhang and Tanii (Ground 2A)*

Petitioner argues claims 1–3, 5, 7–12, 16, 17, 19, and 20 of the ’471 patent would have been obvious over Zhang and Tanii. Pet. 47–75. Below we provide a brief overview of Zhang and then analyze Petitioner’s contentions in light of Patent Owner’s arguments.

1. *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).

2. *Combination of Zhang and Tanii*

Petitioner argues that a person of ordinary skill in the art “would have been motivated to combine Zhang and Tanii because both concern identifying and accounting for the three-dimensionality of a face when capturing an image.” Pet. 50. According to Petitioner, the two references differ because Zhang looks for distortions in a homography transform, whereas Tanii looks for distortions caused by the interaction between the user’s face and the camera’s lens. *Id.*

Petitioner identifies several ways in which a POSITA would be motivated to combine Zhang and Tanii. For example, Petitioner argues that a POSITA would have been motivated to use Zhang’s existing process, but take advantage of the distance induced distortions at two different distances which would allow Zhang’s procedure to identify the two images as different due to the differences in the distance-induced distortions and thus allow it to verify three dimensionality. Pet. 51 (citing Ex. 1003 ¶¶ 263–264).

Petitioner also identifies a second way in which Zhang and Tanii would be combined. Petitioner argues that instead of Zhang warping an image using a homography transform, it could instead warp a close image using Tanii’s distortion-correction procedure and then compare that image to a far image and if the two are sufficiently similar that would indicate a three-dimensional face. A POSITA would be motivated to combined Zhang and

Tanii in this way because it would reduce spoofing of Zhang's system and provide a simpler mathematical operation that requires less computational resources. Ex. 1003 ¶¶ 267–270.

Alternatively, the combination could be further simplified by eliminating the need to mathematically transform an image and instead compare the two images directly to each other to determine whether they exhibit the expected differences in degree of distance-induced distortions. Pet. 53 (citing Ex. 1003 ¶¶ 267–268).

Patent Owner makes the same arguments here as it did for the combination of Derakhshani and Tanii, arguing that Tanii corrects the distortion that Zhang requires to detect whether a face is three-dimensional. Prelim. Resp. 44–46. Specifically, Patent Owner argues that Zhang generates a warped image that it then compares to a second image to detect whether a face is three-dimensional and that Tanii works to correct this distortion preventing Zhang from accomplishing its goal of detecting a three-dimensional face. *Id.* at 45–46.

At this stage of the proceeding, we are persuaded that Petitioner has established a reasonable likelihood that a person of ordinary skill would have combined the teachings of Zhang and Tanii for the reasons provided by Petitioner and summarized above. As before, we disagree with Patent Owner's arguments because it does not address Petitioner's proposed combinations. One of Petitioner's proposed combinations (identified above as the second combination) is still able to detect a three-dimensional face even with Tanii's distortion correction. Petitioner's alternative combination does not incorporate Tanii's distortion correction, and instead merely uses the distortion as part of detecting a three-dimensional face. We therefore disagree that the combination would render the system non-functional.

3. *Analysis of Claim 1*

Petitioner contends that the combination of Zhang and Tanii teaches each of the limitations of claim 1, supporting its contentions with evidence from the asserted prior art and from the testimony of Dr. Daft. Pet. 53–66. Patent Owner raises arguments regarding claim 1 which we address in a separate section below. *See infra* § IV.G. None of these arguments directly dispute whether the cited portions of the relied upon references disclose the respective limitations of claim 1 for which they are relied upon. Thus, Petitioner’s contentions with respect to the limitations of claim 1, which we summarize below, are undisputed at this stage of the proceeding.

We have reviewed Petitioner’s contentions and determine that, at this stage of the proceeding, Petitioner has demonstrated a reasonable likelihood that the combination of Zhang and Tanii teach the preamble and limitations of claim 1 for the reasons provided by Petitioner, summarized below. Our determination is not final and based only on the current record and arguments. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims.

- a) *1[pre] – “A system for authenticating three-dimensionality of a user via a user’s camera equipped computing device, the computing device comprising”*

Petitioner contends that Zhang teaches the preamble⁹ by disclosing a system that determines whether a face is a “3D structure or a flat surface” by capturing multiple images using a computing device with an image capture

⁹ Because we determine that Petitioner has demonstrated a reasonable likelihood that Zhang teaches the preamble, we need not make a determination, at this stage of the proceeding, whether the preamble is limiting.

component (102). Pet. 53–54 (citing Ex. 1006 ¶¶ 3, 12, 13, 16, 26; Ex. 1003 ¶ 272)

b) [1a] – “a processor configured to execute machine executable code”

Petitioner argues “Zhang discloses a computing device that contains a processor and computer readable media (e.g., memory) storing software instructions.” Pet. 55 (citing Ex. 1006, ¶¶ 63–67; Ex. 1003 ¶ 275).

c) [1b] – “a screen configured to provide a user interface to the user”

Petitioner argues “Zhang discloses a computing device that contains a display that allows a user to interact with the device and presents information to the user.” Pet. 55 (citing Ex. 1006 ¶ 67; Ex. 1003 ¶ 277).

d) [1c] – “a camera configured to capture images”

Petitioner argues “Zhang discloses a computing device that contains an image capture component, which a POSITA would have understood to be a camera.” Pet. 55 (citing Ex. 1006 ¶¶ 3, 12, 13, 16, 26; Ex. 1003 ¶ 279).

e) [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”

Petitioner argues “Zhang discloses a computing device that contains computer-readable media (e.g., memory) storing software instructions.” Pet. 55 (citing Ex. 1006 ¶¶ 63–67, Fig. 6). Petitioner also argues that Zhang discloses that its face detection module and image capture component can be separate computing devices and that a “POSITA would have found it obvious that Zhang’s separate computing device is a server because servers were well-known and conventional network infrastructure that could handle remote processing.” Pet. 56 (citing Ex. 1006 ¶¶ 14; Ex. 1003 ¶ 283; Ex. 1016 ¶¶ 40–43). This server would store machine readable instructions to carry out Zhang’s process and send those instructions to the separate image

capture device which would store those instruction in its own local memory.
Id. at 56–57.

f) [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”

Petitioner argues “Zhang discloses capturing a first image of a user as part of the authentication method. *Zhang*, [0016], [0021]. A POSITA would have understood that Zhang’s process captures an image of the user’s face at a first location which is a first distance from the image capture component 102.” Pet. 57 (citing Ex. 1006 ¶ 16; Ex. 1003 ¶¶ 286–287).

g) [1d2] – “processing the at least one first image or a portion to create first data”

Petitioner relies on Zhang’s disclosure of processing the first image to extract “feature points” as teaching the processing of the first image to create first data. Pet. 57 (citing Ex. 1006 ¶¶ 26–27; Ex. 1003 ¶¶ 289–290).

h) [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”

Petitioner contends that Zhang alone or in combination with Tanii discloses limitation [1d3] and [1d4]. Pet. 58. When relying on Zhang alone, Petitioner argues that Zhang discloses capturing a second image as part of its authentication process. Pet. 58 (citing Ex. 1006 ¶ 16). Petitioner acknowledges that Zhang does not expressly disclose that the second image is captured at a second distance, but argues that because Zhang discloses capturing images from different perspectives, a POSITA would have understood that distance of the camera to the user would change as the

camera is moved from one perspective location to the other. Pet. 58–59 (Citing Ex. 1003 ¶ 293; Ex. 1013, 22–25).

When relying on the combination of Zhang and Tanii, Petitioner argues that a POSITA would have been motivated to modify Zhang in view of Tanii to capture a second image at a second distance, taking advantage of distance-induced distortions to distinguish between three-dimensional faces and two-dimensional pictures. Pet. 59–60 (citing Ex. 1003 ¶¶ 294–295).

- i) [Id5] – “processing the at least one second image or a portion thereof to create second data”

Petitioner argues that “Zhang discloses processing the second image to obtain second feature-point data from the image.” Pet. 60 (citing Ex. 1006, ¶¶ 26–27 Ex. 1003 ¶ 298).

- j) [Id6] – “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”

Petitioner argues that Zhang alone or in combination with Tanii teaches this limitation. Pet. 60. For Zhang alone, Petitioner argues that Zhang’s feature points are matched across the first and second images to determine whether the first and second images include the same face. *Id.* at 60–61 (citing Ex. 1006 ¶ 28). Petitioner argues that Zhang compares the facial feature locations in the first warped image to the facial feature locations in the second image to determine whether differences between the two exist and that differences would indicate a live face. Pet. 61 (citing Ex. 1003 ¶¶ 301–302).

For the combination of Zhang and Tanii, Petitioner argues that differences between two images—one with distance-induced distortions and one without—can also be used to distinguish between three-dimensional

face and a two-dimensional picture. Pet. 61–62 (citing Ex. 1006 ¶¶ 25, 34; Ex. 1003 ¶¶ 303)

k) [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”

Petitioner argues that Zhang determines that the captured images are of a live, three-dimensional face when sufficient difference between the images exist. Pet. 62 (citing Ex. 1006 ¶ 31–34). Petitioner also argues that Zhang can determine whether the first and second images include the same face by checking if a threshold number of feature points cannot be matched between the two images. Pet. 62–63 (citing Ex. 1006 ¶¶ 17, 38, Fig. 2; Ex. 1003 ¶ 305).

Furthermore, Petitioner argues that the combination of Zhang and Tanii also teaches this limitation because one of the two sets of biometric data exhibits expected distance-induced distortions due to the change in distance of the camera. Pet. 63 (citing Ex. 1003 ¶ 306).

l) Conclusion – Claim 1

For the foregoing reasons, we determine Petitioner has established a reasonable likelihood that the combination of Zhang and Tanii teaches the limitations of claim 1 and a reasonable likelihood that Petitioner will prevail in demonstrating that claim 1 is unpatentable as obvious over Derakhshani and Tanii. Our determination is not final and based only on the current record and arguments. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims.

4. *Analysis of Dependent Claims 2–3, 5, 7–12, 16, 17, 19, 20*

Petitioner addresses each of the limitations of dependent claims 2–3, 5, 7–12, 16, 17, 19, 20 providing support from Zhang and Tanii along with Dr. Daft’s testimony. Pet. 64–76. Because Petitioner demonstrates a reasonable likelihood of success in proving that at least one claim of the ’471 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a). Therefore, at this stage of the proceeding, it is not necessary for us to provide an assessment of every claim in the ground challenged by Petitioner, especially, as in this case, when Patent Owner does not separately argue those claims. Those challenges, in our view, are best left for trial after full development of the record.

F. *Whether Tanii is Analogous Art*

A prior art reference is analogous to a claimed invention if it is either from the same field of endeavor or reasonably pertinent to the particular problem with which the inventor is involved. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). Patent Owner argues Tanii is non-analogous art to the ’471 patent because it is not in the same field endeavor as the ’471 patent and is not reasonably pertinent because Tanii’s “critical feature” is correcting distance-induced image distortion whereas the problem addressed by the ’471 patent is preventing spoofing in a facial recognition system by detecting whether an image includes a three-dimensional face. Prelim. Resp. 38; *see id.* at 38–43. On this record, we disagree.

First, Patent Owner has not identified any logical reason or case law to support its position that only a prior-art reference’s “critical feature” counts in the reasonably-pertinent inquiry. *See* Prelim. Resp. 39–40. Here, Tanii’s relevant teaching is that a three-dimensional face exhibits distortions

when a cellular phone camera and a face are close together during image capture. Ex. 1007 ¶¶ 47, 48, Fig. 4B; *see* Pet. 10–12. Because that teaching is reasonably pertinent to the ’471 patent’s particular problem of detecting whether a face is two-dimensional (i.e., a photograph) or three-dimensional, we agree with Petitioner that Tanii is analogous art. *See* Ex. 1003 ¶ 110.

Second, because Tanii and the ’471 patent both address processing “distortions of [3D] faces in images captured using a camera,” we disagree with Patent Owner that Tanii is from a different field of endeavor as the ’471 patent. Prelim. Reply 5 (citing Ex. 1001 28:36–59, 1007 ¶¶ 5, 7; *see Netflix, Inc. v. DivX LLC*, 80 F.4th 1352, 1359 (Fed. Cir. 2023) (explaining that the field-of-endeavor test is “not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field”).

G. Particularity

Patent Owner asserts the Petition lacks particularity as required by 35 U.S.C. § 312(a)(3) for several reasons. Prelim. Resp. 46–53. First, Patent Owner argues that Petitioner’s mapping for claim 1 lacks particularity because the claim appendix misses one of the limitations of claim 1. *Id.* at 46–48. Second, Patent Owner alleges that Petitioner relies on inconsistent mapping between claim 1 and dependent claim 5. *Id.* at 48–50. Third, Patent Owner argues that Petitioner improperly mixes embodiments of Derakhshani. *Id.* at 50–51. Fourth, Patent Owner alleges Petitioner’s reliance on Zhang is inconsistent. *Id.* at 51–52. Fifth, and finally, Patent Owner argues Petitioner does not take a position claim construction. *Id.* at 52–53. None of those reasons convince us the Petition lacks the requisite particularity. Our detailed discussion follows.

1. Claim Mapping for Claim 1

Patent Owner argues that the Petitioner fails to make clear which features are mapped for claim 1 because the Petition lists limitations [1d1] through [1d7] for claim 1 but the Claims Appendix only lists limitations [1d1] through [1d6]. Prelim. Resp. 46. Patent Owner correctly identifies the cause of the error, noting that the Petitioner Claims Appendix skipped over the limitation [1d5] (as listed in the Petition). Patent Owner argues that this “off-by-one error makes it impossible to understand Petitioner’s claim mapping without reviewing additional documents and attempting to infer which sections of the Petition apply to several of the claim limitations.” Prelim. Resp. 47–48.

Having reviewed the record, we find the inconsistency between the limitation identifiers in the Claims Appendix and the body of the Petition to be harmless error. It is readily apparent that Petitioner skipped over limitation [1d5] when charting claim 1 in the Claims Appendix. This error is made apparent even more so because Petitioner’s limitation identifiers correspond one-to-one with indentations in the claim itself. The “off-by-one” error does not make Petitioner’s contentions impossible to understand or to respond to, as is evident from Patent Owner immediately recognizing the cause of the error and accounting for it. Accordingly, we do not determine that Petitioner’s contentions lack the requisite particularity.

2. Inconsistent Mapping of Claims 1 and Claim 5

Independent claim 1 recites “first biometric data” and “second biometric data” and its dependent claim 5 recites “first data” and “second data.” Ex. 1001, 38:17–26, 57–65. In claim 1, Petitioner relies on Derakhshani’s disclosure of “landmarks” as teaching the recited “first data” and “second data.” Pet. 21–22 (citing Ex. 1005, 17:45–64 (“a landmark (e.g.

an iris, an eye corner, a nose, an ear, or a background object) may be identified and located in the plurality of images.”) (emphasis added)). In claim 5, Petitioner relies on “*extracted features* from the captured images” to meet the “first data” and “second data” recited in claim 5. *See id.* at 36 (citing Ex. 1005, 4:19–24, 7:19–34, 8:60–64, 9:31–34, 9:59–67, 13:62–14:9; 17:32–36) (emphasis added).

Patent Owner’s argument that Petitioner contradictorily relies on “landmarks” to teach “first data” and “second data” in claim 1 and “features” to teach “first data” and “second data” in claim 5 splits hairs. Prelim. Resp. 48–50. We understand Petitioner to use the terms “landmarks” and “features” synonymously. For example, Petitioner asserts that, in Derakhshani, a “landmark” may be a “user’s eyes, nose, ears, and *other features*.” Pet. 22 (emphasis added) (citations omitted). Similarly, Petitioner synonymously uses the terms “landmarks” and “features” when describing “processing the images to identify *feature landmarks*.” Pet. 31 (emphasis added). Accordingly, we determine Petitioner does not contradict itself or inconsistently map Derakhshani to the claims.

3. *Improper Mixing of Embodiments of Derakhshani*

Patent Owner argues that Petitioner relies on Derakhshani’s parallax and focus-distance approaches as teaching the limitations of the independent claims but mixes and matches these embodiments without explaining whether a POSITA would have found it obvious to combine elements from these two approaches. Prelim. Resp. 50. Patent Owner also points out that Petitioner does not rely on the parallax approach for limitation [1d7]. *Id.* (citing Pet. 27).

At this stage of the proceeding, we disagree with Patent Owner. Reviewing Petitioner’s contentions, we determine that Petitioner relies on

the focus-distance approach and the parallax approach as alternative approaches teaching the limitations of the claim for which they are relied upon. For example, for limitation [1d3], Petitioner relies on Derakhshani's focus distance approach and separately on the parallax approach as approaches in which Derakhshani captures multiple images from multiple distances. Pet. 22–23 (citing Ex. 1005, 16:44–17:11, 17:45–18:11; Ex. 1003 ¶¶ 165, 168, 169). Similarly, Petitioner relies on “either the focus-distance or parallax approach” as teaching limitation [1d6]. Pet. 25 (“a POSITA would have understood that *each of the approaches* to evaluate an object's depth taught by Derakhshani (*focus distance or parallax*), *alone . . .* would compare biometric data points between multiple images to match the biometric data between each of the images (e.g., matching the ears, eyes, and nose in one image to those same features in another) to evaluate differences between them once matched.” (emphasis added)).

Patent Owner argues that Petitioner does not appear to rely on the parallax approach for limitation [1d7]. Prelim. Resp. 50 (citing Pet. 27). For limitation [1d7] Petitioner has, at least, relied on the focus-distance approach or the combination of Derakhshani and Tanii, which we find sufficient at this stage of the proceeding.

4. *Inconsistent Reliance on Zhang*

Petitioner argues that Zhang's disclosure of “feature-point biometric data” derived from processing captured images teaches “first data” and “second data” as recited in limitations [1d2] and [1d5] of claim 1. Pet. 57, 60 (citing Ex. 1006 ¶¶ 26–27). For limitation [1c], Petitioner states Zhang “first biometric data” is met by “the facial-feature locations in the first warped image.” Pet. 61 (citing Ex. 1003 ¶¶ 301–302).

Patent Owner argues that Petitioner’s mapping of “first data” to “biometric data from a warped version of the first image” in limitation 1[d6] is inconsistent with Petitioner’s mapping of “first data” from a first captured image in limitation [1d2]. Prelim. Resp. 52. Patent Owner’s argument is unavailing. Feature-points are described as “a corner of an eye, a corner of a mouth, a tip of a nose, and so forth.” Ex. 1006 ¶ 27. Thus, feature points, relied on for limitation [1d2] are facial-feature locations, relied on for limitation [1d6]. Patent Owner’s argument distinguishes between different *images*, namely, a captured image and a warped version of the captured image. *See id.* But Petitioner relies on feature-point biometric data to teach “first biometric data” in both limitation [1d2] and in limitation [1d6]. That is, the extracted facial feature points correspond to the “first biometric data,” not the images themselves. Accordingly, we determine Petitioner does not inconsistently map Zhang to the claims.¹⁰

5. *Taking a Position on Claim Construction*

As noted above in § IV.C, Petitioner asserts that “there are several indefiniteness issues” but argues that none preclude the Board from evaluating patentability. Pet. 6 (citing *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 813 (Fed. Cir. 2021) (“[I]ndefiniteness . . . precludes a patentability determination only when the indefiniteness renders it logically impossible for the Board to reach . . . a decision”)). One of these

¹⁰ Patent Owner argues “to the extent the ground is understood, it cannot establish a *prima facie* case of obviousness.” Prelim. Resp. 52. That argument is better suited to Patent Owner’s arguments on the merits of Petitioner’s challenge, not to whether Petitioner’s presents its challenge with particularity. Further, Patent Owner does not explain why Zhang’s extracted facial features do not meet the claimed “first data.” *See id.*

indefiniteness issues is that the claim requires a “memory” of the recited computing device to store instructions “that are stored on the memory of the authentication server.” Petitioner notes that it is unclear whether claim 1 is directed to a server computing device or a networked client-computing device that receives instructions from the server. *Id.* at 6–7. For this reason, Petitioner provides contentions showing that the prior art teaches either interpretation. *Id.* at 7.

Rather than address Petitioner’s allegation that the claim is susceptible to two interpretations, Patent Owner instead attempts to have the Petition denied on that basis. Prelim. Resp. 52–53. Patent Owner does not, however, challenge whether either of those interpretations are met by Petitioner’s challenge. As discussed above, Petitioner’s combinations meet both interpretations for institution purposes on the current record. Therefore, as this construction is not in controversy and not material to any dispute between the parties, we need not address the construction. *See Nidec Motor*, 868 F.3d 1017. Accordingly, we do not determine that Petitioner’s proffered claim constructions lack the requisite particularity.

H. Remaining Grounds 1B, 1C, 2B, and 2C

Because Petitioner demonstrates a reasonable likelihood of success in showing that at least one claim of the ’471 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See* 37 C.F.R. § 42.108(a). Therefore, at this stage of the proceeding, it is not necessary for us to provide an assessment of every challenge raised by Petitioner, especially, as in this case, when Patent Owner does not separately argue all grounds. Those challenges, in our view, are best left for trial after full development of the record.

V. CONCLUSION

Petitioner has demonstrated a reasonable likelihood of prevailing in showing the unpatentability of at least one challenged claim of the '471 patent and we institute on all grounds raised and all claims challenged in the Petition. At this stage of the proceeding, however, we have not made a final determination with respect to the patentability of the challenged claims. Any final determination will be based on the record developed during trial. We place Patent Owner on express notice that any argument not asserted in a timely-filed Response to the Petition, or in another manner permitted during trial, will be deemed waived or forfeited, even if that argument was presented in the Preliminary Response.

VI. ORDER

For the foregoing reasons, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of the '471 patent is instituted with respect to all grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '471 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2025-00106
Patent 10,776,471 B2

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