

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner.

IPR2023-01169
Patent 10,607,134 B1

Before BARBARA A. PARVIS, ROBERT J. WEINSCHENK, and
RUSSELL E. CASS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Tesla, Inc. (“Petitioner”) filed a Petition (Paper 1 (“Pet.”)) requesting *inter partes* review of claims 1–20 (“challenged claims”) of U.S. Patent No. 10,607,134 B2 (Ex. 1001, “the ’134 Patent”). Pet. 4. Autonomous Devices, LLC (“Patent Owner”) filed a Preliminary Response. Paper 10 (“Prelim. Resp.”). With authorization, Petitioner filed a Preliminary Reply (Paper 17 (“Prelim. Reply”)), and Patent Owner filed a Preliminary Sur-reply. Paper 18 (“Prelim. Sur-reply”).

We have authority to determine whether to institute review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that “the information presented in the petition filed under section 311 and any response filed under section 313 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.

For the reasons provided below and based on the record before us, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, we institute an *inter partes* review on all grounds set forth in the Petition.

II. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner names itself as the sole real party-in-interest. Pet. 1. Patent Owner names itself as the real party-in-interest. Paper 4, 1.

B. *Related Matters*

The parties inform us that the ’134 patent was asserted in *Autonomous Devices LLC v. Tesla, Inc.*, No. 22-cv-1466 (MN) (D. Del.) (“parallel district

court proceeding”). Pet. 1; Paper 4, 1. Petitioner also has filed (1) a petition for *inter partes* review of U.S. Patent No. 10,452,974 B1 (IPR2023-01054); (2) a petition for *inter partes* review of U.S. Patent No. 11,238,344 B1 (IPR2023-01055); (3) a petition for *inter partes* review of U.S. Patent No. 10,102,449 B1 (IPR2023-01170); (4) a petition for *inter partes* review of U.S. Patent No. 11,113,585 B1 (IPR2023-01171); and (5) two petitions for *inter partes* review of U.S. Patent No. 11,055,583 B1 (IPR2023-01172 and IPR2023-01173). IPR2023-01170 and IPR2023-01171 have been terminated.

C. The '134 Patent

The '134 patent is titled “Artificially Intelligent Systems, Devices, and Methods for Learning and/or Using an Avatar’s Circumstances for Autonomous Avatar Operation.” Ex. 1001, code (54). The '134 patent relates to “learning an avatar’s or an application’s operation in various circumstances, storing this knowledge in a knowledgebase (i.e. neural network, graph, sequences, etc.), and/or enabling autonomous operation of the avatar or the application.” *Id.* at code (57).

Figure 2 of the '134 patent is depicted below.

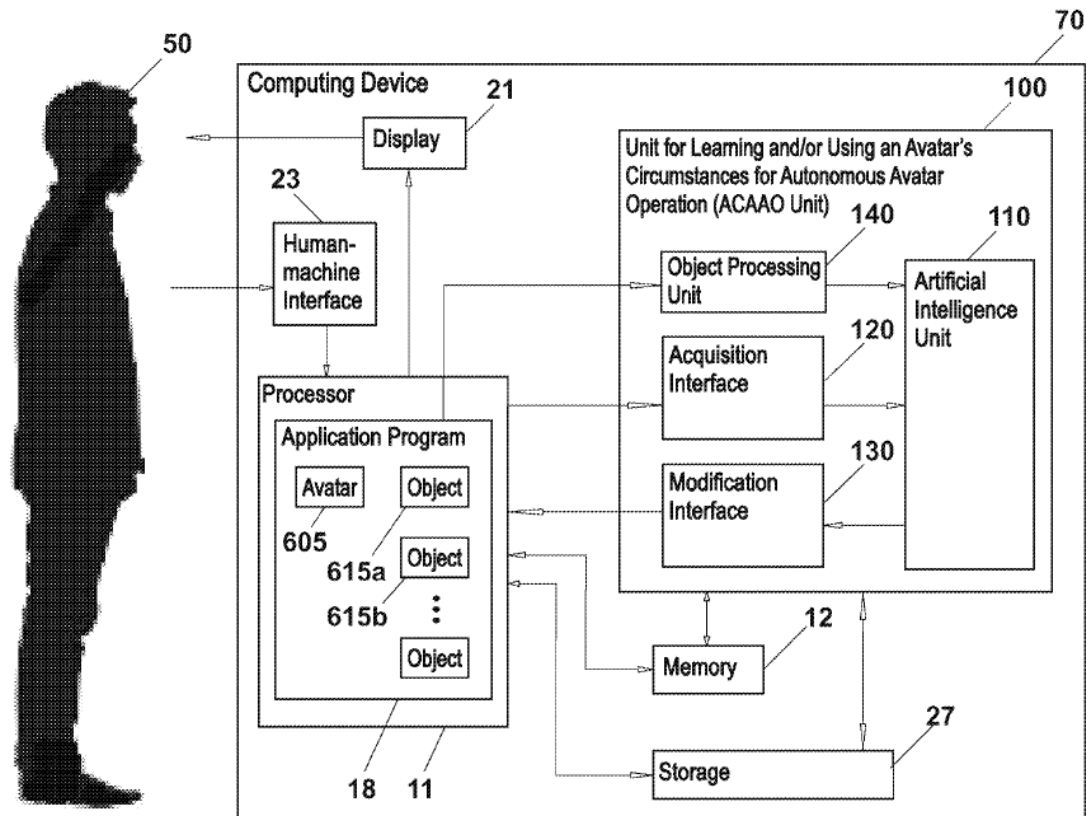


FIG. 2

Figure 2 illustrates an embodiment of computing device 70 comprising “Unit for Learning and/or Using an Avatar’s Circumstances for Autonomous Avatar Operation” (ACAAO Unit) 100, processor 11, human-machine interface 23, memory 12, and storage 27. *Id.* at 66:61–64.

Processor 11 is configured to execute instruction sets for operating the device. *Id.* at 67:9–11. User 50 issues an operation direction to application program 18 responsive to which application program’s 18 instructions or instruction sets are executed by processor 11 to perform a desired operation. *Id.* at 67:65–68:7. Examples of application program 18 include the following:

a computer game, a virtual world application, a graphics application, a media application, a word processing application, a spreadsheet application, a database application, a web browser,

a forms-based application, a global positioning system (GPS) application, a 2D application, a 3D application, an operating system, a factory automation application, a device control application, a vehicle control application, and/or other application or program.

Id. at 61:11–20.

Avatar 605 comprises an object of application program 18. *Id.* at 68:22–23. Avatar 605 may be a representation of user 50. *Id.* at 68:29–31. Avatar 605 performs operations within application program 18 such as moving, maneuvering, jumping, running, and shooting. *Id.* at 68:36–40.

ACAAO Unit 100 comprises artificial intelligence unit 110, acquisition interface 120, modification interface 130, and object processing unit 140. *Id.* at 66:67–67:2. Artificial intelligence unit 110 is “configured to receive a first collection of object representations” that include “one or more object representations representing one or more objects of the application.” *Id.* at 67:15–20.

Figure 5A of the '134 patent is depicted below.

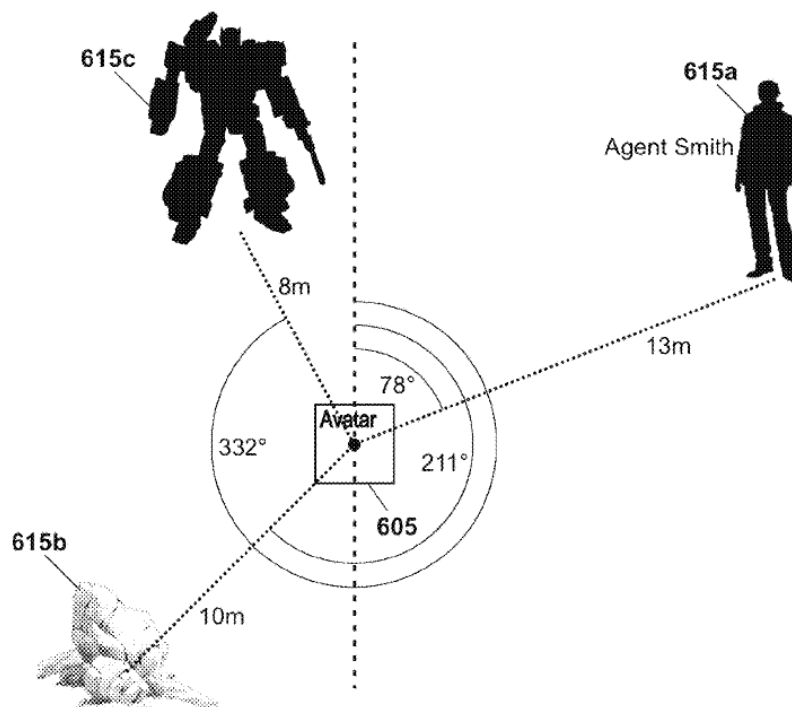


Figure 5A, above, illustrates the surrounding for Avatar 605, which includes Objects 615a, 615b, and 615c. *Id.* at 81:4–16. The patent further discloses that “Object Processing Unit 140 can be used to obtain objects and/or their properties in Avatar's 605 surrounding within Application Program 18.” *Id.* at 68:48–51.

D. Illustrative Claim

Petitioner challenges claims 1–20 of the '134 patent. Pet. 1. Claims 1, 10, and 19 are independent claims. Claims 2–9 and 11–18 depend directly from claim 1. Claim 20 depends directly from claim 19. Independent claim 1, reproduced below, with Petitioner's annotations, is illustrative of the claimed subject matter.

1. [1.1] A system comprising:

one or more processors; and

[1.2] one or more non-transitory machine readable media storing machine readable code that, when executed by the one or more processors, causes the one or more processors to perform at least:

[1.3] accessing a first correlation including a first one or more object representations correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first one or more object representations represent one or more objects of the application;

[1.4] generating or receiving a second one or more object representations, wherein the second one or more object representations represent one or more objects of the application;

[1.5] determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more object representations and the first one or more object representations; and

[1.6] at least in response to the determining, causing the first avatar of the application or a second avatar of the application to perform one or more operations defined by the first one or more instruction sets for operating the first avatar of the application at least by executing the first one or more instruction sets for operating the first avatar of the application.

Ex. 1001, 171:42–173:2.

E. Evidence

Petitioner relies on the patent document references summarized in the table below.

Name	Patent Document	Exhibit
Thomas	US 8,142,268 B2	1005
Buehler	US 9,434,072 B2	1006

Petitioner also relies on the Declaration of Jason Janet, Ph.D. (Ex. 1003) to support its contentions that the challenged claims are unpatentable.

F. Asserted Grounds

Petitioner asserts that the challenged claims of the '134 patent are unpatentable based on the following grounds summarized in the table below:

Claims Challenged	35 U.S.C. §¹	References/Basis
1–20	102	Thomas
3, 5, 12–14	103	Thomas
1, 3, 17	102	Buehler

¹ Because the challenged claims of the '134 patent have an apparent effective filing date of December 19, 2016 (Ex. 1001, code (22)), the 35 U.S.C. §§ 102 and 103 provisions of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011) apply. Our determinations and findings herein would not change if the AIA provision did not apply.

III. DISCRETIONARY DENIAL OF THE PETITION

Patent Owner argues we should exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review in view of the parallel district court proceeding. Prelim. Resp. 32–38; Prelim. Sur-reply 4–5. Petitioner did not address discretionary denial in its Petition. *See generally* Pet. In its Preliminary Reply, Petitioner disagrees. Prelim. Reply 3–5. We address Patent Owner’s arguments regarding discretionary denial below.

A. 35 U.S.C. § 314(a)

Under Section 314(a), the Director has discretion to deny institution. *See* 35 U.S.C. § 314(a) (stating “[t]he Director *may not* authorize an inter partes review to be instituted unless the Director determines that 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”) (emphasis added); 37 C.F.R. § 42.108(a) (stating “the Board will authorize the review to proceed”); *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review.” (emphasis omitted)); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

In determining whether to exercise this discretion based on a related litigation, the Board assesses all relevant circumstances, including the merits, to balance considerations such as system efficiency, fairness, and patent quality. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”); *NHK Spring Co. v. Intri-*

Plex Techs., Inc., IPR2018-00752, Paper 8 at 19–20 (PTAB Sept. 12, 2018) (precedential). We consider six factors that we consider as part of this balanced assessment when determining whether to use our discretion to deny institution:

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.

Fintiv, Paper 11 at 5–6. In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

On June 21, 2022, the Director issued an Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (“Interim *Fintiv* Guidance”).² The Interim *Fintiv* Guidance provides “several clarifications” to “the PTAB’s current application of *Fintiv* to discretionary denial where there is parallel litigation” in response to comments received from stakeholders in response to a Request for Comments. Interim *Fintiv* Guidance 2.

² The Interim *Fintiv* Guidance is available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf.

We now apply the six factors to the facts and circumstances present here.

1. Fintiv Factor 1: Stay in the Parallel Proceeding

Under the first *Fintiv* factor, we consider “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” *Fintiv*, Paper 11 at 6. Patent Owner contends that this factor weighs in favor of denial because “there is no stay in the district court proceeding, and there is a low likelihood of a stay.” Prelim. Resp. 34. Patent Owner also argues “[t]he advanced stage of the underlying litigation disfavors a stay.” *Id.* Petitioner argues that neither party has requested a stay in the district court proceeding, and this factor should be considered neutral. Prelim. Reply 4.

Patent Owner does not provide evidence showing that a stay has been requested in the parallel district court litigation. Also, based on the current schedule in the parallel district court proceeding, significant investment remains including that claim construction briefing does not begin until April 26, 2024 and the hearing on claim construction is not scheduled until July 12, 2024. *See generally* Ex. 2005. We, therefore, do not agree that the evidence supports Patent Owner’s argument that the parallel district court proceeding is in an advanced stage such that a stay, if requested, would not be granted. We will not attempt to predict how the district court in the parallel district court proceeding would proceed if a stay is requested because the court may determine whether or not to stay any individual case, including the related one, based on a variety of circumstances and facts beyond our control and to which the Board is not privy. *Sand Revolution II, LLC v. Cont’l Intermodal Grp. - Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) (“*Sand Revolution*”). Accordingly, we find that factor 1 is neutral.

2. *Fintiv Factor 2: Trial Date in the Parallel Proceeding*

Under the second *Fintiv* factor, we consider the “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision.” *Fintiv*, Paper 11 at 6. Trial in the parallel district court proceeding is scheduled for June 23, 2025. Ex. 2005, 3. Because the deadline for our final written decision is approximately five months before the current trial date in the parallel district court proceeding, we find that factor 2 weighs against exercising discretion to deny institution.

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

Under the third *Fintiv* factor, we consider the “investment in the parallel proceeding by the court and the parties.” *Fintiv*, Paper 11 at 6. Patent Owner asserts that substantial resources will have already been invested, including exchanging preliminary contentions and substantially completing document production. Prelim. Resp. 35. Patent Owner also argues that Petitioner “waited over seven months after the parallel district court litigation was filed to file its petition” and that Petitioner’s delay was “unreasonable.” *Id.* at 35–36.

Claim construction briefing does not begin until April 26, 2024 and the hearing on claim construction is scheduled for July 12, 2024. Ex. 2006, 2–3. Trial in the parallel district court proceeding is currently set for June 23, 2025. *Id.* at 3. Because of the significant investment that remains in the parallel district court proceeding (*see generally* Ex. 2006), we find that factor 3 weighs against exercising discretion to deny institution.

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

Under the fourth *Fintiv* factor, we consider the “overlap between issues raised in the petition and in the parallel proceeding.” *Fintiv*, Paper 11 at 6. Patent Owner argues we should deny institution because “Petitioner has not stipulated to limit its ability to challenge the ’134 patent claims in the district court case with prior art similar to that asserted in this proceeding.” Prelim. Resp. 36. Patent Owner also argues “in Petitioner’s invalidity contentions it has identified the petitioned references with various other references” and that this proceeding “will greatly overlap” the issues in the parallel district court proceeding. *Id.* at 36–37 (citing Ex. 2006).

Petitioner stipulates that,

if the Board institutes IPR on the Petition grounds, Petitioner will not pursue an invalidity defense in the district court (C.A. No. 22-cv-1466-MN) that the patent claims subject to the instituted IPR are invalid based on the same Petition grounds.

Prelim. Reply 5. Patent Owner argues that the fourth *Fintiv* factor favors institution despite Petitioner’s stipulation. Prelim. Sur-reply 5. In particular, Patent Owner asserts that Petitioner “provided a weak stipulation under *Sand Revolution* that falls short of a *Sotera* stipulation.” *Id.* (citing *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential)).

Petitioner’s stipulation that it will not rely on the grounds asserted in the Petition in the parallel district court proceeding mitigates to at least some degree concerns of duplicative efforts and potentially conflicting decisions. Prelim. Reply 5; see *Sand Revolution*, Paper 24 at 12. Thus, we determine that factor 4 weighs marginally against exercising discretion to deny institution.

5. *Fintiv Factor 5: Whether Petitioner is the Defendant in the Parallel Proceeding*

Under the fifth *Fintiv* factor, we consider “whether the petitioner and the defendant in the parallel proceeding are the same party.” *Fintiv*, Paper 11 at 6. When the Board’s deadline for a Final Written Decision precedes the district court trial date and the parties are the same in both proceedings, *Fintiv* factor 5 typically weighs against exercising discretion to deny institution. *See Hanwha Solutions Corp. v. REC Solar Pte. Ltd.*, IPR2021-00989, Paper 12 at 14, 17 (PTAB Dec. 13, 2021) (determining that factor 5 did not weigh in favor of exercising discretion to deny institution where district court trial date was set for three months after statutory deadline for a final written decision); *Carrier Fire & Security Americas Corp. v. Sentrilock, LLC*, IPR2021-00665, Paper 12 at 13–14 (PTAB Sept. 16, 2021) (The parties being the same “could weigh either in favor of, or against, exercising discretion to deny institution, depending on which tribunal is likely to address the challenged patent first,” and the Board reaching the merits before the district court means “estoppel will apply against Petitioner should we determine that Petitioner failed to demonstrate unpatentability of the challenged claims.”)). Because the deadline for our final written decision is approximately five months before the current trial date in the parallel district court proceeding, we find that factor 5 weighs against exercising discretion to deny institution.

6. *Fintiv Factor 6: Other Considerations*

Under the sixth *Fintiv* factor, we consider “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11 at 6. As discussed below, we determine that Petitioner has shown a reasonable likelihood of unpatentability of at least independent claim 1.

Beyond that, given the facts relating to the other *Fintiv* factors in this case, we need not make further determinations regarding Petitioner’s showing in order to decide whether to exercise our discretion to deny institution in this proceeding. Therefore, we treat this factor as neutral in our analysis.

7. Conclusion

As noted above, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Fintiv*, Paper 11 at 6. Weighing all the factors, we are not persuaded that the interests of efficiency and integrity of the system would be best served by invoking 35 U.S.C. § 314(a) to deny institution of a potentially meritorious Petition. Based on the record before us, we determine the facts of this case do not warrant discretionary denial.

IV. ANALYSIS

A. Legal Standards

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). To establish anticipation, “all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim.” *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406

(2007). 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 ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner asserts a person having ordinary skill in the art, would have had at least (1) a bachelor’s degree in electrical engineering, computer engineering, computer science, systems engineering, or equivalent course work with two to three years of work experience in computer vision, image/video processing, and/or machine learning; or (2) a master’s degree in any of those fields with a focus in computer vision, image/video processing, and/or machine learning.

Pet. 4 (citing Ex. 1003 ¶¶ 37–39). At this stage in the proceeding, Patent Owner “adopts Petitioner’s definition of a person of ordinary skill in the art (POSA).” Prelim. Resp. 4.

Considering the subject matter of the ’134 patent, the background technical field, and the asserted prior art, we agree with Petitioner’s proposed qualifications for an ordinary level of skill, except we decline to adopt “at least” as that language is vague and open-ended. Otherwise, Petitioner’s proposed definition is consistent with the level of skill reflected in the specification of the ’134 patent and the asserted prior art references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

³ Patent Owner does not present objective evidence of nonobviousness at this stage of the proceeding.

Accordingly, for purposes of this Decision, and based on the current record, except as noted above, we adopt Petitioner’s assessment of the level of skill for one of ordinary skill in the art.

C. Claim Construction

We construe the challenged claims by applying the standard used in federal courts, in other words, “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b),” which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2020). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *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).

Petitioner provides a construction of three “means for” limitations of claim 19 (Pet. 5), which Patent Owner does not dispute at this stage. Prelim. Resp. 12. Petitioner states that it “applies the ordinary and customary meaning of the [remaining] claim terms.” Pet. 4. Patent Owner provides a proposed construction for “object representation.” We discuss the parties’ contentions regarding claim construction below.

I. Means-Plus-Function Terms

For “means for generating or receiving . . . ,” “means for determining . . . ,” and “means for executing . . . ” recited in claim 19, Petitioner contends the “specification describes that a corresponding structure for performing these functions is one or more processor circuits or processors.” Pet. 5 (citing, e.g., Ex. 1001, 17:19–18:8; Ex. 1003 ¶¶ 64–66). Patent Owner states “[f]or purpose of this stage of the proceeding only, Patent Owner does not dispute Petitioner’s construction of these ‘means . . . ’ terms of claim 19.” Prelim. Resp. 12.

Claim limitations that include the word “means” are presumed to be drafted in “means-plus-function” format. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348–49 (Fed. Cir. 2015) (en banc in relevant part) (“[U]se of the word ‘means’ creates a presumption that § 112, ¶ 6 applies.”) (quoting *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703 (Fed. Cir. 1998)); *see also Greenberg v. Ethicon Endo–Surgery, Inc.*, 91 F.3d 1580, 1584 (Fed. Cir. 1996). This presumption may be rebutted, however, “if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant.” *Personalized Media Commc’ns*, 161 F.3d at 704. In a means-plus-function claim “in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008) (quoting *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999)).

As discussed below (*see* Section IV.D.1, IV.F), we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in

showing the unpatentability of at least one of the challenged claims, specifically, claim 1. At this preliminary stage, therefore, we need not make a determination as to whether the Petition identifies sufficient corresponding structure for the “means for” recitations in claim 19. We welcome the parties to address this issue further during trial.

2. “*object representation*”

Petitioner argues that the ’134 patent “states that ‘Object Representations’ may include ‘any information related to an object,’ such as location.” Pet. 12 (citing Ex. 1001, 69:1–8, 70:32–40). In its element-by-element analysis of anticipation by Buehler, Petitioner appears to take the position that “object representation” is met by disclosure of using a “stored representation” of an object to identify the object. *Id.* at 56–57 (citing Ex. 1006, 6:31–48, 7:6–15).

Patent Owner asserts the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing.’” Prelim. Resp. 8. Patent Owner argues its proposed construction is apparent “[i]n the context of the ’134 patent” including Figure 5B of the ’134 patent and further that its construction is correct “[b]ecause [the ’134 patent describes] the object properties are generated by the Object Processing Unit 140 and stored in the object representations.” *Id.* at 8–11 (citing Ex. 1001, 70:59–66, 71:53–56, 72:50–59, 81:4–82:3, Figs. 2, 5B); *see also* Prelim. Sur-reply 1–3 (responding to Petitioner’s Preliminary Reply arguing that the Specification provides “important context” and supports Patent Owner’s position). Patent Owner argues that its construction “is confirmed by and consistent with the language of the claims” including the language of claim 8. *Id.* at 11–12.

Starting with the language of the claims, claim 1 recites that the first and second one or more object representations “represent one or more objects of the application.” Ex. 1001, 171:51–53, 171:55–57. We discern nothing in claim 1 that supports Patent Owner’s proposed construction.

Claim 8 recites

wherein the first one or more object representations include one or more properties of the one or more objects represented by the first one or more object representations, and wherein the second one or more object representations include one or more properties of the one or more objects represented by the second one or more object representations.

Ex. 1001, 173:37–43.

Claim 8 depends directly from claim 1. “[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found” in an earlier claim from which that claim depends. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (“[W]here the limitation sought to be ‘read into’ an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest.”). However, “claim differentiation is a rebuttable presumption that may be overcome by a contrary construction dictated by the written description or prosecution history.” *Howmedica Osteonics Corp. v. Zimmer, Inc.*, 822 F.3d 1312, 1323 (Fed. Cir. 2016). For the reasons given below, at this early stage in the proceeding, we preliminarily determine that the presumption has not been rebutted. We, therefore, preliminarily find that the language of the claims supports Petitioner’s position.

We turn to the ’134 patent Specification. Importantly, we preliminarily find that the ’134 patent Specification suggests a broader

interpretation of “object representations” than that proposed by Patent Owner. In particular, the ’134 patent Specification describes that the “first collection” and a “new collection” of object representations includes “one or more object representations representing one or more objects of the application.” Ex. 1001, 1:49–51, 1:59–61. The ’134 patent describes “[i]n *further embodiments*, an object representation includes *one or more object properties* of an object of the application.” *Id.* at 3:27–30 (emphases added).

Furthermore, Patent Owner relies on non-limiting examples in the Specification to support its proposed construction. For instance, the ’134 patent describes Figure 5B as illustrating “an exemplary embodiment.” Ex. 1001, 55:63–65. The ’134 patent also describes that object processing unit 140 “*may create or generate*” collection of object representations 525 and that object representation 625*a* “*may include*” object property 630*aa*. *Id.* at 81:37–47 (emphases added). Neither party relies on the prosecution history of the ’134 patent.

Our reviewing court has repeatedly “cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015); *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (noting that “it is important not to import into a claim limitations that are not a part of the claim”). “[I]t is the *claims*, not the written description, which define the scope of the patent right.” *Williamson*, 792 F.3d at 1346–47; *see also Phillips*, 415 F.3d at 1312 (noting that “[i]t is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude’”). Thus, “a particular embodiment appearing in the written description may not be read

into a claim when the claim language is broader than the embodiment.”
SuperGuide, 358 F.3d at 875.

At this preliminary stage, therefore, we decline to adopt Patent Owner’s proposal that the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing.’” Prelim. Resp. 8. Although the ’134 patent is not related to the patents challenged in the IPR2023-01054 and IPR2023-01055 proceedings between the parties, our determination here is consistent with our determination regarding the same term in those other proceedings. *See* IPR2023-01054, Paper 20, 22; IPR2023-01055, Paper 20, 21.

*D. Anticipation of Claims 1, 2, 4, 6–11, and 15–20 under
35 U.S.C. § 102 by Thomas*

Petitioner asserts that claims 1, 2, 4, 6–11, and 15–20 are anticipated by Thomas. Pet. 4. Patent Owner counters that Thomas does not disclose “object representations.” Prelim. Resp. 12–22.

We begin with an overview of Thomas. We then turn to the parties’ contentions.

1. Thomas

Thomas is titled “Systems and Methods for Simulating a Particular User in an Interactive Computer System.” Ex. 1005, code (54). Thomas relates to “simulating a particular user's behavior in an interactive computer system.” *Id.* at 1:18–21.

Thomas notes that “a key component in the entertainment value of most videogames is that of competition between opponents, whereby each opponent vies against the competition to win and to become the best.” *Id.* at 1:25–28. Thomas describes that “research has demonstrated that for videogames, when players are not actively competing against other players,

they spend time training and practicing in order to improve their skills and thereby become better, more capable competitors.” *Id.* at 1:52–56. Typically, according to Thomas, “human players who seek to practice their skills during the time they are not actively competing against other human players, would primarily do so by playing against the computer AI in the single-player videogame configuration.” *Id.* at 1:59–64. However, “[p]laying or practicing against a computer is simply not the same experience as playing or practicing against a human.” *Id.* at 2:10–12.

To address this, Thomas discloses “a simulator configured to simulate a user interacting with a computer program,” which “includes a learning mode of operation and a simulation mode of operation.” *Id.* at 2:22–26. Thomas’s system allows a user to compete against a computer system that simulates a particular user, such as one with superior game skills, where the computer system simulates that particular user’s decisions and tendencies. *Id.* at 3:36–39.

Figure 1 of Thomas is below.

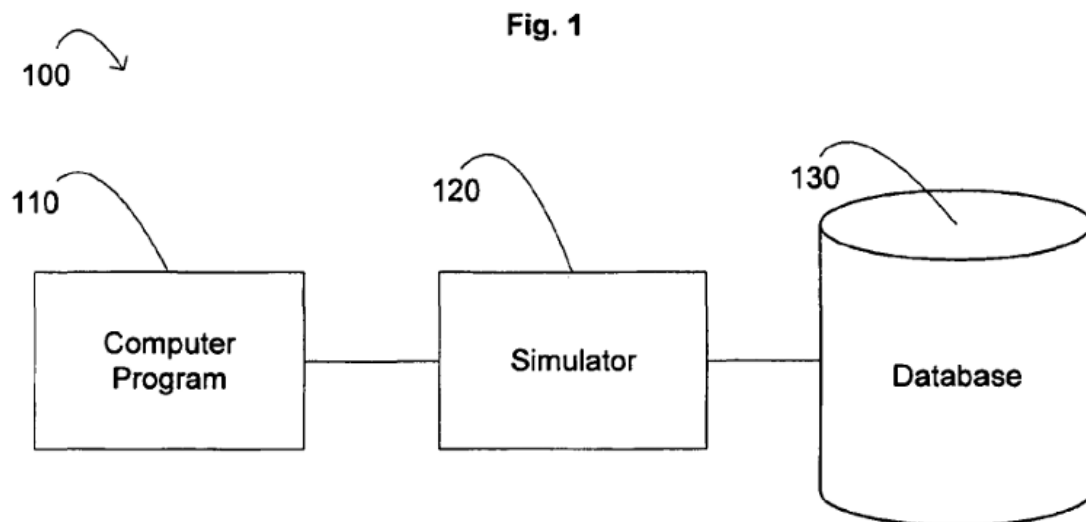


Figure 1 shows a diagram of interactive computer system 100 that includes interactive computer program 110, simulator 120 operatively coupled with interactive computer program 110, and database 130 coupled with simulator 120. *Id.* at 3:40–49. Interactive computer program 110 is configured to have a plurality of users interact with each other. *Id.* at 3:42–45. An example of interactive computer program 110 is a video game. *Id.* Simulator 120 is configured to simulate a particular user’s decisions and behavior. *Id.* at 3:43–46. Database 130 stores data used by the simulator 120 to calculate and generate the decisions and behavior. *Id.* at 3:46–48.

Simulator 120 generally operates in two modes: (1) learn, or record, mode and (2) simulation, or playback, mode. *Id.* at 3:49–51. During the learn mode, if a first user is using the computer program 110, the simulator 120 collects and evaluates data about the first user’s input when interacting with computer program 110. *Id.* at 3:53–56. The collected data is then stored in database 130. *Id.* at 3:56–57. The collected data is stored in a data structure, referred to as a user’s profile, corresponding to the first user. *Id.* at 3: 57–59. The collected data is logically linked to an event, or situation, that initiated the user’s input. *Id.* at 3:59–61. “[W]hen the simulator 120 is in simulation mode, and a particular event and/or situation occurs, the simulator 120 can invoke a corresponding reaction based on the stored data, thereby simulating the user.” *Id.* at 5:25–29.

2. *Independent Claim 1*

a) *Element [1.1]*

The preamble of claim 1 recites “[a] system comprising: one or more processors; and.” Ex. 1001, 171:41–43. Petitioner relies on Thomas’s disclosure of “simulating a particular user’s behavior in an interactive computer system.” Pet. 9 (quoting Ex. 1005, code (57)). Petitioner also relies

on Thomas’s disclosure of a processor executing instructions. *Id.* (citing, e.g., Ex. 1005, 20:20–23).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.1]. We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.1] of claim 1 for purposes of institution.

b) Element [1.2]

Element [1.2] recites “one or more non-transitory machine readable media storing machine readable code that, when executed by the one or more processors, causes the one or more processors to perform at least.” Ex. 1001, 171:44–47. Petitioner relies on Thomas’s disclosures of executing code stored on a computer-usable medium and a portable memory device. Pet. 10 (citing, e.g., Ex. 1005, 13:60–19:34, 19:35–46, 20:20–48, 22:21–24).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.2]. We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.2] of claim 1 for purposes of institution.

c) Element [1.3]

Element [1.3] recites “accessing a first correlation including a first one or more object representations correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first one or more object representations represent one or more objects of the

application.” Ex. 1001, 171:48–53. Petitioner argues Thomas’s data collected during learning mode and stored in database 130 “includes the user’s input for controlling an avatar in the computer program (i.e., an instruction set for operating an avatar object of an application program) in association with the surrounding circumstances or situation.” Pet. 11 (citing, e.g. Ex. 1005, 3:53–61, 4:67–5:5, 5:7–13). Petitioner argues Thomas describes current circumstances that are stored, such as the spatial position of avatars and the virtual road conditions, which are information related to an object, and comprise object representations. *Id.* at 12–13 (citing, e.g., Ex. 1005, 4:16–54, 7:65–8:1, 9:43–53; Ex. 1003 ¶ 234). Petitioner also argues “Thomas further describes that during simulation mode, the system accesses the stored correlations to simulate the user’s control of the avatars” and Thomas describes exemplary simulations including simulation of pump fake and pass events. *Id.* at 13–14 (citing, e.g. Ex. 1005, 5:30–61, 7:39–44, 7:55–64, 8:8–15, 10:56–11:3, 11:11–22, 12:63–13:1).

Patent Owner contends “Thomas does not disclose the claimed ‘object representations’ under the proper construction of that term.” Prelim. Resp. 13. Patent Owner’s arguments disputing Petitioner’s showing center on its proposed claim construction of “object representation.” *Id.* at 13–22. For instance, Patent Owner contends that “Petitioner’s argument regarding Thomas that ‘[t]he current circumstances that are stored, such as the spatial position of avatars,’” does not establish that “that these elements are, or include, data structures that include an object property generated by object processing.” *Id.* at 14 (citing Pet. 12). Patent Owner argues the “generated object property” required by the recitation of “object representation” is like exemplary object properties in the ’134 patent including “Object Property 630aa ‘Person’ in Category 635aa ‘Type’, Object Property 630ab ‘Agent

Smith’ in Category 635ab ‘Identity’, Object Property 630ac ‘13 m’ in Category 635ac ‘Distance’.” *Id.* at 16 (citing Ex. 1001, 81:42–46 (emphases omitted)); *see also id.* at 17–19 (arguing Thomas’s disclosures relied on by Petitioner do not describe an object property generated by object processing that is included in a data structure). Patent Owner argues “Thomas’s spatial position of avatars or virtual road conditions” are “entirely different.” *Id.* at 14.

As discussed above with respect to claim construction (*see* § IV.C.2), at this early stage, we decline to adopt Patent Owner’s proposal that the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing.’” Prelim. Resp. 10. We, therefore, preliminarily find that Patent Owner’s arguments do not undermine Petitioner’s showing at this early stage.

We further note with respect to Patent Owner’s construction that, we preliminarily find that the Petition explains (Pet. 11–12) that Thomas describes interactive *computer* system 100 including simulator 120 that “collects and evaluates data” and then stores data in database 130 “in a *data structure*.” Ex. 1005, 3:41–60. Thomas describes that the collected data “is logically linked to an event, or situation” (*id.* at 3:59–61) and that “[e]ach event 685 and situation 655 are defined by a set of one or more parameters” (*id.* at 4:23–24). An exemplary parameter is the “spatial position of avatars.” *Id.* at 4:29–32. Other exemplary parameters include “virtual weather in games such as golf, or road conditions of racing games.” *Id.* at 4:51–54.

We remind the parties, at this early juncture, our findings and determinations regarding claim construction and anticipation are preliminary. We welcome the parties addressing construction of the term “object representation” further in accordance with our rules during trial.

We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas and that Patent Owner’s arguments do not undermine Petitioner’s showing. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.3] of claim 1 for purposes of institution.

d) Element [1.4]

Element [1.4] recites “generating or receiving a second one or more object representations, wherein the second one or more object representations represent one or more objects of the application.” Ex. 1001, 171:54–57. Petitioner argues “Thomas describes that during simulation/playback mode, the system generates a second one or more object representations, including representations of defensive players on the opposing team and their spatial position on the field or court.” Pet. 14 (citing Ex. 1005, 3:49–51, 7:39–8:15; Ex. 1003 ¶ 237). Petitioner argues “a POSITA^[4] would have understood that in Thomas’s system the second object representations (e.g., spatial position of other avatars on the field/court, virtual weather, road conditions) are also received by Thomas’s processor to compare the situation/event generated during simulation mode to the situation/event recorded during learning mode.” *Id.* at 15 (citing Pet. 15–16 (Section IX.A.1.e); Ex. 1003 ¶¶ 238–240).

Patent Owner contends “Petitioner claims without support that a POSA would simply understand that the second object representation would be received by the processor in Thomas.” Prelim. Resp. 21 (citing Pet. 15). Again, Patent Owner’s arguments disputing Petitioner’s showing (*id.* at 21–

⁴ POSITA and POSA are used to refer to a person of ordinary skill in the art.

22) center on its proposed claim construction of “object representation.” Because at this early stage, we decline to adopt Patent Owner’s proposal that the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing’” (*see* § IV.C.2), we preliminarily find that Patent Owner’s arguments do not undermine Petitioner’s showing.

We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas and that Patent Owner’s arguments do not undermine Petitioner’s showing. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.4] of claim 1 for purposes of institution.

e) Element [1.5]

Element [1.5] recites “determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more object representations and the first one or more object representations.” Ex. 1001, 171:58–62. Petitioner relies on Thomas’s disclosure that “[t]he stored data enables the analysis of a user’s behavior, tendencies, and inclinations for a given event [and,] [t]hus... the simulator 120 can invoke a corresponding reaction based on the stored data, thereby simulating the user.” Pet. 15 (quoting Ex. 1005, 5:25–29). Petitioner argues

Thomas further discloses that during simulation mode the system compares the first object representations recorded during learning mode (*e.g.*, the spatial position of defenders) to the second object representations generated and received during simulation mode (*e.g.*, the spatial position of defenders), and determines instructions for operating the avatar of a simulated user in response to a match, such as determining that the same

avatar that the user controlled during learning mode (*i.e.*, the first avatar) should pump fake.

Id. at 15–16 (citing Ex. 1005, 7:39–44, 7:65–8:15, 10:56–11:3, 11:11–22, 12:63–13:1; Ex. 1003 ¶¶ 241–242).

Patent Owner argues “Petitioner’s arguments regarding the alleged matching in Thomas only confirm that Thomas does not disclose the claimed object representations.” Prelim. Resp. 20 (citing Pet. 16). Patent Owner argues “Thomas’s disclosure of merely ‘analyz[ing] the current situation,’ (Exhibit 1005, 7:41), is not disclosure of matching object representations or data structures with an object property generated by object processing, or any matching for that matter.” Prelim. Resp. 20.

Patent Owner’s arguments disputing Petitioner’s showing (*id.*) center on its proposed claim construction of “object representation.” Because at this early stage, we decline to adopt Patent Owner’s proposal that the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing’” (*see* § IV.C.2), we preliminarily find that Patent Owner’s arguments do not undermine Petitioner’s showing.

We further preliminarily find that in the disclosures cited in the Petition, Thomas describes recording data during learning mode. Ex. 1005, 7:45–50 (describing for an “offensive rebound event” during learning mode “current circumstances are recorded for the event”), 7:55–59 (describing for “a pass out of shot event” recording data during learning mode), 7:65–8:1 (describing for “a catch and shoot event” data is recording during learning mode including “the location of the user’s avatar that catches and shoots”). Thomas describes retrieving that recorded data during playback mode. *See, e.g., id.* at 7:39–41 (describing that “[d]uring playback mode 600, when an

inbound event occurs, the simulator 120 will retrieve the recorded data associated with the inbound event”). Thomas describes invoking a pass or pump fake if *criteria is met*. *Id.* at 7:62–8:15. Thomas describes having “the simulated user immediately shoot the ball after the catch” if “the simulated user is located in the *typical* spot for catch and shoot.” *Id.* at 8:2–7. Contrary to Patent Owner’s argument that Thomas does not disclose “any matching” (Prelim. Resp. 20), we preliminarily find the descriptions above in Thomas support Dr. Janet’s testimony that Thomas discloses “comparing the circumstances recorded during learning mode with the new circumstances generated during simulation mode” and “determining either a pump fake or pass instruction in response to detecting at least a partial match.” Ex. 1003 ¶¶ 241–242.

We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas and that Patent Owner’s arguments do not undermine Petitioner’s showing. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.5] of claim 1 for purposes of institution.

f) Element [1.6]

Element [1.6] recites:

at least in response to the determining, causing the first avatar of the application or a second avatar of the application to perform one or more operations defined by the first one or more instruction sets for operating the first avatar of the application at least by executing the first one or more instruction sets for operating the first avatar of the application.

Ex. 1001, 171:63–172:2.

Petitioner argues “Thomas discloses invoking an action for an avatar in an application program in simulation mode based on stored data when a particular event or situation occurs.” Pet. 16 (citing, e.g., Ex. 1005, 25–29; Pet. 15–16; Ex. 1003 ¶ 243). Petitioner relies on Thomas’s disclosures of invoking a pump fake or a pass as examples. *Id.* at 16–17 (citing Ex. 1005, 7:55–64, 8:12–15; Ex. 1003 ¶ 244).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.6]. We preliminarily find that Petitioner’s contentions are supported by the cited portions of Thomas. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses element [1.6] of claim 1 for purposes of institution.

g) Conclusion

After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently, for purposes of institution, that Thomas discloses each recitation of claim 1. Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is anticipated under 35 U.S.C. § 102 by Thomas.

3. Independent Claim 10

Independent claim 10 is similar to independent claim 1, except claim 10 is written as a method claim. Ex. 1001 at 174:19–43. Petitioner’s analysis of claim 10 is the same as the analysis of claim 1. Pet. 36–37.

At this preliminary stage, Patent Owner does not argue claim 10 separately. Prelim. Resp. 22. For the reasons given with respect to claim 1,

Petitioner's assertions regarding claim 10 are supported sufficiently at this juncture by the cited portions of Thomas. *See supra* § IV.D.2.

After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Thomas discloses each recitation of claim 10 for purposes of institution. Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 10 is anticipated under 35 U.S.C. § 102 by Thomas.

4. *Independent Claim 19 and Dependent Claim 20*

Independent claim 19 is similar to independent claim 1, except it is written as a system claim in “means for” form. Ex. 1001, 176:20–43. Claim 20 depends directly from claim 19. Petitioner's analysis of claim 19 is the similar to its analysis of claim 1. Pet. 52–54. Petitioner argues that Thomas describes a processor performing the functions of the recitations in “means for” form. *Id.*

As discussed above (*see* Sections IV.D.1, IV.F), we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims, specifically, claim 1. At this preliminary stage, therefore, we need not make a determination as to whether the Petition addresses the “means for” recitations in claim 19 sufficiently. We welcome the parties to address this issue further during trial.

5. *Dependent Claims 2, 4, 6–9, 11, and 15–18*

We have considered Petitioner's arguments and evidence for dependent claims 2, 6–9, 11, and 15–18 and are persuaded that Petitioner has shown sufficiently that Thomas discloses the further recitations in each of

those dependent claims. Patent Owner does not present arguments separately contesting Petitioner's assertions for claims 2, 6–9, 11, and 15–18. Prelim. Resp. 22–23. After consideration of the contentions and the evidence of record at this juncture, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 2, 6–9, 11, and 15–18 are anticipated under 35 U.S.C. § 102 by Thomas.

We also have considered Petitioner's arguments and evidence for dependent claim 4. In IPR2023-01054, the parties dispute whether a different prior art reference anticipates a claim that recites “wherein a first connection is generated to connect the first correlation with the second correlation, and wherein a second connection is generated to connect the second correlation with the fourth correlation.” *See* IPR2023-01054, Paper 1, 32–33; IPR2023-01054, Paper 11, 19–20. That dispute may involve resolving construction of the claim term “connection,” which is recited in claim 4. We are mindful that “the same claim term in the same patent or related patents carries the same construed meaning.” *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003). Although the '134 patent is not in the same family as the patent challenged in IPR2023-01054, the Specifications of the patents include some similar descriptions. In light of our other determinations herein, we need not make a determination regarding claim 4 at this early stage and we decline to do so. The parties may further address claim 4 and any claim construction issues at trial.

E. Unpatentability of Claims 3, 5, and 12–14 under 35 U.S.C. § 102 or § 103(a) over Thomas

Petitioner asserts that claims 3, 5, and 12–14 are unpatentable as anticipated by or alternatively obvious over Thomas. Pet. 4. Patent Owner

counters that Petitioner “fails to show that Thomas in view of the knowledge of a POSA discloses or suggests object representations.” Prelim. Resp. 22.

We have considered Petitioner’s arguments and evidence for dependent claims 5 and 12–14 and are persuaded that Petitioner has shown sufficiently that Thomas at least teaches the further recitations in each of those dependent claims. Patent Owner does not present arguments separately contesting Petitioner’s assertions for claims 5 and 12–14 other than the argument above, which we address in our discussion of claim 1. Prelim. Resp. 22. After consideration of the contentions and the evidence of record at this juncture, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 5 and 12–14 are at least unpatentable as obvious under 35 U.S.C. § 103 by Thomas.

We also have considered Petitioner’s arguments and evidence for dependent claim 3. In IPR2023-01054, the parties dispute whether a different prior art reference anticipates a claim that recites “determining that a number of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold number” or “determining that a percentage of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold percentage.” *See* IPR2023-01054, Paper 1, 29; IPR2023-01054, Paper 11, 16–19. Dependent claim 3 challenged here includes a similar recitation. Additionally, although the ’134 patent is not in the same family as the patent challenged in IPR2023-01054, the Specifications of the patents include some similar descriptions. In light of our other determinations herein, we need not make a determination regarding claim 3 at this early stage and we decline to do so. The parties may further address claim 3 at trial.

F. Anticipation of claims 1, 3, and 17 under 35 U.S.C. § 102 by Buehler

Petitioner asserts that claims 1, 3, and 17 are anticipated by Buehler. Pet. 4, 55. Patent Owner counters that Buehler does not disclose “object representations.” Prelim. Resp. 23.

We begin with an overview of Buehler. We then turn to the parties’ contentions.

1. Buehler

Buehler is titled “Vision-Guided Robots and Methods of Training Them.” Ex. 1006, code (54). Buehler provides methods for robot learning and training that “involve two-way communication between a vision-guided robot and a human trainer.” *Id.* at 1:64–67.

Buehler describes training a robot with a machine-vision system for capturing images within a camera field of view to complete a specified task. *Id.* at 6:28–30. Buehler, more specifically, describes that the robot selects an object in the field of view, displays the selection (including the camera view of the selected object) on a robot-controlled visual display, overlays a representation of an end-effector onto the camera view, and displays performance of an action on the object the end-effector. *Id.* at 6:31–37. Based on the display, feedback is provided to the robot, indicating whether the action is performed correctly. *Id.* at 6:37–39.

Buehler also describes a robot manipulating objects based on visual recognition. *Id.* at 7:4–6. Buehler, more specifically, describes the robot selecting an object in a camera field of view, using a visual model to computationally identify the object based on a stored representation thereof associated with the model, determining whether an object-specific manipulation routine is stored in association with the stored representation, and, if so, executing the object-specific manipulation routine. *Id.* at 7:6–13.

If no manipulation routine is stored, the robot executes a generic manipulation routine. *Id.* at 7:13–14.

2. *Independent Claim 1*

a) *Element [1.1]*

Element [1.1] of claim 1 recites “[a] system comprising: one or more processors; and.” Ex. 1001, 171:41–43. Petitioner relies on Buehler’s disclosures relating to its image-processing module and control system. Pet. 55 (citing, e.g. Ex. 1006, 4:51–56, 8:10–15). Buehler, for example, describes that the “image-processing module and the control system comprise sets of instructions stored in memory and *executable by a processor*.” Ex. 1006, 4:51–53 (emphasis added).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.1]. Petitioner’s contentions are supported by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.1] of claim 1 for purposes of institution.

b) *Element [1.2]*

Element [1.2] recites “one or more non-transitory machine readable media storing machine readable code that, when executed by the one or more processors, causes the one or more processors to perform at least.” Ex. 1001, 171:44–47. Petitioner relies on Buehler’s disclosures relating to its image-processing module and control system. Pet. 55–56 (citing, e.g., Ex. 1006, 4:51–56, 10:5–14, 12:21–25). Buehler, for example, describes that in control system 200 “the robot controller and high-level computational functionality are implemented on a general-purposes computer 210,” which

includes “a central processing unit (CPU) 222 (e.g., a quad-core Intel processor), system memory 224, and non-volatile mass storage devices (such as one or more hard disks and/or optical storage units) 226.” Ex. 1006, 10:4–14. Buehler also describes that the “image-processing module and the control system comprise sets of instructions *stored in memory* and executable by a processor.” *Id.* at 4:51–53 (emphasis added).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.2]. Petitioner’s contentions are supported by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.2] of claim 1 for purposes of institution.

c) Element [1.3]

Element [1.3] recites “accessing a first correlation including a first one or more object representations correlated with a first one or more instruction sets for operating a first avatar of an application, wherein the first one or more object representations represent one or more objects of the application.” Ex. 1001, 171:48–53. Petitioner relies on Buehler’s disclosure of operating a robot by “using a visual model to computationally *identify the object based on a stored representation thereof* associated with the model, determining whether *an object specific manipulation routine is stored in association with the stored representation*, and, if so, executing the object-specific manipulation routine.” Pet. 56 (quoting Ex. 1006, 7:6–15). Petitioner argues Buehler discloses “operating an avatar of the robot in a virtual representation.” *Id.* at 56–57 (citing, e.g. Ex. 1006, 6:31–48, 21:46–54).

Patent Owner argues “Buehler does not disclose the claimed ‘object representations’ under the proper construction of that term.” Prelim. Resp. 23. Patent Owner argues “[w]hile Buehler uses the term ‘representation’ at a high level of generality,” Buehler does not disclose “that its stored representations or template images” include an object property generated by object processing. *Id.* at 26–27 (citing Ex. 1006 at 21:33–50).

Patent Owner’s arguments disputing Petitioner’s showing center on its proposed claim construction of “object representation.” *Id.* at 23–30. As discussed above with respect to claim construction (*see* § IV.C.2), at this early stage, we decline to adopt Patent Owner’s proposal that the term “object representation” should be construed as “a ‘data structure that includes an object property generated by object processing.’” We, therefore, preliminarily find that Patent Owner’s arguments do not undermine Petitioner’s showing at this early stage. Our findings and determinations regarding claim construction and anticipation are preliminary and we welcome the parties addressing construction of the term “object representation” further in accordance with our rules during trial.

Petitioner’s contentions are supported sufficiently at this juncture by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.3] of claim 1 for purposes of institution.

d) Element [1.4]

Element [1.4] recites “generating or receiving a second one or more object representations, wherein the second one or more object representations represent one or more objects of the application.” Ex. 1001, 171:54–57. Petitioner argues Buehler discloses element [1.4] by describing

“generating an object representation of an object that the robot receives with its camera (i.e. a second object representation that represents an object of the application), which the robot displays in an image with a virtual representation of the robot’s end-effector (e.g., grippers) in a simulation.” Pet. 57–58 (citing, e.g., Ex. 1006, 2:6–12, 21:47–50).

Patent Owner’s arguments disputing Petitioner’s showing center on its proposed claim construction of “object representation.” Prelim. Resp. 30–32. As discussed above (*see* § IV.C.2), at this early stage, we decline to adopt Patent Owner’s proposed construction of the term “object representation.” We, therefore, preliminarily find that Patent Owner’s arguments do not undermine Petitioner’s showing at this early stage.

Petitioner’s contentions are supported sufficiently at this juncture by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.4] of claim 1 for purposes of institution.

e) Element [1.5]

Element [1.5] recites “determining the first one or more instruction sets for operating the first avatar of the application based on at least partial match between the second one or more object representations and the first one or more object representations.” Ex. 1001, 171:58–62. Petitioner argues Buehler describes “comparing newly captured images (i.e., a second object representation) with previously stored template images of an object.” Pet. 58–59 (citing, e.g., Ex. 1006, 7:6–15, 18:50–54). Petitioner argues Buehler further describes “that when the system detects a match between the images (i.e., the object representations), it determines an instruction set for operating

the visual representation of the robot (i.e., the first avatar of the application).” *Id.* at 59 (citing, e.g., Ex. 1006, 21:46–54).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.5]. Petitioner’s contentions are supported sufficiently at this juncture by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.5] of claim 1 for purposes of institution.

f) Element [1.6]

Element [1.6] recites:

at least in response to the determining, causing the first avatar of the application or a second avatar of the application to perform one or more operations defined by the first one or more instruction sets for operating the first avatar of the application at least by executing the first one or more instruction sets for operating the first avatar of the application.

Ex. 1001, 171:63–172:2.

Petitioner argues that Buehler discloses element [1.6] because Buehler describes that when the system detects a match of object representations and determines the instruction set, the system executes the instruction set for operating the first avatar (i.e., the virtual robot and its end effector), which causes the virtual robot to perform the operations defined by the instruction set in the simulation application.

Pet. 60 (citing, e.g., Ex. 1006, 6:31–37, 7:6–15, 21:33–50).

At this preliminary stage, Patent Owner does not dispute Petitioner’s arguments or evidence regarding element [1.6]. Petitioner’s contentions are supported sufficiently at this juncture by the cited portions of Buehler. After consideration of the contentions and the evidence of record at this early

stage, we determine that Petitioner has shown sufficiently that Buehler discloses element [1.6] of claim 1 for purposes of institution.

g) Conclusion

After consideration of the contentions and the evidence of record at this early stage, we determine that Petitioner has shown sufficiently, for purposes of institution, that Buehler discloses each recitation of claim 1. Accordingly, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is anticipated under 35 U.S.C. § 102 by Buehler.

3. Dependent Claims 3 and 17

Regarding dependent claim 3, in IPR2023-01054, the parties dispute whether a different prior art reference anticipates a claim that requires “determining that a number of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold number” or “determining that a percentage of at least partially matching portions of the third circumstance representation and portions of the first circumstance representation exceeds a threshold percentage.” *See* IPR2023-01054, Paper 1, 29; IPR2023-01054, Paper 11, 16–19. Dependent claim 3 challenged here includes a similar recitation. Petitioner relies on Buehler’s disclosure of comparing an error or score to a threshold. Pet. 61–62 (citing, e.g. Ex. 1006, 18:3–7, 18:54–57). Patent Owner does not dispute Petitioner’s showing at this early stage. In light of our other determinations herein, we need not make a determination regarding claim 3 at this early stage and we decline to do so. The parties may further address claim 3 and any claim construction issues at trial.

We have considered Petitioner's arguments and evidence for dependent claim 17 and are persuaded that Petitioner has shown sufficiently that Buehler discloses the further recitations in that dependent claim. Patent Owner does not present arguments separately contesting Petitioner's assertions for claim 17. Prelim. Resp. 23. After consideration of the contentions and the evidence of record at this juncture, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 17 is anticipated under 35 U.S.C. § 102 by Buehler.

V. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail in proving the unpatentability of at least one of the challenged claims of the '134 patent. We thus institute an *inter partes* review of all of the challenged claims of the '134 patent on all grounds asserted in the Petition. *See* 37 C.F.R. § 42.108(a).

Any findings or conclusions in this Decision are made only for the purposes of institution and are not dispositive of any issue. We have not made a final determination with respect to the patentability of any challenged claim. Our final determination will be based on the record as fully developed during trial, including any evidence or argument timely presented by the parties under our Rules.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review of claims 1–20 of the '134 patent is hereby instituted on all grounds stated in the Petition; and

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FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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