

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner

Case: IPR2023-01173
U.S. Patent No. 11,055,583

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 22, 2024 in IPR2023-01173
2009	RESERVED
2010	Institution Decision in IPR2023-01054
2011	U.S. Patent No. 10,452,974
2012	RESERVED
2013	RESERVED
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. 21, the “Decision”) and to the Petition for *inter partes* review (Paper No. 2, the “Petition”) filed by Tesla, Inc. (“Petitioner” or “Tesla”). This Response is timely filed in accordance with the Board’s Scheduling Order (Paper No. 22) and the Parties’ Joint Stipulation to Modify Trial Due Dates 1, 2 and 3 (Paper No. 26). The Board instituted review of U.S. Patent No. 11,055,583 (“the ’583 patent”) on Petitioner’s grounds that challenge Claims 10, 11, 25, 27 and 30 (the “Challenged Claims”) of the ’583 patent based on obviousness over U.S. Patent No. 9,604,359 (“Grotmol”) (Exhibit 1005) in view of the knowledge of a person of ordinary skill in the art (POSA), obviousness over Grotmol in view of U.S. Patent No. 8,639,644 (“Hickman”) (Exhibit 1007), and obviousness over Grotmol in view of U.S. Patent No. 9,283,674 (“Hoffman”) (Exhibit 1009). Decision, 20.

Petitioner has not carried its burden of proving unpatentability 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 in any one of the Challenged Claims or that it would have been obvious

to combine or modify the above-cited references to arrive at the claimed inventions.¹

In addition, Petitioner's expert, Dr. Janet, provided deposition testimony that undermined Petitioner's arguments regarding several claims.

II. THE '583 PATENT

The '583 patent, titled "Machine Learning for Computing Enabled Systems and/or Devices," discloses systems for machine learning for computing enabled systems and/or devices. Ex. 1001, Abstract, 1:43-65; *see also* Ex. 2007, ¶¶47-51. The '583 patent discloses systems for capturing "one or more digital pictures, receiv[ing] one or more instruction sets, and learn[ing] correlations between the captured pictures and the received instruction sets." Ex. 1001, Abstract.

1. Existing Technology

Prior to the innovations described in the '583 patent, "[a] machine learning solution [was] needed for computing enabled systems and/or devices to be less dependent on or fully independent from user input." *Id.*, 1:37-39. The '583 patent solved this problem by utilizing a sophisticated system for "learning and/or using visual surrounding for autonomous device operation" comprising "learning one or more digital pictures of a device's surrounding along with correlated instruction sets

¹ Patent Owner submits the Declaration of Dr. Eli Saber (Ex. 2007), an expert in the field of the '583 patent. Ex. 2007, ¶¶1-18; Ex. 2015.

for operating the device, storing this knowledge in a knowledgebase (i.e. neural network, graph, sequences, etc.) and autonomously operating a device.” *Id.*, 59:11-12, 14-18; *see also* Ex. 2007, ¶¶47-48.

2. Advantages Provided by the ’583 Patent

The ’583 patent is directed to artificially intelligent devices, systems, and methods that store a knowledgebase that includes digital pictures of at least a portion of a device’s surroundings correlated with device operating instruction sets, receive or generate new captured digital pictures, match the new pictures with stored pictures in the knowledgebase, and cause the device that captured the new pictures to autonomously execute an instruction set correlated to the matched pictures. Ex. 1001, 1:43-2:7, 152:33-153:63; *see also* Ex. 2007, ¶¶49-51. Referring to Figure 37 (shown below) and the specification’s description of Figure 37, for example, Computing-enabled machine 98a (a loader) includes Picture Capturing Apparatus 90, which captures digital pictures 525 of Computing-enabled machine 98a’s surroundings. Ex. 1001, 152:33-153:63. Computing-enabled machine 98a learns User 50-directed collecting, moving, maneuvering, lifting, and/or unloading in Computing-enabled machine’s 98a visual surrounding that includes a pile of material, truck, and/or other objects. *Id.* In the future, when Computing-enabled machine 98a encounters visual surroundings that include the same or similar objects, or detects the same or similar objects, Computing-enabled machine 98a

autonomously implements collecting, moving, maneuvering, lifting, and/or unloading using previously learned instruction sets 526 correlated with previously learned digital pictures 525. *Id.*, 153:59-63.

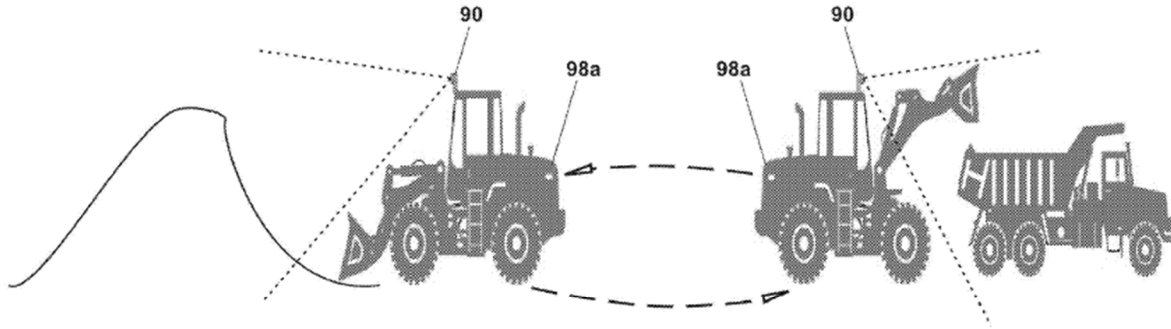


FIG. 37

Ex. 1001, Fig. 37.

The '583 patent describes and claims systems implementing its innovative techniques for autonomous operation. Ex. 2007, ¶¶47-51. For example, one such method is claimed in claim 1. Claim 1 is directed to a method implemented by a computing system that uses learning digital pictures to implement autonomous operation. Several other dependent claims provide additional details regarding systems for autonomous operation.

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, 4-5; *see also* Ex. 2007, ¶¶45-46. A POSA relevant to the ’583 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, 4-5; *see also* Ex. 2007, ¶¶45-46.

IV. ALLEGED PRIOR ART

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

A. GROTMOL (EX. 1005)

Grotmol discloses a simplistic method for training and operating a robotic device to follow a simple trajectory based on a simple sequence (i.e., ordered buffer) of images. Ex. 1005, Abstract. If any circumstance occurs for which the simple trajectory is not trained (i.e., different objects, etc.) the robot in Grotmol would not know what to do or would collide with an obstacle. Ex. 2007, ¶¶62-65. The robotic device “may utilize a camera” to store a “sequence of images of a visual scene seen

when following a trajectory during training in an ordered buffer.” Ex. 1004, Abstract. During training, “[m]otor commands issued by a trainer corresponding to time instances when the images are acquired may be stored.” *Id.*, 39:17-19. During autonomous operation, the robotic device may be configured to compare an acquired image “with one or more images from the training buffer in order to determine the most likely match.” *Id.*, Abstract. After an acquired image is matched to an image stored in the training buffer, the best match may be used “to predict motor command for controlling operation of a robot.” *Id.*, 27:57-58.

B. HICKMAN (EX. 1007)

Hickman relates to “shared robot knowledge bases for use with cloud computing systems.” Ex. 1007, Abstract. “[T]he cloud computing system” in Hickman “collects data from a robot about an object the robot has encountered in its environment, and stores the received data in the shared robot knowledge base.” *Id.* Hickman teaches a method whereby “information in the shared robot knowledge base is updated based on robot experiences so that any particular robot may benefit from prior experiences of other robots.” *Id.*; *see also* Ex. 2007, ¶¶66-68.

Hickman provides a basic method for storing and sharing single object information. As shown below in Figure 4 from Hickman, robot 404 may obtain single object information via one or more sensors. Ex. 1007, 25:14-19. That single object information is transmitted to cloud computing system 401, where it is stored

and can be used by second robot 413. *Id.*, 25:24-27:26. Hickman only provides information about a single object and operates on a single object, and does not use any correlations of digital pictures and instruction sets. Ex. 2007, ¶¶67-68.

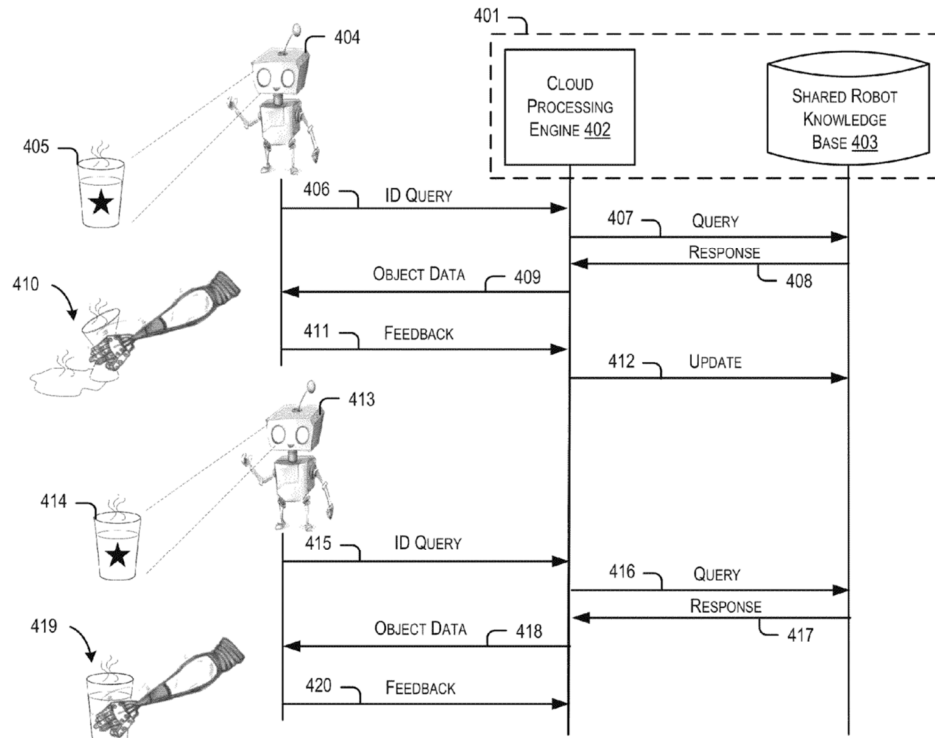


FIGURE 4

Ex. 1007, Fig. 4.

C. HOFFMAN (EX. 1009)

Hoffman is titled “Remotely operating a mobile robot,” and relates to “operating a robot . . . electronically receiving images and augmenting the images by overlaying a representation of the robot on the images.” Ex. 1009, Abstract. The method in Hoffman involves “electronically displaying the augmented images and

receiving an indication of a selection of at least one user-selectable portion of the robot representation.” *Id.*; *see also* Ex. 2007, ¶¶69-70. A user can input a command to the robot based on interacting with the user-selectable portion of the robot representation. Ex. 1009, Abstract.

Figure 1 from Hoffman, shown below, discloses a user interacting with a screen to provide commands to a robot. Ex. 1009, Fig. 1. As shown in Figure 1, “cloud service 22 executes an application outputting data 23 that may be communicated to the robot 200.” *Id.*, 8:3-5. Hoffman discloses that the controller 400 “may issue drive commands to the drive 10 system 215 based on the received processed data set 23 for maneuvering about an area.” *Id.*, 8:9-11.

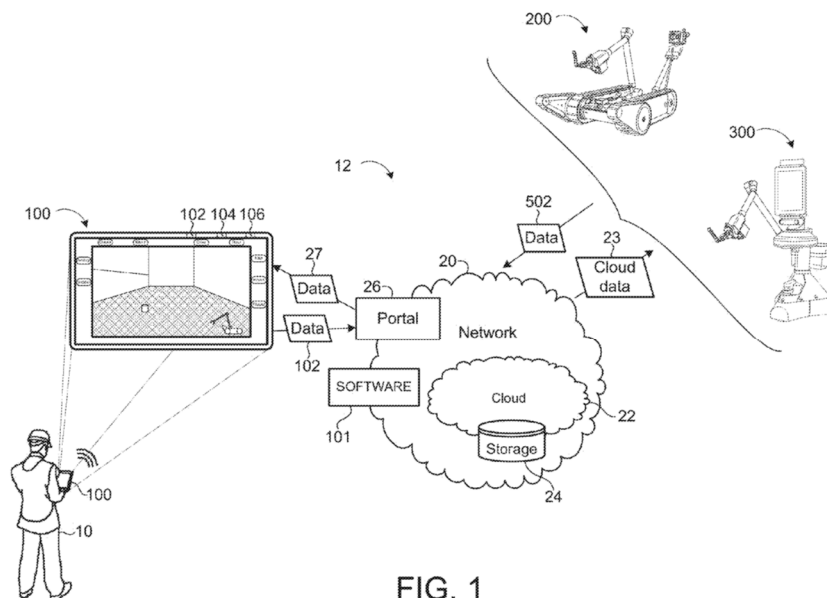


FIG. 1

Ex. 1009, Fig. 1.

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 believes there is no need to construe any terms of the Challenged Claims, as there is not any underlying controversy regarding any terms at this time.

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

The Board instituted review of the '583 patent based on Grounds 1-3. Decision, 20. 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 10-11, 25, 27 and 30 unpatentable. Ex. 2007, ¶¶121-170.

A. Ground 1 Fails

Regarding Ground 1, Petitioner fails to show that Grotmol in view of the knowledge of a POSA renders claims 10 and 11 of the '583 patent obvious. Ex. 2007, ¶¶122-136. Petitioner fails to show that Grotmol 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 Grotmol's disclosure is ineffective. *Id.*

1. Claim 10: Grotmol Does Not Disclose or Suggest the Claimed Second Learning Process and Second User

Claim 10, which depends from claim 4, states, in part:

wherein the knowledgebase further includes a second one or more digital pictures correlated with a second one or more instruction sets for operating the first device, wherein at least a portion of the first one or more digital pictures or at least a portion of the first one or more instruction sets for operating the first device is learned in a first learning process that includes operating the first device at least partially by a first user, and

wherein at least a portion of the second one or more digital pictures or at least a portion of the second one or more instruction sets for operating the first device ***is learned in a second learning process that includes operating the first device at least partially by a second user.***

Ex. 1001, Claim 10 (emphasis added).

Grotmol in view of the knowledge of a POSA fails to disclose or suggest the claimed “second user” and “second learning process.” Ex. 2007, ¶¶123-130. Grotmol only discloses ***one*** user operating ***one*** device in ***one*** learning process, *id.*, and therefore fails to disclose any second learning process or second user, let alone the claimed “at least a portion of the second one or more digital pictures or at least a portion of the second one or more instruction sets for operating the first device ***is learned in a second learning process that includes operating the first device at least partially by a second user.***” Ex. 1001, Claim 10 (emphasis added).

Petitioner contends with little or no support that “it would be obvious based on Grotmol in view of the knowledge of a POSITA to have a second user perform an additional training resulting in an additional correlation stored in the knowledgebase.” Petition, 25. Petitioner is wrong and ***provides no reasoned basis for its obviousness argument.*** Ex. 2007, ¶¶124-130. Claim 10 claims a second user and a second learning process, and nothing in Grotmol discloses or suggests these elements or provides a POSA a basis for implementing them. *Id.* Further, Petitioner

has failed to provide a reason to modify Grotmol in view of the knowledge of a POSA to achieve the claimed invention and has failed to provide evidence of a reasonable expectation of success in the proposed modification. *Id.*

Petitioner contends that “Grotmol does not limit the number of users that can train the multiple behaviors for the robot, and a POSITA would have understood that different users can train different behaviors, particularly given that Grotmol describes the training of both simple and complex tasks.” Petition, 25. However, the inquiry here is not whether multiple learning processes can or cannot be conducted, but rather is about the single learning process that Grotmol actually discloses. Also, the foregoing statement is Petitioner’s own words, not supported in Grotmol, and is conclusory. Petitioner is wrong since Grotmol discloses ***only a single user; thus this single user performs the “training of both simple and complex tasks.” Nothing in Grotmol suggests that one user trains the robot for simple tasks and another user trains the robot for complex tasks.*** Ex. 2007, ¶¶126-130. Petitioner's contention that Grotmol in view of the knowledge of POSA would teach or suggest the above features of claim 10 is an unjustified leap, given that Grotmol does not even mention a second user, let alone a second learning process involving the second user. *Id.*

Further, as the Board noted in an IPR involving similar claim limitations in another patent owned by Patent Owner, Grotmol discloses nothing “more than loading a trained configuration from a first robot to a second robot.” Ex. 2010, 35

(Institution Decision in IPR2023-01054) (Board’s discussion regarding claim 4 of U.S. Patent No. 10,452,974 (Ex. 2011)). The Board also questioned whether Petitioner had sufficiently shown that “Grotmol discloses [an additional] correlation learned in another learning process . . . that is included as part of the knowledgebase along with the first and second correlations learned by the first robot.” *Id.*, 35-36. The Board noted correctly that Grotmol’s disclosure of loading a trained configuration from a first robot to a second robot does not constitute a second learning process. Ex. 2007, ¶¶127-128. Grotmol fails to disclose or suggest anything that would make it obvious to a POSA that at least a portion of a second digital picture or at least a portion of the second one or more instruction sets is learned in *a second learning process, and especially one that involves a second user.*

Petitioner also contends that “[i]t would have been obvious to a POSITA that different trainers could be used to train behaviors involving different levels of complexity in order to take advantage of the varying skills and knowledge of trainers.” Petition, 25. *But this is an unsupported assertion with no obviousness analysis provided.* Ex. 2007, ¶¶128-130. Also, since Grotmol discloses *only a single user, this single user trains behaviors involving different levels of complexity. Nothing in Grotmol suggests that one user trains the robot for a task of one level of complexity and another user trains the robot for a task of another level of complexity.* *Id.* Thus, given that Grotmol does not even mention a second user, let

alone a second learning process involving the second user, Grotmol in view of the knowledge of POSA does not disclose claim 10. *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 S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016). Petitioner has not established that the portion of the claim apparently at issue here (Petitioner has not even clearly asserted which portion of the claim it is invoking obviousness for), which involves having *different users* operate a device in *different learning processes* to *learn mixed knowledge into a single knowledgebase*, satisfies those conditions. Using different users with a device 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, ¶¶128-130.

Enabling a system to learn mixed autonomous operation knowledge and integrate such knowledge into a single knowledgebase in different learning processes with different users is an approach not disclosed or suggested in Grotmol and not obvious to a POSA. Ex. 2007, ¶¶128-130. For example, this approach may involve combining the learned knowledge into a coherent knowledge structure, identifying each user to store particular learned operations and preferences in

portions of the knowledgebase for user-specific autonomous operations, combining the learned knowledge from specific users, and/or other issues not found in Grotmol and not obvious to a POSA. *Id.* Petitioner has not established that the limitations missing from Grotmol are unusually simple and the technology particularly straightforward. *See Arendi*, 832 F.3d at 1361.

At his deposition, Petitioner's expert confirmed that he and Petitioner failed to perform a proper obviousness analysis regarding claim 10 for Ground 1. Dr. Janet first attempted to deviate from his opinion expressed in his declaration that Grotmol in view of a POSA renders claim 10 obvious, by stating in his deposition testimony that Grotmol alone anticipates claim 10. Ex. 2008, 54:22-55:3. He did not include such opinions in his declaration and the Petition does not rely on them.

Dr. Janet stated that he does not believe Grotmol lacks disclosure of any limitations of claim 10. Ex. 2008, 54:22-55:3. This testimony confirms that Petitioner and Dr. Janet have failed to perform a proper obviousness analysis, 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). If Grotmol alone discloses all the features of claim 10 as Dr. Janet contends according to his deposition testimony, then the Petition (relying on his declaration) cannot possibly have established a rationale for modifying or configuring Grotmol's process

in view of the knowledge of a POSA to arrive at the claimed invention, much less any reasonable expectation of success regarding such a modification/configuration.

2. Claim 11: Grotmol Does Not Disclose or Suggest the Claimed Second Learning Process and Third Device

Claim 11 depends from claim 4 and recites, among other things:

wherein the knowledgebase further includes a second one or more digital pictures correlated with a second one or more *instruction sets for operating a third device*, and wherein at least a portion of the first one or more digital pictures or at least a portion of the first one or more instruction sets for operating the first device is learned in a first learning process that includes operating the first device at least partially by a first user, and wherein at least a portion of the second one or more digital pictures or at least a portion of the second one or more *instruction sets for operating the third device* is learned *in a second learning process* that includes operating *the third device* at least partially by: the first user, or a second user.

Ex. 1001, Claim 11 (emphasis added).

Grotmol in view of the knowledge of a POSA fails to disclose or suggest the claimed second correlation including a “second one or more instruction sets for operating a third device” and “second learning process that includes operating the third device.” Ex. 2007, ¶¶131-136. Petitioner contends with no support that loading trained configurations trained on other robots would be obvious. Petition, 26. Petitioner is wrong and provides no basis for its obviousness argument. Ex. 2007,

¶¶132-136. As discussed above with respect to claim 10, Grotmol only discloses **one** user operating **one** device in **one** learning process. *Supra* Section VI.A.1; Ex. 2007, ¶¶132-133. The knowledge gained from this process in Grotmol, when loaded into another device, is still knowledge of one user operating one device in one learning process, which is about loading the knowledge previously learned on one robot into another robot and not about learning at least a portion of a second digital picture or at least a portion of the second instruction set for operating the **third** device in a **second** learning process that includes operating the **third** device, as required by claim 11. *Id.*

Petitioner refers to the knowledge of a POSA as providing the claimed second learning process. Petition, 26. But Petitioner's statements lack requisite explanation or support. Ex. 2007, ¶¶133-136. Further, as the Board noted in an IPR involving similar claim limitations in another patent owned by Patent Owner, Grotmol discloses nothing "more than loading a trained configuration from a first robot to a second robot." Ex. 2010, 35 (Institution Decision in IPR2023-01054) (Board's discussion regarding claim 4 of U.S. Patent No. 10,452,974 (Ex. 2011)). The Board also questioned whether Petitioner had sufficiently shown that "Grotmol discloses [an additional] correlation learned in another learning process by a second robot that is included as part of the knowledgebase along with the first and second correlations learned by the first robot." *Id.*, 35-36. The Board noted correctly that **loading a**

trained configuration from a first robot to a second robot does not constitute another learning process. Ex. 2007, ¶¶133-134. Grotmol fails to disclose anything that would make it obvious to a POSA that at least a portion of a second digital picture or at least a portion of the second one or more instruction sets is learned in *a second learning process, and especially one that involves operating a third device.* *Id.*

Petitioner contends that “a POSITA would have recognized the advantages of training across multiple robots” using multiple configurations. Petition, 26. Petitioner’s contention is Petitioner’s own words, not supported in Grotmol, and is conclusory. Petitioner is wrong since it describes a situation involving *multiple trained configurations* each stored and learned on a different robot, whereas claim 11 specifically recites a *single knowledgebase (as opposed to multiple configurations)* that includes *mixed knowledge* of one correlation learned in one learning process (as recited in claim 1 from which claim 11 ultimately depends) involving one device and an *additional correlation learned in a second learning process involving a third device (as recited in claim 11).* Ex. 2007, ¶¶134-136. Nothing in Grotmol even suggests these elements of claim 11 or provides a POSA a basis for implementing them. *Id.* Further, Petitioner has failed to provide a reason to modify Grotmol in view of the knowledge of a POSA to achieve the claimed

invention and has failed to provide evidence of a reasonable expectation of success in the proposed modification. *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 the limitation at issue here satisfies those conditions. ***Using multiple learning processes to learn mixed knowledge involving different devices into a single knowledgebase*** would not have been straightforward or unusually simple to a POSA due to the complexities of combining the mixed knowledge involving different devices into a single knowledgebase. Ex. 2007, ¶¶135-136.

Enabling a system to learn mixed autonomous operation knowledge from multiple learning processes involving different devices and integrate such knowledge into a single knowledgebase is an approach not disclosed or suggested in Grotmol and not obvious to a POSA. *Id.* For example, this approach may involve combining the learned knowledge into a coherent knowledge structure, combining the learned knowledge from the different learning processes, combining the learned knowledge from the different devices, and/or other issues not found in Grotmol and not obvious to a POSA. *Id.* Petitioner has not established that the limitations missing from Grotmol are unusually simple and the technology particularly straightforward. *See Arendi*, 832 F.3d at 1361.

The deposition testimony of Petitioner's expert confirms that he and Petitioner failed to perform a proper obviousness analysis regarding claim 11 for Ground 2. Dr. Janet attempted to deviate from his opinion expressed in his declaration that Grotmol in view of a POSA renders claim 11 obvious, by stating in his deposition response that Grotmol is not missing any of the elements of claim 11. Ex. 2008, 59:23-60:2. This testimony confirms that Petitioner and Dr. Janet have failed to perform a proper obviousness analysis including for the reasons discussed above with respect to Dr. Janet's analysis of claim 10.

B. Ground 2 Fails

Regarding Ground 2, Petitioner fails to show that Grotmol in view of Hickman renders claims 25 and 27 obvious. Ex. 2007, ¶¶137-157. Petitioner has failed to show that Grotmol's training sets and Hickman's shared robot knowledgebase would have been predictably combined by a POSA to arrive at the claimed inventions, as explained below.

1. Claims 25 and 27: It Would Not Have Been Obvious to Combine Grotmol and Hickman to Arrive At the Claimed Inventions

Combining Hickman's shared knowledgebase with Grotmol's training sets would not have been predictable or obvious because Hickman specifically teaches away from using the claimed correlations (as recited in claims 25 and 27 and discussed below). Ex. 2007, ¶¶138-142. Hickman discloses storing instruction sets

and images *separately in separate knowledgebases* (images in Unique Object Knowledge Base 307 and instructions in Task Knowledge Base 309, *see* Ex. 1005, Fig. 3), which a POSA would have found to be incompatible with Grotmol's disclosure of training sets or correlations with images and instruction sets ***correlated and stored together***. Ex. 2007, ¶¶138-142.

Petitioner has not adequately explained how the correlations disclosed by Grotmol would have been combined with the knowledgebase in Hickman to arrive at the claimed invention of claims 25 and 27. Ex. 2007, ¶¶139-142. Since correlations of images and instruction sets are fundamental to the operation of the system in Grotmol, ***Hickman must disclose correlations in order to be combinable with Grotmol at all*** for Petitioner's proposed combinations regarding claims 25 and 27. *Id.* However, Hickman teaches away from the correlations in Grotmol by disclosing images and instructions in separate knowledgebases that are not correlated. *Id.* Petitioner is using improper hindsight analysis and speculation to pick and choose high level concepts from each reference without mapping each reference to each specific claim element to arrive at the claimed invention and explaining why a POSA would have found the combination of these references to be predictable and operable with a reasonable expectation of success. *Id.*

The specific language of claims 25 and 27 cannot be carved up and then stitched back together using the broad concepts disclosed in Grotmol and Hickman.

Grotmol discloses one user operating one device in one learning process. *Id.* The knowledge gained from this process in Grotmol, when loaded into a second device, is still knowledge of ***one user operating one device in one learning process. Id.*** Further, Hickman's simple cloud storage of instances of single object information ***does not contemplate using correlations*** to learn knowledge for autonomous operation as required by claims 25 and 27. *Id.* Petitioner's obviousness analysis is also deficient because it ***fails to explain what specific claim limitation is missing from Grotmol and how Hickman discloses the missing claim limitation.*** "The burden is on Petitioner, not the Board, to specify with particularity how [the prior art] teaches [various claimed features]." *Amazon Web Services, Inc. v. Saint Regis Mohawk Tribe*, IPR2019-00103, Paper No. 22 at 17 (PTAB May 10, 2019).

Petitioner's use of impermissible hindsight to arrive at the claimed invention is highlighted in its statement that "it would have been obvious to combine Hickman's shared robot knowledge base with Grotmol's autonomous robot system such that the shared knowledgebase includes the training of multiple robots by multiple users." Petition, 35. ***Petitioner is using the claimed use of correlations, multiple users, and multiple devices as a roadmap for its obviousness combination.*** Ex. 2007, ¶¶141-142. This is impermissible hindsight, as neither Grotmol nor Hickman, alone or in combination, discloses or suggests the claimed inventions. *See TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1361 (warning against "us[ing]

the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art”). And it would not have been obvious to a POSA to use Hickman’s simple cloud storage method—disclosing no correlations—with Grotmol’s single-device training sets to arrive at the claimed inventions. Ex. 2007, ¶¶141-142. Further, Petitioner has failed to provide a reason to modify or combine the prior art to achieve the claimed invention and has failed to provide evidence of a reasonable expectation of success in the proposed combination. *Id.*

Petitioner’s proposed combination would also not have been obvious because Hickman teaches away from the claimed invention of claims 25 and 27. Ex. 2007, ¶142. Specifically, as shown in Figure 3 from Hickman below, Hickman teaches that images are stored in one knowledgebase 307 while instruction sets are *stored separately (i.e. uncorrelated)* in another knowledgebase 309. Ex. 1005, 13:64-21:39. In light of this storage structure, and that Grotmol’s training sets stored in memory include *correlated* images and instruction sets that are *stored together*, Ex. 1004, 3:35-49, a POSA would have found that Hickman teaches away from Grotmol’s approach, and a POSA would not have been motivated to combine Grotmol and Hickman in the manner proposed by Petitioner, much less with a reasonable expectation of success in the proposed combination. Ex. 2007, ¶¶141-142.

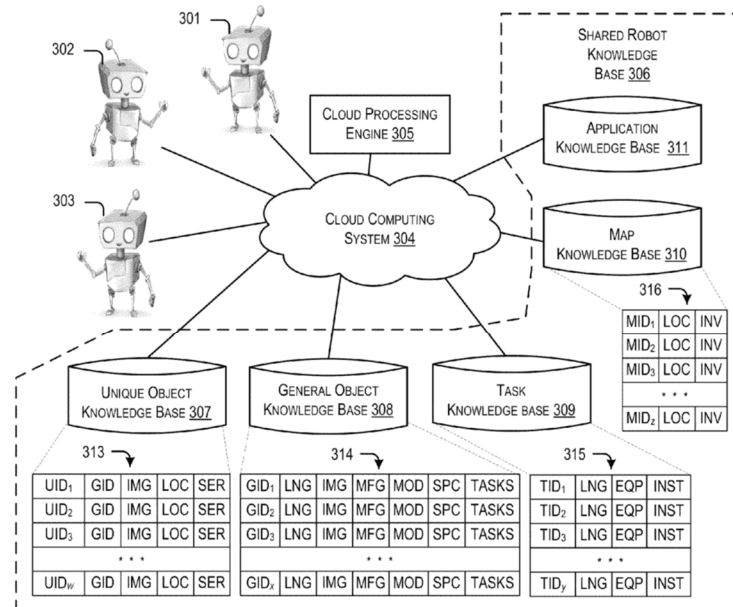


FIGURE 3

Ex. 1005, Fig. 3.

Petitioner has also failed to carry its burden to prove obviousness by showing which specific claim elements are disclosed by each of the cited references. *The Petition must provide an understandable explanation of the element-by-element specifics of the patentability challenges.* See 35 U.S.C. § 312(a)(3); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(3)-(4). The Petitioner has failed to provide the required explanation and thus Petitioner's proposed combination of Grotmol and Hickman should be rejected.

2. Claim 25: Grotmol and Hickman Do Not Disclose or Suggest the Claimed Second Device Performing Operations Defined by Instruction Sets for Operating a First Device Involving a Server

Claim 25 depends from claim 4 and requires, among other things:

a server that receives from the first device at least one of: the first one or more digital pictures, or the first one or more instruction sets for operating the first device, and wherein *the second device receives from the server* at least one of: the first one or more digital picture or the first one or more *instruction sets for operating the first device*, and wherein the *second device is caused to perform* the one or more operations defined by the first one or more *instruction sets for operating the first device*.

Ex. 1001, Claim 25 (emphasis added).

Hickman's failure to disclose and teaching away from fundamental elements including the claimed correlation of the claimed digital picture with the claimed instruction set as discussed above in Section VI.B.1 confirms that the Grotmol-Hickman combination proposed by Petitioner is deficient and that Hickman cannot be used to provide any missing elements from Grotmol to arrive at claim 25. Ex. 2007, ¶¶138-157.

Petitioner's attempt to stitch together high level concepts from Grotmol and Hickman to arrive at the claimed invention is improper and fails to adequately and properly explain how each claimed element of claim 25 is disclosed by either

reference. Ex. 2007, ¶¶138-157. Petitioner's contention that Grotmol's training sets could be combined with Hickman to arrive at the claimed invention is not correct. Petition, 30-33. The claimed second device must receive from the server either the first digital picture or the first one or more instruction sets, and the second device must perform operations defined by the instruction set for operating the first device. Ex. 2007, ¶¶145-146. Hickman's simple knowledgebase that includes uncorrelated images and instructions never mentions or discloses anything like the concept of a *correlation with an instruction set for operating a first device that is used to operate a second device involving a server. Id.*

While the Petition is unclear, if Petitioner relies on Hickman to teach the use of a shared knowledgebase with learned multiple behaviors from multiple robots and on Grotmol to disclose digital pictures correlated with the various instruction sets, then this combination of high level concepts fails to disclose or suggest the invention as claimed. Ex. 2007, ¶¶146-147. Claim 25 encompasses more than simply the combination of an additional correlation for a second device in a shared knowledgebase. *Id.* The specific limitations of claim 25 require that *the second device must receive* the first digital picture or first instruction set for the first device and then *perform operations defined by that instruction set. Id.* This requires a sophisticated approach where knowledge is stored and processed using *instruction sets correlated with a digital picture in a specific manner and ultimately*

transferred from one device to be used on another device. Id. While Hickman discloses additional devices performing certain functions and Grotmol discloses training sets, neither reference discloses the specifically claimed devices operating using correlations in the claimed manner. *Id.*

Although Hickman discloses a cloud system that can generally learn from multiple devices, it does not disclose the claimed digital picture used with instruction sets in the claimed correlation involving the second device. *Id.* Hickman fails to disclose any correlations at all and teaches away from correlations, as images and instruction sets in Hickman are stored separately in separate knowledgebases. *Id.* As a result, neither Hickman nor Grotmol disclose or suggest the features of claim 25.

At his deposition, Petitioner's expert confirmed that he and Petitioner failed to perform a proper obviousness analysis regarding claim 25 for Ground 2. Dr. Janet attempted to deviate from his opinion expressed in his declaration that Grotmol in view of Hickman renders claim 25 obvious, by stating in his deposition testimony that Grotmol does not fail to disclose any of the elements of claim 25. Ex. 2008, 64:20-65:8. This testimony confirms that Petitioner and Dr. Janet have failed to perform a proper obviousness analysis by identifying what claimed feature(s) is missing from Grotmol and how it would have been obvious to modify Grotmol with Hickman to arrive at the claimed invention.

3. Claim 27: Grotmol and Hickman Do Not Disclose or Suggest the Claimed Knowledgebase Including Mixed Correlations, Second Correlation Including Instruction Sets for Operating a Third Device, Determining the Instruction Sets for Operating the Third Device, and Causing a Fourth Device to Perform Operations Defined by the Instruction Sets for Operating the Third Device

Claim 27 depends from claim 4 and requires, among other things:

wherein *the first one or more digital pictures correlated with the first one or more instruction sets for operating the first device are included in a knowledgebase*, and wherein the *knowledgebase further includes a second one or more digital pictures correlated with a second one or more instruction sets for operating a third device*, and wherein the machine readable code, when executed by the one or more processors, causes the one or more processors to further perform at least:

receiving or generating an additional one or more digital pictures;

determining the second one or more instruction sets for operating the third device based on at least partial match between the additional one or more digital pictures and the second one or more digital pictures; and at least in response to the determining the second one or more instruction sets for operating the third device, *causing a fourth device to perform one or more operations defined by the second one or more instruction sets for operating the third device*.

Ex. 1001, Claim 27 (emphasis added).

Hickman's failure to disclose and teaching away from fundamental elements including the claimed correlation of the claimed digital picture with the claimed

instruction set as discussed above confirms that the Grotmol-Hickman combination proposed by Petitioner is deficient and that Hickman cannot be used to provide any missing elements from Grotmol to arrive at claim 27. Ex. 2007, ¶¶138-157.

In addition, Grotmol and Hickman fail to disclose or suggest “wherein the first one or more digital pictures correlated with the first one or more instruction sets for operating the first device are included in a knowledgebase, and wherein the knowledgebase further includes a second one or more digital pictures correlated with a second one or more instruction sets for operating a third device.” Ex. 2007, ¶¶150-157. As discussed above with respect to claims 10 and 11 in Ground 1 and claim 25 in Ground 2, Grotmol discloses one user operating one device in one learning process and even when loaded into a second device, this is still knowledge of *one user operating one device in one learning process* that fails to even contemplate the specifically recited single knowledgebase that includes *mixed knowledge* of *one correlation including instruction sets for operating a first device* and an *additional correlation including instruction sets for operating a third device*. *Id.* On the other hand, Hickman discloses storing images and instructions *separately in separate knowledgebases* (see Ex. 1005, Fig. 3) that *is not a correlation*. Hence, Hickman does not disclose or suggest (and further teaches away from) *any* correlations including *any* digital pictures correlated with *any* instruction sets, let alone the

claimed correlations in the single knowledgebase as required by claim 27. Ex. 2007, ¶¶150-157.

Next, Grotmol and Hickman fail to disclose or suggest the claimed “second one or more digital pictures correlated with a second one or more instruction sets for operating a third device.” Ex. 2007, ¶¶151-152. As discussed above, Grotmol discloses one user operating one device in one learning process, and even when loaded into a second device, this is still knowledge of *one user operating one device in one learning process* that does not disclose *a correlation that includes instruction sets for operating a third device*. *Id.* On the other hand, Hickman does not disclose or suggest *any* correlations (images and instructions are stored in separate uncorrelated knowledgebases [see Ex. 1005, Fig. 3]), let alone the claimed *correlation that includes instruction sets for operating a third device*. Ex. 2007, ¶¶151-152.

Next, Grotmol and Hickman fail to disclose or suggest the claimed “determining the second one or more instruction sets for operating the third device based on at least partial match between the additional one or more digital pictures and the second one or more digital pictures.” Ex. 2007, ¶152. Petitioner argues that Grotmol discloses determining instructions for a third device using a partial match. Petition, 36-37. This argument is Petitioner’s own words, not supported in Grotmol, and is conclusory. Ex. 2007, ¶¶152-153. Grotmol discloses one user operating one

device in one learning process, and even when loaded into a second device, this is still knowledge of *one user operating one device in one learning process* that does not disclose *instruction sets for operating a third device, much less determining them as recited in claim 27. Id.* On the other hand, Hickman does not disclose or suggest *any* correlations (images and instructions are stored in separate uncorrelated knowledgebases [see Ex. 1005, Fig. 3]), let alone the claimed use of correlations *used in the matching for the determining step* (note that the determining the second instruction set is indeed based on its correlation with the second digital picture recited in claim 27). Ex. 2007, ¶¶152-153.

Finally, Grotmol and Hickman fail to disclose or suggest the claimed “in response to the determining the second one or more instruction sets for operating the third device, causing a fourth device to perform one or more operations defined by the second one or more instruction sets for operating the third device.” Ex. 2007, ¶¶153-157. First, since Grotmol and Hickman fail to disclose or suggest the determining of the second instruction set for operating the third device based on the matching as particularly claimed and discussed above, they must also fail to disclose or suggest the claimed performance of operations defined by those determined instruction sets. *Id.* Second, regardless of the determining, Grotmol and Hickman do not teach or suggest the particular claimed limitations involving *instruction sets for operating the specific third device and causing a specific fourth device to perform*

operations defined by the instruction sets for operating the specific third device.

Id. As discussed above, (i) Grotmol discloses one user operating one device in one learning process that does not disclose instruction sets for operating a third device that are used on a fourth device, (ii) Hickman does not disclose or suggest any correlations including any instruction sets (images and instructions are stored in separate uncorrelated knowledgebases [*see* Ex. 1005, Fig. 3]), and (iii) both references do not mention third and fourth devices at all, let alone the multiple recited elements that incorporate the third and fourth devices. Therefore, the Grotmol-Hickman combination does not disclose or suggest a fourth device to perform operations defined by the instruction sets for operating the third device. Ex. 2007, ¶¶153-154.

Petitioner's discussion of high level concepts from Grotmol and Hickman again fails to adequately and properly explain how each specifically claimed element of claim 27 is disclosed by either reference. Petitioner's contention that Grotmol's training sets could be combined with Hickman to arrive at the claimed correlated digital picture is not correct. Petition, 35-37. The simple knowledgebase that includes uncorrelated images and instructions in Hickman never mentions or discloses anything like the concept of a correlation with an instruction set for operating a third device and the other specifically claimed elements of the additional correlations. Ex. 2007, ¶¶154-157.

While the Petition is unclear, if Petitioner relies on Hickman to teach the use of a shared knowledgebase and on Grotmol to disclose digital pictures correlated with the various instruction sets, then this combination of high level concepts fails to suggest or disclose the invention as claimed. Ex. 2007, ¶¶155-157. Claim 27 recites more than simply the combination of an additional correlation in a shared knowledgebase. *Id.* The specific limitations of claim 27 require that ***the correlation must include one or more instruction sets specifically “for operating the third device,”*** the system must generate or receive an additional ***“digital picture,”*** the system must determine ***“instruction sets [specifically] for operating the third device based on at least partial match between the additional one or more digital pictures and the second one or more digital pictures,”*** and must ***“caus[e] a [specific] fourth device to perform one or more operations defined by the second one or more instruction sets for operating the [specific] third device.”*** While Hickman generally discloses additional devices performing certain functions and Grotmol discloses training sets, neither reference discloses or suggests the specifically claimed devices operating using correlations, instruction sets, and other recited elements in the claimed manner. *Id.*

Petitioner’s statement that “[i]n the combination of Grotmol and Hickman any number of robots would be autonomously operated using the shared knowledgebase,” Petition, 36, highlights ***Petitioner’s failure to map specific***

disclosures of the references to the actual language of claim 27. Ex. 2007, ¶¶156-157. Petitioner does not explain how the references disclose the sharing of the knowledgebase or how this sharing reads on the specific elements as claimed. Petitioner’s statement that “[t]he combination discloses a knowledge base that includes digital pictures correlated with instructions for operating a first robot, and digital picture correlated with instructions for operating a second robot,” Petition, 35, is Petitioner’s own words not disclosed in the references, is conclusory, and also fails to map the disclosure of the references to the specifically claimed elements. Ex. 2007, ¶¶156-157.

Petitioner has failed to carry its burden to show which specific claim elements are disclosed by which prior art reference. Petitioner’s argument that Hickman’s general disclosure of the storage of “robot experiences” reads on the claimed invention is not persuasive and oversimplifies the claimed invention. Petition, 35. Petitioner does not specifically map the claim language of claim 27 to the disclosures of Hickman and merely points to the high level concept of information storage. Ex. 2007, ¶¶156-157. Claim 27 requires that *the correlation must include one or more instruction sets specifically “for operating the third device,”* the system must generate or receive an additional *“digital picture,”* the system must determine *“instruction sets [specifically] for operating the third device based on at least partial match between the additional one or more digital pictures and the second*

one or more digital pictures,” and must “caus[e] a [specific] fourth device to perform one or more operations defined by the second one or more instruction sets for operating the [specific] third device.” The language of the claim, and not Petitioner’s summary distillation of the claim language and the disclosure of certain references, governs the analysis here.

Grotmol’s and Hickman’s lack of disclosure, Hickman’s teaching away, and Petitioner’s failure to explain which reference discloses which specific claim elements doom Petitioner’s arguments.

The deposition testimony of Petitioner’s expert confirms that he and Petitioner failed to perform a proper obviousness analysis regarding claim 27 for Ground 2. Dr. Janet attempted to deviate from his opinion expressed in his declaration that Grotmol in view of Hickman renders claim 27 obvious, by stating in his deposition response that Grotmol anticipates claim 27. Ex. 2008, 75:3-13. Petitioner and Dr. Janet have failed to provide a legally proper obviousness analysis for similar reasons to those discussed above with respect to claim 25. *Supra* Section VI.B.2.

C. Ground 3 Fails

Regarding Ground 3, Petitioner has not established that Grotmol in view of Hoffman renders claim 30 of the ’583 patent obvious. Ex. 2007, ¶¶158-170. Grotmol and Hoffman fail to disclose or suggest certain limitations of claim 30, as discussed

below, and it would not have been obvious to combine the teachings of the references to arrive at the invention of claim 30. *Id.*

1. Claim 30: It Would Not Have Been Obvious to Combine Grotmol and Hoffman to Arrive At the Claimed Invention

It would not have been obvious to combine Grotmol with Hoffman to arrive at the claimed invention because Grotmol discloses a system for *autonomous* robot operation, whereas Hoffman is a system for *user-controlled (i.e. manual)* robot operation. Ex. 2007, ¶¶159-161. Grotmol uses training sets and matching to achieve autonomous operation, while Hoffman discloses a simple user-operated robot. *Id.* A POSA would not have been motivated nor would have looked to the augmented map in the user-controlled system of Hoffman to modify the autonomous system in Grotmol to arrive at the claimed invention because both references disclose vastly different systems. *Id.*

Petitioner has also failed to provide a proper obviousness analysis to show that it would have been obvious to combine Grotmol and Hoffman to arrive at the claimed invention of claim 30. While Petitioner provides highly general obviousness arguments regarding combining Grotmol and Hoffman, Petition, 37-40, Petitioner provides no specific obviousness analysis to justify the combination of Grotmol and Hoffman to arrive at the invention of claim 30. For example, Petitioner fails to explain how the map in Hoffman would be used with the digital pictures claimed in

Grotmol to arrive at the claimed invention and thus fails to show any likely results of the combination of these references. Ex. 2007, ¶¶160-161. Thus, Petitioner has failed to provide sufficient reasoning to modify or combine Grotmol and Hoffman to achieve the claimed invention and has failed to provide evidence of a reasonable expectation of success in the proposed combination. *Id.*

Petitioner argues that it would have been obvious to combine Grotmol and Hoffman “in order to provide more detailed information about the robot’s surroundings to the user,” Petition, 40, but Petitioner fails to specifically explain why it would have been obvious to a POSA to modify Grotmol’s system with Hoffman’s map. Ex. 2007, ¶¶160-161. Further, Petitioner’s use of impermissible hindsight to arrive at the claimed invention is highlighted in its obviousness argument. Petitioner is using the claimed use of locations and a top-down view as a roadmap for its obviousness combination. *Id.* This is impermissible hindsight, as neither Grotmol nor Hoffman, alone or in combination, discloses or suggests the claimed invention. *See TQ Delta*, 942 F.3d at 1361. Because of Petitioner’s use of improper hindsight and failure to carry its burden to explain why the Grotmol-Hoffman combination would have been obvious, Petitioner’s argument for this combination fails.

2. Claim 30: Grotmol and Hoffman Do Not Disclose or Suggest Several Limitations of Claim 29, From Which Claim 30 Depends

Claim 30 depends from claim 29, and claim 29 requires, among other things:

wherein the *generating the new one or more digital pictures includes: detecting one or more objects* in the first device's surrounding or the second device's surrounding; *generating one or more representations of the one or more objects*; and *generating the new one or more digital pictures that include the one or more representations of the one or more objects*.

Ex. 1001, Claim 29 (emphasis added). Petitioner contends that Grotmol discloses claim 29, Petition, 40-42, but Grotmol fails to disclose or suggest several limitations of claim 29. Ex. 2007, ¶¶162-166. Because Grotmol fails to disclose or suggest such elements of claim 29, and because claim 30 depends from claim 29, Grotmol and Hoffman fail to disclose or suggest all of the limitations of claim 30. *Id.*

First, Grotmol fails to disclose or suggest “generating the new one or more digital pictures includes: detecting one or more objects in the first device's surrounding or the second device's surrounding,” as required by claim 29. Ex. 2007, ¶¶163-166. Grotmol discloses simply *capturing images (that happen to have some objects depicted therein) by a camera* and not the specifically recited detecting of objects, outside of or in addition to capturing the image, to then use the detected objects in generating the new image. *Id.* While Petitioner points to Grotmol's generic

disclosure of object detection and recognition, Petition, 40-42, and that images may generally comprise representations of objects, *id.*, object detection and recognition and object representations are not used to generate a new digital picture as required by claim 29. Ex. 2007, ¶¶163-166. The detected objects in claim 29 are separate entities from the new generated digital picture (as recited in claim 29) and are detected prior to the generating of the new digital picture in order to then be used to generate the new digital picture, whereas objects in Grotmol are depicted in and are a part of the image captured by a camera and are never detected to be used to generate the image. *Id.* Nothing in Grotmol discloses that the ***new digital picture is generated using the separate prior-detected objects*** recited in the first step of claim 29.

Grotmol also fails to disclose or suggest “generating the new one or more digital pictures includes: generating one or more representations of the one or more objects.” Ex. 2007, ¶¶164-166. “Generating one or more representations of the one or more objects” in claim 29 refers to the “one or more objects” detected in the prior step of “detecting one or more objects in the first device’s surrounding or the second device’s surrounding,” which Grotmol does not disclose as discussed above. Thus, Grotmol cannot and does not disclose generating one or more representations of the detected one or more objects that Grotmol has not disclosed. *Id.* Petitioner’s assertion that “autonomous operation of a robot may be based in part on recognized objects and their characteristics and that the images may include representations of

the objects detected in the device's surroundings," Petition, 42, talks about operation of a robot that may be based in part on recognized objects, not that a new digital picture is generated using detected objects and using generated representations of the detected objects as claimed in claim 29. Grotmol captures images by a camera but *never detects objects in those images in order to generate representations of the detected objects in order to then generate a new digital picture* as required by claim 29. Ex. 2007, ¶¶164-166.

Finally, Grotmol fails to disclose "generating the new one or more digital pictures includes: generating the new one or more digital pictures that include the one or more representations of the one or more objects." Ex. 2007, ¶¶165-166. "Generating the new one or more digital pictures that include the one or more representations of the one or more objects" refers to the "one or more representations of the one or more objects" generated in the prior step of "generating one or more representations of the one or more objects," which Grotmol does not disclose or suggest as discussed above. Thus, Grotmol cannot and does not disclose or suggest generating the new one or more digital pictures that include the one or more representations of the detected one or more objects that Grotmol has not disclosed or suggested. *Id.* Grotmol captures images by a camera but *never detects objects in those images in order to generate representations of the detected objects in order*

to then generate a new digital picture based on those representations of the detected objects as required by claim 29. *Id.*

Claim 29 requires a specific method for generating a new digital picture that is different than simply capturing images (that happen to have some objects depicted therein) by a camera. Ex. 2007, ¶¶165-166. First, an object is detected in the first device's or second device's surroundings through processing of information from one or more sensors including, in some embodiments, images from a camera. Next, also through processing, *a representation of the detected object is generated that is separate from the sensory information (i.e. original image, etc.) in which the object is detected* (note that detected objects and their generated representations are specifically recited as separate from the new digital picture being generated from them in claim 29). Finally, also through processing, the new digital picture is generated to include the representations of the detected objects. This is in contrast to Grotmol's disclosure of capturing an image by a camera that happens to have some objects depicted in the captured image. Nothing in Grotmol discloses or suggests a process of *detecting objects, generating representations of the detected objects, and then generating a new picture based on the representations of the detected objects*. *Id.* Grotmol fails to disclose or suggest all of the limitations of claim 29, and thus Petitioner's argument that Grotmol and Hoffman disclose or suggest claim 30 fails, because claim 30 depends from claim 29.

3. Claim 30: Grotmol and Hoffman Do Not Disclose or Suggest Detecting Locations and the New Digital Picture Including a Top-Down View of the One or More Representations of the One or More Objects

Claim 30 states in part:

wherein the detecting the one or more objects in the first device's surrounding or the second device's surrounding includes *detecting at least one or more locations of the one or more objects*, and wherein the *new one or more digital pictures include a top-down view of the one or more representations of the one or more objects*.

Exhibit 1001, Claim 30 (emphasis added).

Hoffman's user-controlled robot's incompatibility with Grotmol's autonomous robot, Petitioner's failure to provide a proper obviousness analysis for the Grotmol and Hoffman combination, and Petitioner's use of impermissible hindsight to arrive at the claimed invention, as discussed above in Section VI.C.1, confirms that the Grotmol-Hoffman combination fails and that Hoffman cannot be used to provide any missing elements in Grotmol to arrive at claim 30. Ex. 2007, ¶¶159-161.

In addition, Grotmol and Hoffman fail to disclose or suggest the claimed "detecting at least one or more locations of the one or more objects." Ex. 2007, ¶¶167-170. Petitioner contends that "Grotmol discloses detecting one or more objects in the first device's surrounding, which would include detecting the locations of the one or more objects," Petition, 42, as required by claim 30, but this contention

is wrong. None of the portions of Grotmol cited by Petitioner actually discloses that Grotmol's system detects the locations of one or more objects. Ex. 2007, ¶168. ***In fact, Grotmol's detecting of objects makes no mention of detecting the locations of those objects at all***, as Grotmol only discloses detecting objects but does not disclose detecting positions or locations of those objects. *Id.* Further, ***Petitioner never contends that Hoffman discloses this limitation***. Because Grotmol and Hoffman fail to disclose or suggest detecting locations of objects, Grotmol in view of Hoffman fails to disclose claim 30.

Grotmol and Hoffman next fail to disclose or suggest the claimed “new one or more digital pictures include a top-down view of the one or more representations of the one or more objects.” Ex. 2007, ¶¶169-170. Petitioner concedes that “Grotmol does not expressly disclose that the new one or more digital pictures include a top-down view of the one or more representations of the one or more objects,” Petition, 42-43, but then makes the unsupported assertion that “this would have been obvious in view of Hoffman's augmented map of a robot's surroundings” *Id.*, 43. ***The new digital picture in claim 30 is not a general picture that includes some objects like a map in Hoffman, but a picture generated by a picture generation process specifically defined in claim 29***. Ex. 2007, ¶¶169-170. Therefore, Hoffman's augmented map cannot be the claimed “new one or more digital pictures” because the map is not a picture generated by the picture generation process specifically

defined in claim 29. Ex. 2007, ¶¶169-170. The picture generation process of claim 29 specifically includes:

(i) detecting one or more objects in the first device's surrounding or the second device's surrounding;

(ii) generating one or more representations of the one or more objects;
and

(iii) generating the new one or more digital pictures that include the one or more representations of the one or more objects.

Ex. 1001, Claim 29. Hoffman must therefore disclose this picture generation process in order to disclose the new digital picture in claim 30 that is the result of this process and that includes “a top-down view of the one or more representations of the one or more objects.” Ex. 2007, ¶¶169-170. *But no such picture generation process is even contemplated in Grotmol (as discussed above) and Hoffman at all to enable generation of the claimed new digital picture. Id.* Thus, Grotmol in view of Hoffman fails to disclose or suggest claim 30.

VII. PETITIONER'S OBVIOUSNESS ANALYSIS IN GROUNDS 1 AND 2 IS FAULTY

Grounds 1 and 2, which the Petition characterizes as obviousness grounds under 35 U.S.C. § 103 (Petition, 4), lack the required obviousness analysis—which 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”). In Grounds 1 and 2 of the Petition, there is no articulated reasoning regarding what specific elements of claims 10, 11, 25 and 27 Grotmol (the basis for single-reference obviousness in Ground 1, and the base reference for Ground 2) does not disclose. Consequently, the Petition’s analysis for Grounds 1 and 2 is deficient with respect to those claims. In addition, Petitioner and its expert attempt to have their cake and eat it too, purportedly pursuing obviousness grounds for claims 10, 11, 25 and 27 (and no anticipation grounds for these claims) even though Petitioner’s expert testified at his deposition that Grotmol itself discloses all the elements of Claims 10, 11, 25 and 27 and even though the Petitioner does not clearly explain what aspects of those claims are not disclosed in Grotmol such that obviousness would be invoked. The Board should not permit Petitioner to somehow change Grounds 1 and 2 to anticipation grounds in a manner that deprives Patent Owner of notice under the Administrative Procedure Act (APA), 5 U.S.C. §§ 551-559.

A. Ground 1

As discussed above with respect to Claim 10 and 11 and Ground 1, Petitioner has failed to perform a proper obviousness analysis because Petitioner has failed to identify anything in the claims that Grotmol lacks disclosure of for Ground 1. 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 Grotmol. Petition, 12-27. Further, at his deposition, Dr. Janet admitted that he did not believe Grotmol failed to disclose any limitations of claims 10 and 11. Ex. 2008, 54:22-55:3, 59:23-60:2. This testimony confirms that Petitioner and Dr. Janet have failed to perform a proper obviousness analysis because they failed to identify the missing features of Grotmol and consequently how it would have been obvious to use the knowledge of a POSA to fill those gaps. Thus, Petitioner cannot prevail on obviousness.

Petitioner also cannot prevail on anticipation for claims 10 and 11. Ground 1 is not an anticipation ground, and the Board cannot deviate from the Petition, because “it is the petition . . . that defines the metes and bounds of an inter partes review.” *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1336 (Fed. Cir. 2020) (citing *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018)); *see also Koninklijke*, 948 F.3d at 1336 (“[T]he Board does not ‘enjoy[] a license to depart from the petition and institute a different inter partes review of his own design.’”). The present situation is akin to *Koninklijke*, where Google’s petition did not advance an argument of unpatentability based on a certain ground and the Federal Circuit held the Board improperly instituted IPR based on that ground. Here, Petitioner has

not advanced a ground of anticipation by Grotmol for claims 10 and 11 and Ground 1 and thus the Board cannot find anticipation by Grotmol for that claim.

As explained above, the Petition cannot be the basis for finding claims 10 and 11 unpatentable under either obviousness or anticipation. That legal limbo is entirely of Petitioner's own making, because Petitioner had the opportunity to draft its Petition however it wanted and yet opted to proceed with obviousness grounds for claims 10 and 11 that lack proper obviousness analysis. "The burden is on Petitioner, not the Board, to specify with particularity how [the prior art] teaches [various claimed features]." *Amazon Web Services, Inc.*, IPR2019-00103, Paper No. 22 at 17.

The futility of the Petition for claims 10 and 11 under both obviousness and anticipation is not some hyperliteral technicality that the Board may overlook, but rather goes to the heart of the procedural requirements imposed on the Board by the APA. Indeed, in another IPR much like the present one, the Federal Circuit held that the Board "deviated impermissibly from the invalidity theory set forth in [the petitioner's] petition when it held that [a certain claim] was anticipated by [a certain prior art reference]" that was not specified as an anticipatory reference in a ground of that IPR. *M&K Holdings, Inc. v. Samsung Elecs. Co.*, 985 F.3d 1376, 1385 (Fed. Cir. 2021). The Court explained that the underlying concern in its decision was that if the Board "departed markedly from the evidence and theories presented by the petition or institution decision, [that would] creat[e] unfair surprise." *Id.* at 1384.

Here, Patent Owner relied upon the Petition to craft its strategy (e.g., regarding deposing Petitioner's expert, preparing this Response, etc.), and a finding of anticipation by the Board (even if the Board characterizes it as obviousness, like in *M&K Holdings*) would constitute unfair surprise that impermissibly deprives Patent Owner of notice under the APA.

In sum, Petitioner could have drafted its Petition more clearly to include an anticipation ground for claims 10 and 11, or to include actual obviousness analysis instead of isolated, conclusory statements, but failed to do so. This failure dooms Petitioner's arguments regarding Ground 1.

B. Ground 2

Petitioner has similarly failed to provide proper obviousness analysis for Ground 2 and cannot rely on anticipation arguments for this ground as well. As discussed above in Section VI.B with respect to Claims 25 and 27 and Ground 2, Petitioner has failed to identify anything missing in the primary reference 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 limitation(s) of claims 25 and 27 not disclosed by Grotmol, the primary reference of the obviousness combination. Petition, 27-37. Further, at his deposition, Dr. Janet admitted that he did not believe Grotmol failed to disclose any limitations of claims 25 or 27. Ex. 2008, 64:20-65:8, 75:3-13. This testimony

confirms that Petitioner and Dr. Janet have failed to perform a proper obviousness analysis because they failed to identify the claimed features not taught by Grotmol and how/why it would have been obvious in view of Hickman to implement such features.

Petitioner also cannot prevail on anticipation for claims 25 and 27 for similar reasons as discussed above in Section VII.A regarding claims 10 and 11. Ground 2 is not an anticipation ground, and the Board cannot deviate from the Petition, because “it is the petition . . . that defines the metes and bounds of an inter partes review.” *Koninklijke*, 948 F.3d 1330, 1336. Here, Petitioner has not advanced a ground of anticipation by Grotmol for claims 25 and 27 and thus the Board cannot find anticipation by Grotmol for those claims. Indeed, a finding of anticipation by the Board (even if the Board characterizes it as obviousness, like in *M&K Holdings*) would constitute unfair surprise that impermissibly deprives Patent Owner of notice under the APA, for the reasons discussed above in Section VII.A.

In sum, Petitioner could have drafted its Petition more clearly to include an anticipation ground for claims 25 and 27, or to include actual obviousness analysis instead of isolated, conclusory statements, but failed to do so. This failure dooms Petitioner’s arguments regarding Ground 2.

VIII. 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 15, 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 11,090 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 15, 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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