

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner

Case: IPR2023-01169
U.S. Patent No. 10,607,134

PATENT OWNER'S RESPONSE

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Exhibit List

Exhibit	Description
2001	Biography of Blair M. Jacobs (previously submitted)
2002	Declaration of Blair M. Jacobs (previously submitted)
2003	Supplemental Declaration of Blair M. Jacobs (previously submitted)
2004	District Court Docket (previously submitted)
2005	District Court Scheduling Order (previously submitted)
2006	District Court Invalidity Contentions (previously submitted)
2007	Declaration of Dr. Eli Saber
2008	Deposition transcript of Dr. Jason Janet dated March 19, 2024 in IPR2023-01169
2009	RESERVED
2010	RESERVED
2011	RESERVED
2012	American Heritage Dictionary (1992) Excerpts
2013	Webster's Third New International Dictionary (2002) Excerpts
2014	RESERVED
2015	Dr. Eli Saber CV

I. INTRODUCTION

Autonomous Devices, LLC (“Patent Owner” or “Autonomous Devices”) respectfully submits this Response to the Board’s decision to institute *inter partes* review (Paper No. 19, the “Decision”) and to the Petition for *inter partes* review (Paper No. 1, the “Petition” or “Pet.”) filed by Tesla, Inc. (“Petitioner” or “Tesla”). This Response is timely filed in accordance with the Board’s Scheduling Order (Paper No. 20). The Board instituted review of U.S. Patent No. 10,607,134 (“the ’134 patent”) on Petitioner’s grounds that challenge claims 1-20 (the “Challenged Claims”) of the ’134 patent based on anticipation by U.S. Patent No. 8,142,268 (“Thomas”) (Ex. 1005), obviousness over Thomas in view of the knowledge of a person of ordinary skill in the art (POSA), and anticipation by U.S. Patent No. 9,434,072 (“Buehler”) (Ex. 1006). Decision, 42.

Petitioner has not carried its burden of proving unpatentability of claims 1-20 by a preponderance of the evidence (35 U.S.C. § 316(e)). As explained below and in the accompanying Declaration of Patent Owner’s expert, Dr. Eli Saber, Petitioner has not established that the above-cited prior art references disclose or suggest all of the limitations of the foregoing claims or that it would have been obvious to combine

the above-cited references to arrive at the claimed inventions.¹ In addition, Petitioner's expert, Dr. Janet, is not credible in several respects. During cross examination, his testimony was inconsistent and confirmed that he and Petitioner failed to show with particularity and specificity how the claims are mapped to the prior art.

II. 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." The '134 patent discloses systems and methods for learning an avatar's or an application's operation in various circumstances, storing this knowledge in a knowledgebase, and enabling autonomous operation of the avatar or the application. Ex. 1001, Abstract, 1:39-41, 57:57-58:4; *see also* Ex. 2007, ¶¶47-52.

1. Existing Technology

Prior to the innovations described in the '134 patent, "[c]ommonly employed application and/or avatar operating techniques lack[ed] a way to learn [the] operation of an application and/or avatar and enable autonomous operation of an application and/or avatar." *Id.*, 1:32-35; *see also* Ex. 2007, ¶48. The '134 patent solved this

¹ Patent Owner submits the Declaration of Dr. Eli Saber (Ex. 2007), an expert in the field of the '134 patent. Ex. 2007, ¶¶3-18; Ex. 2015.

problem by utilizing a sophisticated system for learning representations of one or more objects in an avatar's surrounding and corresponding instructions that can be efficiently performed autonomously. Ex. 1001, 57:57-58:4.

2. Advantages Provided by the '134 Patent

The '134 patent is directed to systems, methods, and computer readable media that store a knowledgebase that correlates avatar operating instruction sets with representations of objects encountered by an avatar, obtain new object representations, match the new object representations with object representations in the knowledgebase, and cause an avatar in whose surrounding the new objects exist to autonomously execute an instruction set correlated to the matched objects. *Id.*, Abstract, 55:1-33, 80:62-83:44; *see also* Ex. 2007, ¶¶49-52.

Referring to Figure 5A (shown below) and the specification's description of Figure 5A, for example, avatar 605 may encounter objects 615a-615c in its surrounding. Ex. 1001, 80:65-83:44, Fig. 5A, claim 1. Object Processing Unit 140 generates a collection of object representations 525 including object representations 625a-c representing objects 615a-c in the avatar's surrounding. *Id.* If an avatar detects a match with a previously learned object representation, the avatar performs autonomous operation using previously learned instructions correlated with the previously learned object representations. *Id.*; *see also id.*, 67:1-46.

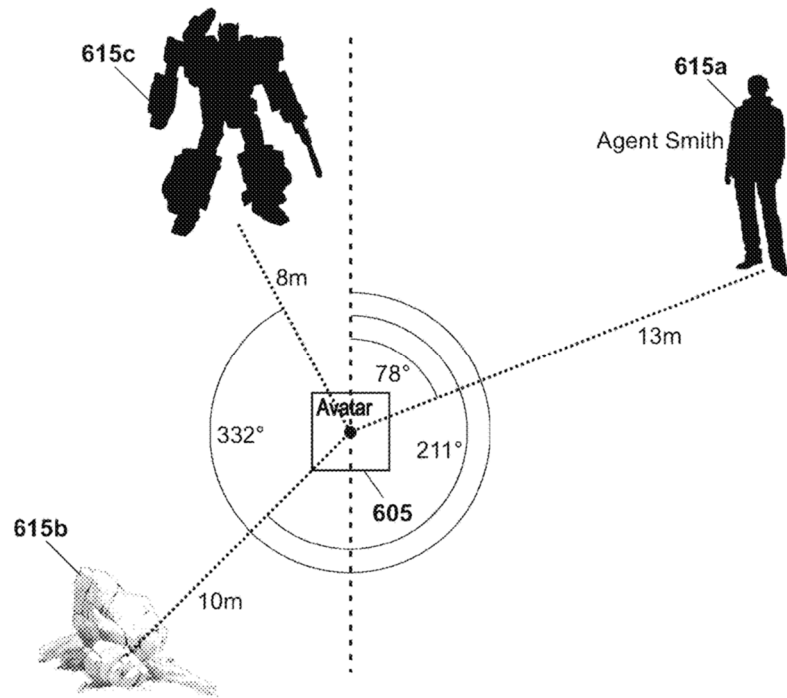


FIG. 5A

Ex. 1001, Fig. 5A.

The '134 patent describes and claims methods and systems implementing its innovative techniques for autonomous operation. Ex. 2007, ¶¶47-52. For example, one such system is claimed in claim 1. Claim 1 recites a system that provides novel data structures and functions involving correlations of object representations and instruction sets to implement autonomous operation. This claim and the other Challenged Claims contain limitations that the Petition has not established are disclosed or suggested by the cited references.

III. PERSON OF ORDINARY SKILL IN THE ART

Patent Owner adopts Petitioner's definition of a person of ordinary skill in the art (POSA). Petition, 4; *see also* Ex. 2007, ¶¶45-46. A POSA relevant to the '134 patent would have 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 electrical engineering, computer engineering, computer science, systems engineering, or equivalent course work with a focus in computer vision, image/video processing, and/or machine learning. Petition, 4; *see also* Ex. 2007, ¶¶45-46.

IV. ALLEGED PRIOR ART

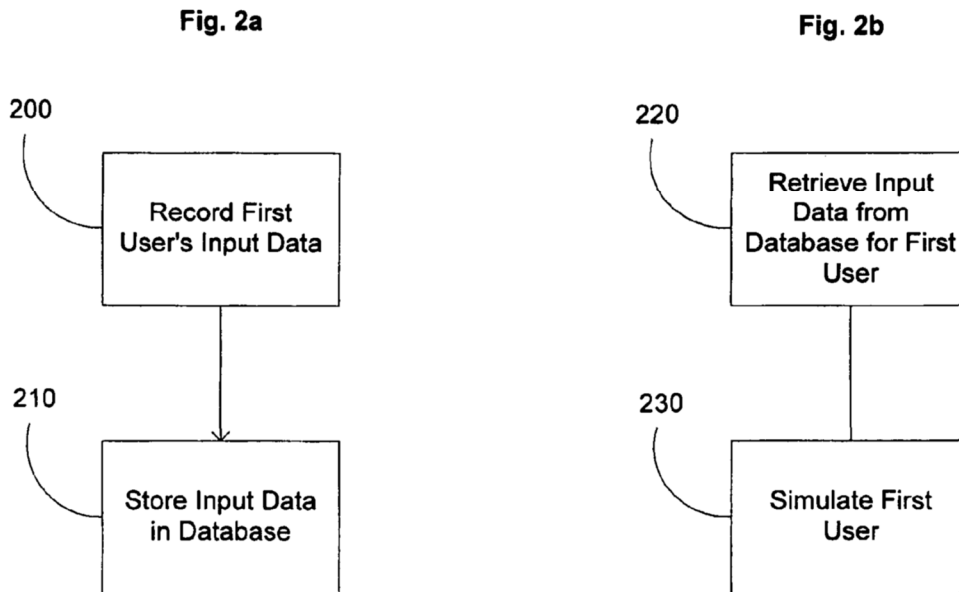
The Petition relies on two references for its unpatentability grounds, and those references are summarized below.

A. THOMAS (EX. 1005)

Thomas discloses a computer program that monitors a "user's interaction with the computer program for one or more events" and analyzes the situation when the event occurs. Exhibit 1005, Abstract. The computer program creates user profiles, where "[a] user profile can contain a sub-profile related to one or more events 685 and/or situations 655 that occur within the computer program 110 during operation. An event 685 is a particular action occurring, whereas a situation 655 is the

surrounding circumstances during which an event 685 may take place.” *Id.*, 4:14-19. Thomas’s analyzing a situation does not involve matching objects. Ex. 2007, ¶¶69-75.

Figures 2a and 2b from Thomas, shown below, disclose the “learn mode” and “simulation mode” discussed in Thomas. Ex. 1005, 3:52-4:2. During the learn mode shown in Figure 2a, “if a first user is using the computer program 110, the simulator 120 collects and evaluates” information “about the first user’s input when interacting with the computer program 110 (action block 200).” *Id.*, 3:52-61. Then, during the simulation mode, “if a second user is using the computer program 110 and the second user desires to interact with the first user, but the first user is not available, the simulator 120 will retrieve” information “from the first user, i.e., the first user’s profile, from the database 130.” *Id.*, 3:63-67; *see also* Ex. 2007, ¶¶63-64.



Ex. 1005, Figs. 2a-2b.

B. BUEHLER (EX. 1006)

Buehler relates to robots that “may be trained to perform tasks such as visually detecting and identifying *physical objects* and/or manipulating objects.” Ex. 1006, Abstract (emphasis added). Buehler’s simplistic method uses augmented-reality techniques to facilitate “the robot’s simulation of task-execution.” *Id.*; *see also* Ex. 2007, ¶¶65-66.

Buehler provides a method for training a robot, which is shown below in Figure 1A from Buehler. Ex. 2007, ¶¶65-66. The robot selects a physical object in the field of view of one of its cameras and then uses a visual model to identify the physical object. Ex. 1006, 7:6-10. The robot then determines whether an object-

specific manipulation routine is stored in the robot. *Id.*, 7:10-12. If so, the robot executes “the object-specific manipulation routine, and if not,” the robot executes “a generic manipulation routine.” *Id.*, 7:13-14. Objects in Buehler are physical objects and are not objects of an application. Ex. 2007, ¶¶122-124.

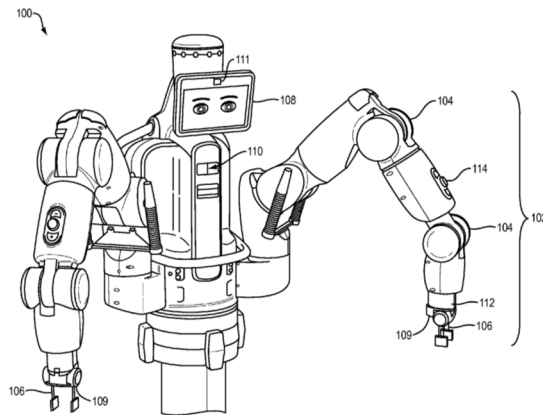


FIG. 1A

Ex. 1006, Fig. 4.

V. CLAIM CONSTRUCTION

The claims in an *inter partes* grant review are construed using the same standard that applies in district court proceedings, as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 100(b) (2019). Claim terms are afforded “their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *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). The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Patent Owner proposes a construction for one term (“connection”) that appears in claim 4, and that term is discussed below in Section V.A. Petitioner proposed a construction for one set of terms (Petition, 5), and those terms are discussed below in Section V.B.

A. “connection” (Claim 4)

Claim 4 recites in part:

wherein the first correlation is connected with the third correlation by a ***connection***.

Ex. 1001, Claim 4 (emphasis added).

In the context of claim 4 of the ’134 patent, including in light of the claims, specification, and drawings, a “connection” should be construed as a “relationship that includes a link.” Ex. 2007, ¶¶54-60. This construction is supported by the

claims, specification, drawings, and intrinsic record as a whole. *Id.* Figure 16 of the '134 patent makes clear that a connection is a relationship that includes a link:

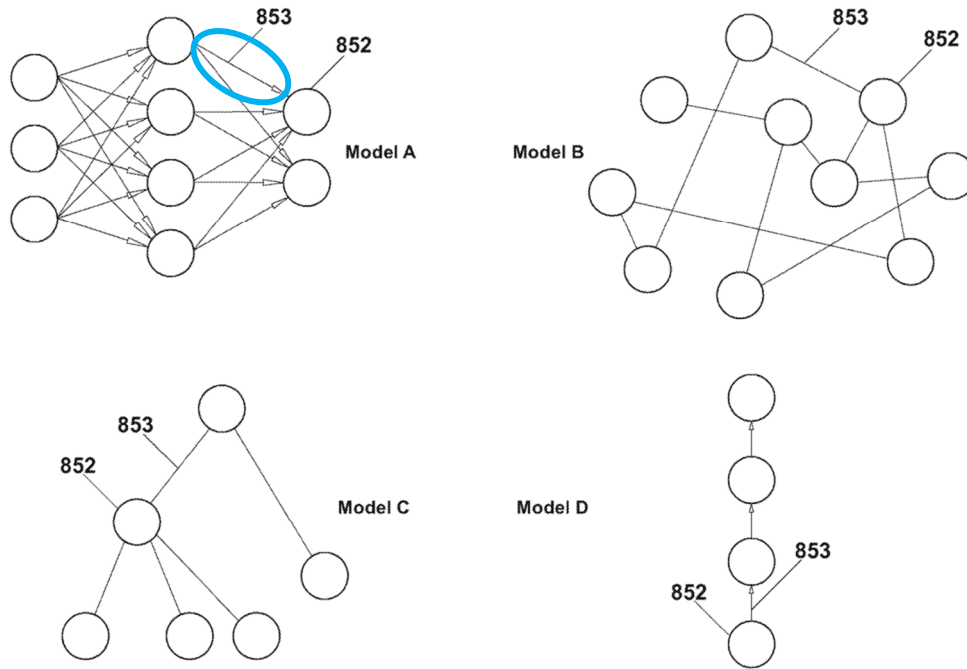


FIG. 16

Ex. 1001, Figure 16 (annotated to show Connection 853 in blue); Ex. 2007, ¶¶55-56.

In describing Figure 16, in this particular use of connections, the '134 patent states that “machine learning, knowledge structuring or representation, decision making, pattern recognition, and/or other artificial intelligence functionalities may include a network of Nodes 852 (also referred to as neurons, etc.) and Connections 853 similar to that of a brain. Node 852 can store any data, object, data structure,

and/or other item, or reference thereto.” Ex. 1001, 105:18-24. For example, a node may include at least a portion of an object representation while another node may include at least a portion of an instruction set, and the two nodes may be in a relationship that includes a connection or link. As shown for example in Model A in Figure 16, in this particular use of connections, Connections 853 are included in connecting or linking Nodes 852. *Id.*, 105:14-52. Connections are included as some of the elements connecting those nodes and showing relationships between those nodes. Ex. 2007, ¶¶56-57. Further, “Connection 853 may include or be associated with a value such as a symbolic label or numeric attribute (i.e. weight, cost, capacity, length, etc.).” Exhibit 1001, 105:35-38.

In this particular use of connections, Figure 17A of the ’134 patent also makes clear that a connection is a relationship that includes a link:

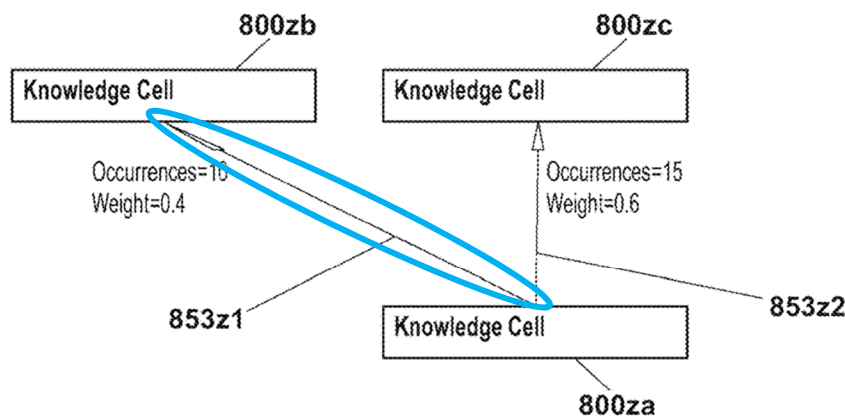


FIG. 17A

Ex. 1001, Figure 17A (annotated to show Connection 853z1 in blue); Ex. 2007, ¶¶57-58.

The specification further explains that, in this particular use, connections between correlations (each knowledge cell depicted in Fig. 17A includes a correlation, *see* Figs. 12-15) “may include or be associated with at least one of: an occurrence count, a weight, a parameter, or a data.” Ex. 1001, 16:8-10. In addition, Figure 17A discloses “that Knowledge Cell 800za is connected to Knowledge Cell 800zb and Knowledge Cell 800zc by Connection 853z1 and Connection 853z2, respectively. Each of Connection 853z1 and Connection 853z2 may include or be associated with occurrence count, weight, and/or other parameter or data.” *Id.*, 107:48-53. This also supports Patent Owner’s construction, as the connections are relationships that include links. Ex. 2007, ¶¶57-58.

The ’134 patent further provides that “[k]nowledge cells [including correlations] may be interconnected, interrelated, or interlinked into knowledge structures using statistical, artificial intelligence, machine learning, and/or other models or techniques.” Ex. 1001, 155:2-5. In this particular use, Connections are used to indicate and track relationships including links to enable more efficient autonomous device operation. *Id.* Further, connections are used to create paths through the knowledgebase for efficient storage and autonomous operation (see ’134

patent Fig. 21 for example). Ex. 2007, ¶¶58-60. This disclosure confirms that, with respect to claim 4, connections are relationships that include links. *Id.*

Patent Owner's expert also confirms that connection should be construed as a "relationship that includes a link." Ex. 2007, ¶¶54-60. In addition, several dictionaries confirm that "connection" can be defined as a "relationship that includes a link." *See* Ex. 2012; Ex. 2013; Ex. 2007, ¶60.

Patent Owner's construction is confirmed by and consistent with the language of the claims and the various disclosures regarding connections throughout the specification and should be adopted. Construction of this term is appropriate because there is a dispute regarding this term, in particular with respect to Petitioner's mapping of prior art, as explained below in Section VI.

B. "means for generating or receiving..."; "means for determining..."; "means for executing..." (Claim 19)

For the purpose of this stage of the proceeding only, Patent Owner does not dispute Petitioner's construction of these "means . . ." terms of claim 19. Petition, 5.

VI. THE CITED REFERENCES DO NOT RENDER THE CHALLENGED CLAIMS UNPATENTABLE

The Board instituted review of the '134 patent based on Grounds 1-3. Decision, 42. In instituting review, the Board relied on the Petition and the testimony of Petitioner's declarant, Dr. Janet (Ex. 1002). For the reasons discussed below, the cited references do not render claims 1-20 unpatentable. Ex. 2007, ¶¶67-138.

A. Ground 1 Fails

Regarding Ground 1, the Petition fails to show that Thomas anticipates claims 1-20 of the '134 patent. Ex. 2007, ¶¶68-105. As explained in the following sections, the Petition fails to show that Thomas discloses several limitations claimed in claim 1. Further, claims 2-9 and 11-18 depend from claim 1 and thus Petitioner has failed to show that Thomas discloses these claims for the reasons discussed with respect to claim 1 as well as for the additional reasons described below. Similarly, Thomas fails to disclose several limitations in claims 10 and 19-20 for the reasons discussed below.

1. Claim 1: Thomas Does Not Disclose the Claimed Matching of Object Representations

Claim 1 recites in part:

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, Claim 1 (emphasis added).

Thomas fails to disclose “based on at least partial match between the second one or more object representations and the first one or more object representations,” as required by claim 1. Petitioner points to several vague disclosures in Thomas regarding Thomas’s simulator, Petition, 15-16, but none of them disclose this claim

limitation. Petitioner first points to Thomas's disclosure that "the stored data enables the analysis of a user's behavior, tendencies, and inclinations for a given event," and "the simulator 120 can invoke a corresponding reaction based on the stored data, thereby simulating the user" as disclosing the claimed matching, Petition, 15 (quoting Ex. 1005, 5:25-29). But ***"analysis" is different than "matching," and "stored data," "user's behavior," "tendencies," "inclinations," and "event" are all different than "object representations,"*** thus "the stored data enables the analysis of a user's behavior, tendencies, and inclinations for a given event" in Thomas is different than "matching of object representations" in claim 1. Ex. 2007, ¶¶69-70. In fact, this portion of Thomas never mentions anything about matching, much less matching of object representations as required by claim 1. *Id.*

Petitioner's next statement 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," is Petitioner's own words unsupported by Thomas's actual disclosure, and is conclusory. Petition, 15-16. Even in its own words, Petitioner is wrong since Thomas ***never discloses comparing or matching the spatial positions of defenders and only provides that such positions are analyzed.*** Ex. 1005, 8:8-15. "Analysis" in Thomas

is a different concept than “matching” in claim 1. Since Thomas never describes anything about what its analysis involves and since “analysis” is a different concept than “matching,” nothing in Thomas suggests, let alone discloses “based on at least partial match between the second one or more object representations and the first one or more object representations.” Ex. 2007, ¶71.

Petitioner further points to the following disclosure in Thomas as supporting its position:

For a pump fake event, during the learning mode 550, the simulator 120 records how often a user pump fakes. For current circumstances, the simulator 120 records how covered the user was and user’s location. During playback mode 600, the simulator 120 will monitor for a shoot event and analyze the location of the simulated user and the defensive coverage. If criteria is met, then simulator 120 will invoke a pump fake.

Petition, 16 (citing Ex. 1005, 8:8-15). Petitioner simply cites this portion of Thomas and fails to provide any explanation regarding how this portion of Thomas discloses the claimed matching using object representations. *Id.* If Petitioner is pointing to “analyze” in this citation, ***“analysis” is a different concept than “matching”*** as discussed above. Petitioner has not carried its burden to show how Thomas specifically discloses the claimed matching. Ex. 2007, ¶72.

Thomas’s statement that “[i]f criteria is met, then simulator 120 will invoke a pump fake,” Ex. 1005, 8:14-15, is vague and fails to disclose the claimed matching

process. Ex. 2007, ¶¶72-73. Thomas (and Petitioner) never explain or define what is meant by “criteria,” how the criteria are used, and how that criteria are met. *Id.* While Thomas discloses the statement “analyze the location of the simulated user and the defensive coverage” right before the “[i]f criteria is met, then simulator 120 will invoke a pump fake,” *since “analysis” is a different concept than “matching” as discussed above, analysis criteria is also a different concept than “matching.”* Ex. 2007, ¶¶70-73. Thomas’s disclosure on this point, even when evaluated with its most likely meaning deduced from Thomas’s own disclosure, still fails to disclose the specifically claimed matching using object representations. *Id.*

In his declaration, Dr. Janet points to Thomas’s disclosure of analyzing “the current situation, such as time, score, and spatial positions of defensive avatars, to determine which action to invoke that represents the simulated user,” as disclosing the claimed matching. Ex. 1003, ¶¶ 241–242. But none of the portions of Thomas’s disclosure cited by Dr. Janet actually disclose *comparing or matching object representations since “analyzing” is a different concept than “matching”* as discussed in detail above. Ex. 2007, ¶¶70-74. Regardless of what elements are analyzed, those elements are not matched since the word “analyze” has a different meaning than the word “match.” Therefore, Thomas fails to disclose the claimed matching required by claim 1. *Id.*

At his deposition, Dr. Janet claimed that the “time” and “score” in Thomas were object representations, Ex. 2008, 27:22-28:3. This opinion is inaccurate and not contained in Dr. Janet’s declaration. Dr. Janet could not explain where specifically in his declaration he equated time and score to object representations. Ex. 2008, 24:17-27:21. Further, time left on a clock or the score to a game are not object representations and certainly not representations of the defenders’ avatars or of the virtual road and weather conditions, which are what Dr. Janet and Petitioner have mapped to the claimed object representations. Petition, 15-16. To the extent that Dr. Janet is now stating through deposition testimony that time and score are object representations, such testimony is inconsistent with the testimony Dr. Janet provided in his declaration, which is the testimony relied upon by the Petition. *Id.* Dr. Janet’s conflicting and inaccurate testimony is not credible and confirms that Thomas fails to disclose the claimed matching of object representations.

In its institution decision, the Board cited Thomas’s disclosure of invoking a pass or pump fake if criteria is met and that the simulated user immediately shoots the ball after the catch if the simulated user is located in the typical spot for catch and shoot, as supporting Petitioner’s position. Decision, 30 (quoting Exhibit 1005, 7:62–8:15). The Board stated: “we preliminarily find the descriptions [] 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.’” Decision, 30. But the inquiry here is based on the words actually used by Thomas and the plain meanings of those words informed by Thomas’s disclosure. Thomas only discloses “analysis” and analysis “criteria” as Petitioner noted in its citations of Thomas discussed above. Both “analysis” and analysis “criteria” are different concepts than “matching.” Ex. 2007, ¶¶70-75. And since Thomas does not provide any special definition or explanation of “analysis” and analysis “criteria” to be even comparable to the meaning of “matching” in claim 1, Thomas simply does not disclose “matching,” let alone matching of object representations as required by claim 1.

2. Dependent Claims 2-9 and 11-18

Because claims 2-9 and 11-18 depend from claim 1, Petitioner has failed to show that Thomas discloses these claims as well for the reasons discussed above with respect to claim 1. Furthermore, various dependent claims are also patentable over Thomas for the additional reasons discussed in the following sections.

a. Claim 3: Thomas Does Not Disclose the Claimed Matching Using Threshold Number or Threshold Percentage

Claim 3 depends from claim 1 and requires:

determining that a *number* of at least *partially matching portions* of the second one or more object representations and

portions of the first one or more object representations *exceeds a threshold number*, or determining that a *percentage* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold percentage*.

Ex. 1001, Claim 3 (emphasis added).

Thomas fails to disclose “determining that a number of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold number, or determining that a percentage of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold percentage.” Ex. 2007, ¶¶77-80. Petitioner first argues that:

Thomas describes comparing the first and second object representations, and executing an instruction set when the object representations of the defensive players observed in simulation mode at least partially match those recording during learning mode.

Petition, 20. This is Petitioner’s own words not supported in Thomas, and is conclusory. Thomas *does not disclose any matching* as discussed above in claim 1, *and Thomas does not mention any threshold at all*, much less determining that a *number* of at least partially matching portions of object representations or a

percentage of at least partially matching portions of object representations *exceeds a numerical or percentage threshold*. Ex. 2007, ¶¶77-79.

Petitioner next argues that:

[A] POSITA would have understood that determining whether the criteria is met (i.e., whether there is at least a partial match) would involve determining whether the matching portions exceed a numerical threshold, such as the number of defenders and the distance of the defenders from the simulated avatar (i.e., the first avatar), as described in the pump fake (i.e., the criteria) and pass out of shot (i.e., how much the avatars are covered) examples.

Petition, 20. Petitioner's statement lacks support and does not explain how determining whether criteria is met discloses the specifically claimed matching of object representations using the number or percentage of at least partially matching portions of object representations in claim 3. Thomas does not mention any threshold in its disclosure. In fact, the *word "threshold" cannot be found in Thomas at all, let alone "number threshold" or "percentage threshold," let alone that any matching is based on these thresholds*. Because Thomas fails to disclose a threshold at all, a POSA reading Thomas's disclosure would not have understood that any threshold, much less a "number threshold" or "percentage threshold," is used in the claimed matching of object representations using the number or percentage of at least partially matching portions of object representations. Ex. 2007, ¶¶77-80.

Using the number of at least partially matching portions of object representations in the matching process of claim 3 *involves counting the portions and determining whether this counted number of portions exceeds a numerical threshold*, and Thomas does not suggest any such counting of portions and numerical threshold. Ex. 2007, ¶¶78-80. In addition, using the percentage of at least partially matching portions in the matching process *involves counting the portions to compute the percentage and determining whether this computed percentage of portions exceeds a percentage threshold*, and Thomas does not suggest any such counting of portions, computation, and percentage threshold, either. *Id.* Therefore, Thomas fails to disclose either disjunctive prong of the claim language of claim 3: (i) a count of at least partially matching portions that would enable a determination of whether the count exceeds a number threshold, or (ii) a percentage of at least partially matching portions that would enable a determination of whether the percentage exceeds a percentage threshold. Ex. 2007, ¶¶77-80.

b. Claim 4: Thomas Does Not Disclose the Claimed Connection Between Correlations

Claim 4 depends from claim 1 and requires:

wherein the first correlation is included in a knowledgebase, and wherein the knowledgebase further includes a third correlation including a third one or more object representations correlated with a third one or more instruction sets for operating: the first avatar of the application, the second avatar of the

application, a third avatar of the application, or an avatar of another application, and wherein the third one or more object representations represent one or more objects of: the application, or the another application, and wherein ***the first correlation is connected with the third correlation by a connection.***

Ex. 1001, Claim 4 (emphasis added).

Thomas fails to disclose “wherein the first correlation is connected with the third correlation by a connection” under the proper construction of “connection.”

Ex. 2007, ¶¶81-86. When properly construed, the claimed connection is a relationship that includes a link. *Supra* Section V.A. Petitioner argues:

The '134 Patent describes that a connection ‘may include or be associated with a value such as a symbolic label or numeric attribute (i.e. weight, cost, capacity, length, etc.)’ and ‘may include or be associated with occurrence count, weight, and/or other parameters or data.’

Petition, 23. Petitioner then argues:

Thomas describes assigning numerical occurrence weight values to a group of correlations that include different instruction sets for the same situation/event (i.e., connections) . . . Accordingly, Thomas discloses that correlations (i.e., first, second, and third correlations) that share a common situation/event are connected to each other via a numerical attribute (i.e., a weighted occurrence value).

Petition, 23-24.

First, Petitioner ignores the disclosure cited in its own citation of the '134 Patent that a connection “*may include [but does not have to include] or be associated [but does not have to be associated]* with a value such as a symbolic label or numeric attribute (i.e. weight, cost, capacity, length, etc.)” and “*may include [but does not have to include] or be associated [but does not have to be associated]* with occurrence count, weight, and/or other parameters or data.” Petition, 23. Therefore, values, labels, numeric attributes, weights, etc. in Petitioner’s argument *are not applicable to a connection since they may or may not be included or associated with the connection*. Ex. 2007, ¶¶82-84. Second, *claim 4 does not recite values, labels, numeric attributes, weights, etc.* between correlations, but instead *claim 4 recites a connection (a relationship that includes a link under the proper construction) between correlations*. Therefore, nothing in Thomas even implies, let alone discloses a connection between correlations as required by claim 4.

Even if a numerical attribute or value was applicable (which it is not as discussed above), Petitioner’s argument that “correlations (i.e., first, second, and third correlations) that share a common situation/event are connected to each other via a numerical attribute,” where the numerical attribute in Thomas is the claimed connection, Petition, 24, is Petitioner’s own words not supported in Thomas, and is conclusory. Petitioner is wrong since *the connections disclosed in the '134 patent are not some ancillary numerical attributes or values that may or may not be*

included or used, but are relationships that include specific links between correlations that Thomas does not suggest, let alone disclose. Ex. 2007, ¶¶84-86.

The '134 patent explains that the connections are used as links in the knowledgebase to enhance autonomous operation. *Id.* Unlike the numerical attributes or values in Petitioner's argument, knowledge cells are created and structured in a specific way to store object representations correlated with instruction sets (i.e., correlations), and are connected in the knowledgebase using connections. *Id.* ***These connections create paths through the knowledgebase that enhance autonomous operation*** (see connections 853 in '134 patent Fig. 21 for example). Ex. 2007, ¶¶85-86. The numerical attribute or value in Petitioner's argument does not include anything like this, and Petitioner fails to show any support for such connections among knowledge cells (that include correlations) in Thomas.

The '134 patent makes clear that ***connections link specific correlations to create multiple paths through the knowledgebase to enable multiple options in the decision making for autonomous operation.*** Ex. 2007, ¶¶85-86. A numerical attribute or value in Petitioner's arguments is not the claimed connections or relationships including links among correlations. *Id.*; *supra* Section V.A (explaining that in the context of correlations, a connection is a relationship that includes a link). Thomas discloses that a ***circumstance is only associated with a user input (see Ex. 1005, Abstract), not that those circumstance-user input associations are connected***

including a specific connection (even under that term’s plain and ordinary meaning), let alone connected in a relationship that includes a link under the proposed construction of this term. Ex. 2007, ¶¶85-86. In fact, Thomas does not disclose any connection, much less a connection between correlations as required by claim 4.

c. Claim 7: Thomas Does Not Disclose the Claimed Temporal Correspondence Between Instruction Sets and Object Representations

Claim 7 depends from claim 1 and requires:

wherein, *to correlate* the first one or more object representations with the first one or more instruction sets for operating the first avatar of the application, *a determination is made that the first one or more instruction sets for operating the first avatar of the application temporally correspond to the first one or more object representations.*

Ex. 1001, Claim 7 (emphasis added).

Thomas fails to disclose that “to correlate the first one or more object representations with the first one or more instruction sets for operating the first avatar of the application, a determination is made that the first one or more instruction sets for operating the first avatar of the application temporally correspond to the first one or more object representations.” Ex. 2007, ¶¶87-90. Petitioner first argues that Thomas discloses temporal correspondence because “it describes that during learning mode the user inputs commands that the user-controlled avatar executes

(i.e., the first instruction set) at the same time that the first object representations are generated on the video interface screen, such as when a user initiates a command in response to certain defensive coverage of opposing players.” Petition, 29. But this reference to Thomas only describes associating the defensive coverage situation with whatever user’s commands happen to be executed at that time, and does not mention any determination of temporal correspondence between the user’s commands and the defensive coverage situation. Ex. 2007, ¶¶87-90. Thomas’s *correlating is not something that is performed in response to an extra processing step of determining a temporal correspondence of instruction sets and object representations* as required in claim 7.

Furthermore, Thomas does not disclose a determination of temporal correspondence of instruction sets and object representations because Thomas does not need such determination since Thomas simply associates situations and user commands at the same time when they happen to be received. Ex. 2007, ¶89. Claim 7, on the other hand, relates to at least a situation where a stream of object representations and a stream of instruction sets are first stored and the object representations and instruction sets are correlated later, and where a determination of temporal correspondence is needed for correct correlation. No such situation that would need a determination of temporal correspondence of instruction sets and

object representations is suggested in Thomas, thus Thomas never discloses this limitation of claim 7. Ex. 2007, ¶¶88-90.

Petitioner also argues that Thomas discloses this limitation because it describes “storing temporal information . . . as part of the correlation between object representations (e.g., the spatial position of the defenders) and instruction sets.” Petition, 30. But storing temporal information as part of a correlation is a different concept than making a determination of temporal correspondence to correlate instruction sets and object representations, thus Thomas never discloses it. Ex. 2007, ¶¶89-90. In fact, Thomas never even mentions a determination of temporal correspondence of anything, much less a determination of temporal correspondence of instruction sets and object representations in order to correlate them.

d. Claim 12: Thomas Does Not Disclose the Claimed Single Knowledgebase Including Mixed Correlations Learned in Different Learning Processes Involving Different Users

Claim 12 depends from claim 1 and requires, among other things:

wherein *the knowledgebase further includes a third correlation* including a third one or more object representations correlated with a third one or more instruction sets for operating the first avatar of the application, and wherein the third one or more object representations represent one or more objects of the application, and wherein at least a portion of the first correlation is learned in a learning process that

includes operating the first avatar of the application at least partially by a user, and wherein ***at least a portion of the third correlation is learned in another learning process that includes operating the first avatar of the application at least partially by another user***, and wherein the user is: a human user, or a non-human user, and wherein the another user is: a human user, or a non-human user.

Ex. 1001, Claim 12 (emphasis added).

Thomas fails to disclose the claimed “the knowledgebase further includes a third correlation . . . wherein at least a portion of the third correlation is learned in another learning process that includes operating the first avatar of the application at least partially by another user.” Ex. 2007, ¶¶91-94. Petitioner first points to the disclosure in Thomas that, “any participating user can upload its own user profile for access by any other participating user, and further any participating users can download or access any user profile available in the database 130.” Petition, 41 (quoting Ex. 1005, 19:57-62). But claim 12 does not recite ***downloading or uploading user profiles or anything*** like that, and instead requires ***learning at least a portion of the third correlation in another learning process involving operation of the first avatar by another user***. Ex. 2007, ¶92. Users’ ability to upload and download user profiles in Thomas is a different concept than learning at least a portion of the third correlation in another learning process involving operation of the first avatar by another user, which Thomas fails to disclose. *Id.*

Petitioner next argues that:

A POSITA would have understood, and it would have been obvious, that when a second user plays with the same team and avatars as a first user (e.g., different users playing with the Los Angeles Lakers), the object representations and instruction sets (i.e., including first, second, and third object representations correlated with first, second, and third instruction sets) for operating the same player on the same team (i.e., the first avatar) would be learned in another learning process that includes operating the first avatar of the application at least partially by another user.

Petition, 41. Petitioner's argument is conclusory and fails to explain why a POSA would understand that Thomas discloses a single knowledgebase that includes mixed knowledge of a first correlation learned in one learning process with one user and a third correlation learned in another learning process with another user. Ex. 2007, ¶¶92-93. Thomas only discloses *one user operating an avatar during a learning process and simulating that one user in the simulation mode* (see Ex. 1005, Abstract). *Id.* Given Thomas's focus on simulating a particular single user, Thomas's system does not store mixed knowledge of different users in a single user profile (unlike the single knowledgebase including mixed knowledge of different users recited in claim 12) since that mixed multi-user knowledge would not simulate the particular single user to accomplish Thomas's stated purpose. Ex. 2007, ¶93. This is confirmed by Petitioner's own quote regarding downloading and uploading profiles for specific single users *where a single user profile includes knowledge learned*

involving that single user, not the single knowledgebase including mixed knowledge of different users recited in claim 12. Thomas does not disclose the claimed learning at least portions of multiple correlations in different learning processes involving different users and the resulting knowledgebase including mixed knowledge of different users. Ex. 2007, ¶¶93-94.

A POSA, reading Thomas's lack of disclosure of a single knowledgebase including mixed knowledge of multiple correlations learned in different learning processes involving different users, would not understand that the knowledgebase further includes a third correlation where at least a portion of the third correlation is learned in another learning process that includes operating the first avatar of the application at least partially by another user, as required by claim 12. Ex. 2007, ¶94

e. Claim 14: Thomas Does Not Disclose the Claimed Knowledgebase Including Instructions Sets and Object Representations Learned Involving Multiple Different Applications

Claim 14 depends from claim 1 and requires, among other things:

wherein the first correlation is included in a knowledgebase, and wherein the knowledgebase further includes a *third correlation including a third one or more object representations correlated with a third one or more instruction sets for operating an avatar of another application*, and wherein the *third one or more object representations represent one or more objects of the another application*.

Ex. 1001, Claim 14 (emphasis added).

Thomas fails to disclose “wherein the knowledgebase further includes a third correlation including a third one or more object representations correlated with a third one or more instruction sets for operating an avatar of another application, and wherein the third one or more object representations represent one or more objects of the another application.” Ex. 2007, ¶¶95-97. Petitioner argues that “storing profiles for ‘any participating user’ that any other user can ‘download or access’ to use in simulation mode on the same or a different video game console,” and that “a POSITA would have understood . . . that the stored correlations, including at least first, second, and third correlations from one user’s profile can be used to operate an avatar on multiple user’s game consoles.” Petition, 45-46. But Petitioner’s contention *only describes profiles learned in instances of one application (i.e. basketball video game) used in instances of the same application (i.e. the same basketball video game) on different game consoles, not instructions sets and object representations (i.e. first correlation) learned involving one application (i.e. Fortnite, etc.) and instructions sets and object representations learned (i.e. third correlation) involving a different application (i.e. Apex Legends, etc.)* as required by claim 14. Ex. 2007, ¶¶96-97. Instructions and data for one application are conventionally used for that one application. *Id.* A knowledgebase including mixed knowledge of instructions sets and object representations learned involving multiple

different applications to be used across different applications is an innovative concept that Thomas does not disclose. *Id.*

A POSA, reading Thomas's disclosure of *profiles learned in instances of one application and used in instances of the same application on different consoles*, and not disclosing a knowledgebase including mixed knowledge of instructions sets and object representations learned involving multiple different applications to be used across different applications, would not have understood such an unconventional concept as recited in claim 14. Ex. 2007, ¶¶96-97.

f. Claim 16: Thomas Does Not Disclose the Claimed Deleting, Modifying, Manipulating, or Inserting into the Claimed First Correlation

Claim 16 depends from claim 1 and requires that

an element of the first correlation is deleted after the first correlation is generated, *an element of the first correlation is modified* after the first correlation is generated, *an element of the first correlation is manipulated* after the first correlation is generated, or *an element is inserted into the first correlation* after the first correlation is generated.

Ex. 1001, Claim 16 (emphasis added).

Thomas fails to disclose that “an element of the first correlation is deleted after the first correlation is generated, an element of the first correlation is modified after the first correlation is generated, an element of the first correlation is manipulated after the first correlation is generated, or an element is inserted into the

first correlation after the first correlation is generated.” Ex. 2007, ¶¶98-100. Petitioner claims that Thomas discloses that a value or numerical weight associated with user input is an element of a correlation and that this associated value or numerical weight is inserted into/modified/updated in the correlation. Petition, 48. But Petitioner has not explained how a value or numerical weight is an “element of the first correlation,” as required by claim 16. Claim 1, from which claim 16 depends, specifically provides that the first correlation only includes (A) a first one or more object representations correlated with (B) a first one or more instruction sets. Ex. 1001, Claim 1. Thus, ***the only elements of the first correlation are the first instruction set and the first object representation.*** Ex. 2007, ¶¶99-100. Therefore, association of a value or numerical weight with a user input in Thomas does not delete, modify, nor manipulate an element of the correlation ***since it does not delete, modify, nor manipulate (A) the first one or more object representations nor (B) the first one or more instruction sets of the first correlation.*** As a result, Thomas fails to disclose deleting, modifying, or manipulating an element of the first correlation as required in the first three limitations of claim 16.

Furthermore, association of a value or numerical weight with a user input in Thomas does not insert the value or numerical weight into the user input and, therefore does not insert a value into a correlation. To insert something into a correlation ***would require inserting something into (A) the first one or more object***

representations or (B) the first one or more instruction sets (the only constituents of the correlation), whereas Thomas *only associates a value with a user input and does not insert it into (A) the first one or more object representations nor (B) the first one or more instruction sets* of the first correlation. Ex. 2007, ¶¶99-100, It is also import to realize that “associating” and “inserting” are different concepts with different meanings. *Id.* As a result, Thomas fails to disclose inserting an element into the first correlation as required by the fourth and last disjunctive limitation of claim 16. Nothing in Thomas discloses that any element is deleted, modified, manipulated, or inserted into the first correlation that only includes (A) the first one or more object representations and (B) the first one or more instruction sets after the first correlation is generated. *Id.*

g. Claim 17: Thomas Does Not Disclose the Claimed Modifying Instruction Sets, Executing the Modified Instruction Sets, and Performing Operations Defined by the Modified Instruction Sets

Claim 17 depends from claim 1 and requires:

modifying: the first one or more instruction sets for operating the first avatar of the application . . . *executing: the modified the first one or more instruction sets* for operating the first avatar of the application . . . *performing*, by the first avatar of the application or by the second avatar of the application, *one or more operations defined by: the modified the first one or more instruction sets* for operating the first avatar of the application.

Ex. 1001, Claim 17 (emphasis added).

Thomas first fails to disclose “modifying: the first one or more instruction sets for operating the first avatar of the application.” Ex. 2007, ¶¶101-104. Petitioner points to Thomas’s disclosure that “[w]hen recording data for a kick profile 420, the simulator 120 may check to see if the user’s power has exceeded the minimum or maximum, increment the kick count, and add the power to the total power accumulated.” Petition, 49-50 (quoting Ex. 1005, 12:47-51). First, the *modifying recited in claim 17 is of instruction sets that are already correlated with object representations (i.e. after they are learned or stored* as recited in claim 1 that claim 17 ultimately depends on), *not “when recording data” (i.e. during learning)* as recited in Petitioner’s quote of Thomas. Ex. 2007, ¶¶102-104. Thus, Petitioner’s quote of “when recording data . . . adding power to the total kick power accumulated” is inapplicable to modifying instruction sets after their correlating and storing/recording. Second, Petitioner’s quote of Thomas *merely discloses adding power to the total kick power accumulated, not modifying an instruction set* as required by claim 17. *Id.* In fact, Petitioner’s quote of Thomas does not even mention instruction sets, user commands, user input, or anything related to an instruction set recited in claim 17, much less modifying an actual instruction set that is included in a correlation with an object representation after being learned. *Id.*

Thomas next fails to disclose “executing: the modified the first one or more instruction sets.” Ex. 2007, ¶¶103-104. Petitioner points to Thomas’s disclosure that,

“in simulation mode . . . and the simulated user is in a kick situation, the simulator 120 may determine the power for kick based on the corresponding kick profile.”

Petition 50. First, *determining is a different concept than executing*, thus “determining the power for kick” is different than executing an instruction set. Ex. 2007, ¶¶103-104. Second, it important to realize that the *executing the modified instruction sets in claim 17 occurs after the instruction sets are already (i) correlated and learned/stored (as recited in claim 1 and discussed above) and (ii) determined in the autonomous operation process* (as recited in claim 17, note that the first step that recites the modified instruction sets is “executing: the modified the first one or more instruction sets . . .”, which is after the determining step), Thus, “determining the power for kick” is logically inapplicable to modifying an instruction set after the determining step in the autonomous operation process. Third, as discussed in the preceding paragraph, Thomas does not disclose that any actual instruction set, user command, user input, or anything related to an instruction set recited in claim 17 is modified. Ex. 2007, ¶¶103-104. As a result, Thomas does not disclose that a modified instruction set is executed, as required by claim 17. *Id.*

Thomas finally fails to disclose “performing, by the first avatar of the application or by the second avatar of the application, one or more operations defined by: the modified the first one or more instruction sets.” Ex. 2007, ¶104. Petitioner points to a kicker kicking the football, Petition 51. But a kicker kicking the football

does not disclose that the avatar is performing an operation defined *by the modified instruction set*. Ex. 2007, ¶104. Furthermore, as discussed above, Thomas does not disclose that any actual instruction set, user command, user input, or anything related to an instruction set recited in claim 17 is modified. Ex. 2007, ¶¶102-104. As a result, Thomas fails to disclose that operations defined by the modified instruction sets are performed. *Id.*

In summary, Thomas cannot disclose that *an instruction set that Thomas fails to disclose as modified is somehow executed as modified, and that an operation defined by that instruction set that Thomas fails to disclose as modified would be performed*, as required by claim 17.

3. Claims 10 and 19: Thomas Does Not Disclose the Claimed Matching of Object Representations

Independent claims 10 and 19 are method and system claims, respectively, that correspond to system claim 1, and they include limitations regarding the claimed matching of object representations similar to claim 1. Ex. 2007, ¶105. For the reasons discussed above with respect to claim 1, Thomas also fails to disclose claims 10 and 19. *Id.*

B. Ground 2 Fails

Regarding Ground 2, the Petition fails to show that Thomas in view of the knowledge of a POSA renders claims 3, 12 and 14 obvious. Ex. 2007, ¶¶106-119.

The Petition fails to show that Thomas discloses or suggests multiple limitations in these claims, and Petitioner's attempt to rely on the knowledge of a POSA to fill in the gaps in Thomas's disclosure is ineffective. *Id.*

1. Claim 3: Thomas Does Not Disclose or Suggest the Claimed Matching Using Threshold Number or Threshold Percentage

Claim 3 depends from claim 1 and requires:

determining that a *number* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold number*, or determining that a *percentage* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold percentage*.

Ex. 1001, Claim 3 (emphasis added).

Thomas in view of the knowledge of a POSA fails to disclose or suggest “determining that a number of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold number, or determining that a percentage of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold percentage.” Ex. 2007, ¶¶107-112.

Petitioner argues that “it would have been obvious to use a threshold number or percentage to determine whether the criteria regarding defensive coverage is met in order to invoke the simulated action (i.e., a threshold number or percentage regarding how much the avatars are covered).” Petition, 21. Petitioner’s argument is conclusory, does not explain how determining whether criteria is met discloses the specifically claimed matching of object representations using the number or percentage of at least partially matching portions of object representations, and does not explain why it would have been obvious to use a threshold number or percentage of partially matching portions of object representations as required by claim 3. Ex. 2007, ¶¶108-112. First, Thomas does not disclose *any matching of object representations at all* as discussed above in claim 1. Second, *Thomas further does not mention any threshold at all*, much less determining that a *number* of at least partially matching portions of object representations or a *percentage* of at least partially matching portions of object representations *exceeds a numerical or percentage threshold*. Ex. 2007, ¶¶108-110. In fact, the *word “threshold” is not found in Thomas at all, let alone “number threshold” or “percentage threshold,” let alone that any matching is based on these thresholds.*

Using the number of at least partially matching portions of object representations in the matching process of claim 3 *involves counting the portions and determining whether this counted number of portions exceeds a numerical*

threshold, and Thomas does not suggest any such counting of portions and numerical threshold. Ex. 2007, ¶¶108-112. In addition, using the percentage of at least partially matching portions in the matching process *involves counting the portions to compute the percentage and determining whether this computed percentage of portions exceeds a percentage threshold*, and Thomas does not suggest any such counting of portions, computation, and percentage threshold, either. *Id.*

In summary, a POSA reading Thomas’s lack of a disclosure *of a “threshold” or anything that would enable a threshold (i.e. count of object representation portions, or computing a percentage of the count)* would not have understood that a threshold, much less a “number threshold” or “percentage threshold,” is used in the claimed matching of object representations using the number or percentage of at least partially matching portions of object representations. *Id.*

Petitioner has also failed to perform a proper obviousness analysis regarding claim 3 and Ground 2, which requires, *inter alia*, ascertaining the “differences between the prior art and the claims at issue.” *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966). By failing to identify any gaps in Thomas’s disclosure with respect to the claimed features and then addressing how/why it would have been obvious to a POSA to implement those features, Petitioner has

failed to provide a legally proper obviousness analysis. The Board should reject Petitioner's arguments for claim 3 on Ground 2 for this reason alone.

Petitioner's argument is also undermined by the fact that common knowledge of a POSA may only be used to supply a missing claim limitation when that limitation is "unusually simple and the technology particularly straightforward." *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016). Petitioner has not established that the limitations at issue here satisfy those conditions. On the contrary, claim 3 involves a sophisticated method using matching portions and thresholds that would not have been obvious to a POSA. Ex. 2007, ¶¶110-112.

2. Claim 12: Thomas Does Not Disclose or Suggest the Claimed Single Knowledgebase Including Mixed Correlations Learned in Different Learning Processes Involving Different Users

Claim 12 depends from claim 1 and requires, among other things:

wherein *the knowledgebase further includes a third correlation* including a third one or more object representations correlated with a third one or more instruction sets for operating the first avatar of the application, and wherein the third one or more object representations represent one or more objects of the application, and wherein at least a portion of the first correlation is learned in a learning process that includes operating the first avatar of the application at least partially by a user, and wherein *at least a portion of the third correlation is learned in another learning process that includes operating the first avatar of the application at least partially by another user*, and wherein the user

is: a human user, or a non-human user, and wherein the another user is:
a human user, or a non-human user.

Ex. 1001, Claim 12 (emphasis added).

Thomas in view of the knowledge of a POSA fails to disclose or suggest that
“the knowledgebase further includes a third correlation . . . wherein at least a portion
of the third correlation is learned in another learning process that includes operating
the first avatar of the application at least partially by another user.” Ex. 2007, ¶¶113-
115. Petitioner argues that:

[a] POSITA would have understood, and it would have been obvious, that
when a second user plays with the same team and avatars as a first user (e.g.,
different users playing with the Los Angeles Lakers), the object
representations and instruction sets (i.e., including first, second, and third
object representations correlated with first, second, and third instruction sets)
for operating the same player on the same team (i.e., the first avatar) would
be learned in another learning process that includes operating the first avatar
of the application at least partially by another user.

Petition, 41. Petitioner’s argument is conclusory and fails to explain why it would
have been obvious to modify Thomas with the knowledge of a POSA to arrive at the
claimed single knowledgebase including mixed knowledge of multiple correlations
learned in different learning process involving different users. Ex. 2007, ¶¶114-115.

Thomas only discloses *one user operating an avatar during a learning process and
simulating that one user in the simulation mode* (see Ex. 1005, Abstract). Given

Thomas's focus on simulating a particular single user, Thomas's system does not store mixed knowledge of different users in a single user profile (unlike the single knowledgebase including mixed knowledge of different users recited in claim 12), since that mixed multi-user knowledge would not simulate that particular single user to accomplish Thomas's stated purpose. Ex. 2007, ¶¶113-114. ***Thomas's single user profile includes knowledge learned involving that single user, and is not the single knowledgebase including mixed knowledge learned involving different users*** recited in claim 12. Therefore, Thomas does not disclose the claimed learning at least portions of multiple correlations in different learning processes involving different users and the resulting single knowledgebase including mixed knowledge of different users. *Id.*

In addition, common knowledge of a POSA may only be used to supply a missing claim limitation when that limitation is "unusually simple and the technology particularly straightforward." *Arendi*, 832 F.3d at 1361. Petitioner has not established that having ***different users operate an avatar in different learning processes to learn mixed knowledge into a single knowledgebase***, satisfies those conditions. Using different users with an avatar in different learning processes to learn mixed knowledge into a single knowledgebase would not have been straightforward or unusually simple to a POSA ***due to the complexities of combining the mixed knowledge*** into a single knowledgebase. Ex. 2007, ¶115. For

example, this approach may involve combining the learned knowledge into a coherent knowledge structure, robustly fusing the learned knowledge from many different users, and/or other issues not found in Thomas and not obvious to a POSA. *Id.* Petitioner has not established that the limitations missing from Thomas are unusually simple and the technology particularly straightforward. *See Arendi*, 832 F.3d at 1361.

A POSA, reading Thomas's lack of disclosure of a single knowledgebase including mixed knowledge of multiple correlations learned in different learning processes involving different users, would not understand that the knowledgebase further includes a third correlation where at least a portion of the third correlation is learned in another learning process that includes operating the first avatar of the application at least partially by another user, as required by claim 12. Ex. 2007, ¶¶114-115. In addition, Petitioner has failed to perform a proper obviousness analysis regarding claim 12 and Ground 2 for the same reasons that Petitioner has failed to perform a proper obviousness analysis with respect to claim 3 regarding Ground 2. The Board should reject Petitioner's arguments for this reason alone.

3. Claim 14: Thomas Does Not Disclose or Suggest the Claimed Knowledgebase Including Instruction Sets and Object Representations Learned Involving Multiple Different Applications

Claim 14 depends from claim 1 and requires, among other things:

wherein the first correlation is included in a knowledgebase, and wherein the knowledgebase further includes a *third correlation including a third one or more object representations correlated with a third one or more instruction sets for operating an avatar of another application*, and wherein *the third one or more object representations represent one or more objects of the another application*.

Ex. 1001, Claim 14 (emphasis added).

Thomas in view of the knowledge of a POSA fails to disclose or suggest “wherein the knowledgebase further includes a third correlation including a third one or more object representations correlated with a third one or more instruction sets for operating an avatar of another application, and wherein the third one or more object representations represent one or more objects of the another application.” Ex. 2007, ¶¶116-119.

Petitioner argues that Thomas discloses “storing profiles for ‘any participating user’ that any other user can ‘download or access’ to use in simulation mode on the same or a different video game console,” and that “a POSITA would have understood . . . that the stored correlations, including at least first, second, and third correlations from one user’s profile can be used to operate an avatar on multiple user’s game consoles.” Petition, 45-46. But Petitioner’s contention *only describes profiles learned in instances of one application (i.e. basketball video game) and used in instances of the same application (i.e. the same basketball video game) on*

different game consoles, not instructions sets and object representations (i.e. first correlation) learned involving one application (i.e. Fortnite, etc.) and instructions sets and object representations (i.e. third correlation) learned involving a different application (i.e. Apex Legends, etc.) as required by claim 14. Instructions and data for one application are conventionally used for that one application. Ex. 2007, 118-119. A knowledgebase including mixed knowledge of instructions sets and object representations learned involving multiple different applications to be used across different applications is an innovative concept that Thomas does not disclose. *Id.*

A POSA, reading Thomas's disclosure of *profiles learned in instances of one application and used in instances of the same application on a different console*, and not disclosing a knowledgebase including mixed knowledge of instructions sets and object representations learned involving multiple different applications to be used across different applications, would not have understood the unconventional concept recited in claim 14. Ex. 2007, ¶119. Further, common knowledge of a POSA may only be used to supply a missing claim limitation when that limitation is "unusually simple and the technology particularly straightforward." *Arendi*, 832 F.3d at 1361. Petitioner has not established that the invention of claim 14 is simple or straightforward. Ex. 2007, ¶119. In fact, the claim describes a sophisticated approach to mixing knowledge learned in different games to achieve autonomous operation. *Id.*

Petitioner has also failed to perform a proper obviousness analysis regarding claim 14 and Ground 2 for the same reasons that Petitioner has failed to perform a proper obviousness analysis with respect to claims 3 and 12 regarding Ground 2. The Board should reject Petitioner's arguments for claim 14 on Ground 2 for this reason alone.

**4. Petitioner's Obviousness Analysis is Improper and
Petitioner's Expert Witness is Not Credible**

The Petition does not provide the required obviousness analysis for claims 3, 12 and 14 under Ground 2, which the Petition characterizes as an obviousness ground under 35 U.S.C. § 103. Petition, 4. This is a fatal flaw for an obviousness ground. *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

Petitioner has failed to perform a proper obviousness analysis because Petitioner has failed to identify anything in claims 3, 12 and 14 that Thomas lacks disclosure of for Ground 2. A proper obviousness analysis requires ascertaining the “differences between the prior art and the claims at issue.” *Graham*, 383 U.S. at 17-18. The Petition fails to specifically identify any claimed features that are not disclosed in Thomas. Petition, 19-21, 40-47.

Further, at his deposition, Dr. Janet admitted that he did not believe Thomas failed to disclose any limitations of claims 12 and 14. Ex. 2008, 45:23-46:22 (claim 12), 49:5-22 (claim 14). Petitioner and Dr. Janet have failed to perform a proper obviousness analysis under *Graham* because they failed to identify the missing features of Thomas and consequently how it would have been obvious to use the knowledge of a POSA to fill those gaps. Indeed, Dr. Janet's declaration does not even once provide anything resembling obviousness analysis for claims 3, 12 and 14. Ex. 1003, ¶¶249-252, ¶¶294-298, ¶¶307-312.

Yet, remarkably, even when confronted with this inescapable point, Dr. Janet maintained that he included obviousness analysis for claims 12 and 14 in his declaration. When asked where his declaration contained his obviousness analysis, Dr. Janet pointed to paragraphs that clearly do not include any obviousness analysis. Ex. 2008, 48:9-14, 51:4-12. For example, Dr. Janet testified:

Q. Are you aware that you are under oath here today?

A. Yes, sir.

Q. And does it remain your position that the entirety of paragraphs 307 through 312 provide your obviousness analysis for Ground 2?

A. They include the obviousness analysis, yes, sir.

Id., 51:4-12.

A simple look at the paragraphs cited by Dr. Janet confirms that these paragraphs contain *no* obviousness analysis. Indeed, Dr. Janet's lack of candor

regarding such a simple point as to where his obviousness analysis is contained undermines his credibility on all of the opinions Dr. Janet has provided in this case.

Petitioner and Dr. Janet have failed to perform a proper obviousness analysis, and thus Petitioner cannot prevail on obviousness for claims 3, 12 and 14 and Ground 2. And Dr. Janet's surprising refusal to admit that he failed to perform any obviousness analysis with respect to these claims undermines his credibility.

C. Ground 3 Fails

Regarding Ground 3, the Petition fails to show that Buehler anticipates claims 1, 3 and 17 of the '134 patent. Ex. 2007, ¶¶120-138. As explained in the following section, the Petition fails to show that Buehler discloses numerous limitations in claim 1. Further, claims 3 and 17 depend from claim 1, and thus Petitioner has failed to show that Buehler discloses these claims for the same reasons as claim 1 as well as for the additional reasons discussed in the sections below.

1. Claim 1: Buehler Does Not Disclose the Claimed Object of the Application and Matching of Object Representations

Claim 1 recites in part:

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;*

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;
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, Claim 1 (emphasis added).

Buehler first fails to disclose that “the first one or more object representations represent one or more objects of the application” and that “the second one or more object representations represent one or more objects of the application.” Ex. 2007, ¶¶122-124. While Petitioner asserts that Buehler’s virtual gripper overlaid as an augmented reality feature maps to the “avatar of the application” recited in claim 1, *see* Ex. 1006, 21:46-54, the object disclosed by Buehler that is operated on by Buehler’s virtual gripper is a *physical object* and not an *object of the application* represented by an object representation, as required by claim 1. An object representation in claim 1 represents “an object of an application,” not a physical object. A physical object is not an object of the application and thus Buehler fails to disclose the claimed *object of the application*, and as a result fails to disclose the object representation that *represents an object of an application*, as required by claim 1. Ex. 2007, ¶¶122-124.

None of the objects represented by object representations claimed in claim 1 are physical objects, but are objects “of the application” (*i.e. virtual objects in the virtual world of the application*), whereas Buehler’s objects are physical objects in the real world (*i.e. outside of an application*). Ex. 2007, ¶¶123-124. For example, Buehler specifically discloses that “[v]ia intuitive interactions with a user, robots may be trained to perform tasks such as visually detecting and identifying *physical objects*.” Ex. 1006, Abstract (emphasis added). Further, Petitioner admits that the object in Buehler is a physical object in the real world (*i.e. outside of an application*) when it describes instruction sets as “a routine for picking up the object,” Petition, 56. As a result, the object disclosed by Buehler and cited by Petitioner for the claimed “object of the application” is a physical object that cannot be an “object of the application,” as required by claim 1. Ex. 2007, ¶¶122-124. Therefore, Petitioner has not pointed to anything in Buehler and Buehler fails to disclose anything that shows that object representations in claim 1 represent objects of the application.

Since Buehler fails to disclose *the object representation that represents an object of an application* as just discussed, Buehler must also fail to disclose the “*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.” Buehler cannot disclose a correlation that includes an element that Buehler has not disclosed. Ex. 2007, ¶¶123-124.

Buehler also fails to disclose “at least partial match between the second one or more object representations and the first one or more object representations.” Ex. 2007, ¶¶125-127. Petitioner first argues that Buehler’s disclosure of

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, Petition, 59 (quoting Ex. 1006, 7:6-15), discloses this claim limitation. Petitioner is wrong for several reasons. First, the identifying disclosed in Buehler is a different concept than matching in claim 1. Buehler discloses using a visual model to *identify an object*, Ex. 1006, 7:6-15, not matching object representations. Ex. 2007, ¶¶125-127.

Next, what is being identified in Buehler’s object identification *is objects*, whereas what is being matched in matching of claim 1 *is object representations*. Object representations represent objects, but are not the objects themselves. Thus, not only the operations (i.e. identifying vs. matching) are different, but *the elements (i.e. objects vs. object representations) that these operations operate on are different* as well. Ex. 2007, ¶¶126-127.

Further, Petitioner points to “detection algorithm 508” used with “images” for object identification in Buehler proving that object identification is indeed object recognition or detection referred to throughout Buehler. Petition, 59. Object

identification, recognition, or detection *uses image features to identify, recognize, or detect (i.e. Buehler’s “detection algorithm 508”) the object*, and does *not match object representations*. Ex. 2007, ¶¶126-127. Object identification, recognition, or detection using image features are different than matching of object representations, and nothing in Buehler and Petitioner’s contentions discloses the claimed *at least partial match between the second one or more object representations and the first one or more object representations* as required by claim 1. *Id.*

Further, because claims 3 and 17 depend from claim 1, Petitioner has failed to show that Buehler discloses these claims as well for the reasons discussed with respect to claim 1.

2. Claim 3: Buehler Does Not Disclose the Claimed Matching Using Threshold Number or Threshold Percentage

Claim 3 depends from claim 1 and requires:

determining that a *number* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold number*, or determining that a *percentage* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold percentage*.

Ex. 1001, Claim 3 (emphasis added).

Buehler fails to disclose “determining that a number of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold number, or determining that a percentage of at least partially matching portions of the second one or more object representations and portions of the first one or more object representations exceeds a threshold percentage.” Ex. 2007, ¶¶129-133. As discussed above with respect to claim 1, Buehler fails to disclose matching using object representations at all, and thus Buehler fails to disclose the claimed matching of object representations based on determining that a number of at least partially matching portions of object representations or a percentage of at least partially matching portions of object representations exceeds a numerical or percentage threshold. *Id.*

Petitioner argues that the system in Buehler “uses a threshold metric or score (i.e., a threshold number) to assess whether there is a match” of “images.” Petition, 61-62. But (i) *images in Buehler are not at least partially matching portions of object representations in claim 3*, and (ii) *generic metric or score in Buehler is not the specifically recited threshold number or threshold percentage in claim 3*, whereas *claim 3 requires both (i) and (ii)*. Ex. 2007, ¶¶ 130-133. The specifically claimed matching of claim 3 requires determining that a *number* of at least *partially matching portions* of the second one or more object representations and portions of

the first one or more object representations *exceeds a threshold number*, or determining that a *percentage* of at least *partially matching portions* of the second one or more object representations and portions of the first one or more object representations *exceeds a threshold percentage*. *Id.* In fact, Buehler does not disclose using *any at least partially matching portions of object representations in relation to* any numeric or percentage threshold, let alone in the manner claimed in claim 3. *Id.*

Using the number of at least partially matching portions in the matching process of claim 3 *involves counting the portions and determining whether this counted number of portions exceeds a numerical threshold*, and Buehler does not disclose any such counting of portions and numerical threshold. Ex. 2007, ¶¶131-133. In addition, using the percentage of at least partially matching portions in the matching process *involves counting the portions to compute the percentage and determining whether this computed percentage of portions exceeds a percentage threshold*, and Buehler does not disclose any such counting of portions, computation, and percentage threshold, either. *Id.*

Buehler discloses nothing (i.e. count of object representation portions, or computing a percentage of the count) that would enable a “number threshold” or “percentage threshold” to be used in the claimed matching of object representations using the number or percentage of at least partially matching portions of object

representations. Ex. 2007, ¶¶132-133. Buehler’s disclosure regarding metric or score does not meet either disjunctive prong of the claim language of claim 3: (i) *a count of at least partially matching portions that would enable a determination of whether the count exceeds a number threshold* nor (ii) *a percentage of at least partially matching portions that would enable a determination of whether the percentage exceeds a percentage threshold*. *Id.* And Petitioner has not pointed to any disclosure in Buehler disclosing these elements. Petition, 61-62.

3. Claim 17: Buehler Does Not Disclose the Claimed Modifying Instruction Sets, Executing the Modified Instruction Sets, and Performing Operations Defined by the Modified Instruction Sets

Claim 17 depends from claim 1 and requires:

modifying: the first one or more instruction sets for operating the first avatar of the application . . . *executing: the modified the first one or more instruction sets* for operating the first avatar of the application . . . *performing*, by the first avatar of the application or by the second avatar of the application, *one or more operations defined by: the modified the first one or more instruction sets* for operating the first avatar of the application.

Ex. 1001, Claim 17 (emphasis added).

Buehler first fails to disclose “modifying: the first one or more instruction sets.” Ex. 2007, ¶¶134-138. Petitioner first points to Buehler’s disclosure of a user making coarse and fine adjustments to the position of a gripper, Petition, 62-63. But this statement *does not say nor even imply anything about modifying any*

instruction sets. In fact, it does not even mention instruction sets. Furthermore, adjustments to the position of a gripper in a computer system are technically accomplished *by issuing additional, whole, unmodified instructions to the gripper, not by modifying instructions.* Ex. 2007, ¶¶135-137. For example, if a user wants to move the gripper to the left, the user would issue an additional instruction to the gripper to move left, which does not involve modifying any instruction sets. *Id.* Therefore, Petitioner has not established that Buehler discloses that the instruction sets are *modified as required in claim 17.*

Petitioner next points to the fact that “[t]he routines may be programmed into the robot at the outset and altered . . . during training.” Petition, 63. But the *modifying recited in claim 17 is of instruction sets that are already correlated with object representations* (i.e. *after they are learned or stored* as recited in claim 1 that claim 17 ultimately depends on), *not “altered . . . during training”* as recited in Petitioner’s quote. Ex. 2007, ¶¶136-138. Thus, Petitioner’s quote of altering a routine during training is inapplicable to modifying instruction sets after their correlating and learning/storing. *Id.* In fact, modifying the instruction sets in claim 17 occurs after the instruction sets are already (i) correlated and learned/stored (as recited in claim 1 and discussed above), and also *the modifying occurs even after the instructions sets are* (ii) *determined in the autonomous operation process* (as recited in claim 17, note that the first step that recites the modified instruction sets

is “executing: the modified the first one or more instruction sets”, which is after the determining step). *Id.* Thus, Petitioner’s quote of altering a routine during training is further inapplicable to modifying an instruction set after the determining step in the autonomous operation process. *Id.*

Petitioner has also not established that Buehler discloses “executing: the modified the first one or more instruction sets.” Ex. 2007, ¶¶137-138. Petitioner points to Buehler’s disclosure that “feedback is provided.” Petition, 63 (quoting Ex. 1006, 6:37-43). But *providing feedback is a different concept than executing modified instruction sets*. Ex. 2007, ¶¶137-138. Also, as discussed above, Buehler does not disclose that any actual instruction sets correlated to object representations are modified (especially after the determining step in the autonomous operation process as recited in claim 17). As a result, Buehler does not disclose that a *modified instruction set is executed*, as required by claim 17. *Id.*

The Petition has also failed to show that Buehler discloses “performing, by the first avatar of the application or by the second avatar of the application, one or more operations defined by: the modified the first one or more instruction sets.” Ex. 2007, ¶138. Petitioner argues that “the system executes and the virtual robot (i.e., the first avatar) performs the modified instruction set after it is updated by the user and/or system,” Petition, 64. This is Petitioner’s own words not supported in Buehler, and is conclusory. As discussed above, since Buehler does not disclose

that any actual instruction sets correlated to object representations are modified (especially after the determining step in the autonomous operation process as recited in claim 17), Buehler fails to disclose that *operations defined by the modified instruction sets are performed*. Ex. 2007, ¶¶134-138. In summary, Buehler cannot disclose that *an instruction set that Buehler fails to disclose as modified after correlation, learning/storing, and determining is somehow executed as modified, and that an operation defined by that instruction set that Buehler fails to disclose as modified would be performed*, as required by claim 17.

VII. CONCLUSION

For the foregoing reasons, Petitioner has failed to prove by a preponderance of the evidence that any of the Challenged Claims are unpatentable. Patent Owner respectfully requests that the Board confirm the patentability of the Challenged Claims and enter judgment against Petitioner.

Dated: April 1, 2024

Respectfully submitted,

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CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S RESPONSE** specified in 37 C.F.R. § 42.24 have 13,117 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. §42.24(b)(1). This word count was prepared using Microsoft Word 2016.

Dated: April 1, 2024

By: /Arvind Jairam/
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CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of this **PATENT OWNER'S RESPONSE** and supporting exhibits have been served on Petitioner via email on the following counsel of record for Petitioner:

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