

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, LLC,
Patent Owner

Case: IPR2024-00745
U.S. Patent No. 11,663,474

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE '474 PATENT	1
III.	PERSON OF ORDINARY SKILL IN THE ART	4
IV.	ALLEGED PRIOR ART	4
A.	BUIBAS (EX-1005)	4
B.	GROTMOL (EX-1008)	5
C.	SINYAVSKIY (EX-1006)	7
D.	VERSACE (EX-1007)	7
E.	MCCLURE (EX-1009)	8
V.	CLAIM CONSTRUCTION	8
VI.	PETITIONER HAS NOT ESTABLISHED A REASONABLE LIKELIHOOD THAT THE CITED PRIOR ART RENDERS THE CHALLENGED CLAIMS UNPATENTABLE	9
A.	Ground 1A Fails	9
1.	Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed Circumstance Representation and One or More Inputs for Inputting At Least a Portion of a Circumstance Representation.....	10
2.	Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed First Device Comprising a Knowledgebase Including One or More Inputs Correlated with One or More Instruction Sets for Operating a Second Device.....	13

3.	Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed Determining the One or More Instruction Sets for Operating the Second Device Using a Correlation Between Inputs and the One or More Instruction Sets for Operating the Second Device.....	16
4.	Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest Executing the Instruction Sets for Operating the Second Device and the First Device Performing the Operations Defined by the Instruction Sets for Operating the Second Device.....	18
5.	Claim 45: Petitioner Has Failed to Perform a Proper Obviousness Analysis Regarding Buibas and Sinyavskiy	19
6.	Claims 46-47, 51, 56-57, 59, 68-69	20
B.	Ground 1B Fails	21
C.	Ground 2A Fails	21
1.	Claim 45: Grotmol Does Not Disclose the Claimed First Device Comprising: Knowledgebase That Includes One or More Inputs for Inputting at Least a Portion of a Circumstance Representation, Wherein the One Or More Inputs are Correlated With One Or More Instruction Sets for Operating a Second Device	22
2.	Claim 45: Grotmol Does Not Disclose the Claimed Determining, Executing, and Autonomously Performing Operations	24
3.	Claims 46-47, 51, 59, 68-69.....	26
D.	Ground 2B Fails	26
E.	Ground 2C Fails	27
1.	Claim 45: Grotmol and Buibas Do Not Disclose or Suggest the Claimed Knowledgebase, Determining, Executing, and Autonomously Performing Operations.....	27

2.	Claims 46-47, 51, 56-57, 59, and 68-69	28
F.	Ground 2D Fails	29
VII.	CONCLUSION.....	29

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Amazon Web Servs., Inc. v. Saint Regis Mohawk Tribe</i> , IPR2019-00103, Paper No. 22 (P.T.A.B. May 10, 2019)	11
<i>DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.</i> , 469 F.3d 1005 (Fed. Cir. 2006)	9
<i>Graham v. John Deere Co. of Kan. City</i> , 383 U.S. 1 (1966).....	20
<i>In re Kahn</i> , 441 F.3d 977 (Fed. Cir. 2006)	19
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	8, 9
<i>Toyota Motor Corp. v. Cellport Sys., Inc.</i> , IPR2015-00633, Paper No. 11 (P.T.A.B. Aug. 14, 2015).....	9
Statutes	
35 U.S.C. § 103	19
35 U.S.C. § 313	1
Other Authorities	
37 C.F.R. § 42.107	1
37 C.F.R. § 100(b) (2019).....	8

I. INTRODUCTION

Autonomous Devices, LLC (“Patent Owner” or “Autonomous Devices”) submits this Preliminary Response in accordance with 35 U.S.C. § 313 and 37 C.F.R. § 42.107, responding to the Petition for *Inter Partes* Review (“Petition”) of U.S. Patent No. 11,663,474 (“the ’474 Patent”) filed by Tesla, Inc. (“Petitioner” or “Tesla”).

The Petition challenges claims 45-47, 51, 56-57, 59-60 and 68-69 of the ’474 Patent with six grounds that rely primarily on U.S. Patent Application Publication No. 2014/0089232 (“Buibas”) (Ex-1005), U.S. Patent Application Publication No. 2013/0325786 (“Sinavskiy”) (Ex-1006), U.S. Patent Application Publication No. 2017/0024877 (“Versace”) (Ex-1007), U.S. Patent No. 9,604,359 (“Grotmol”) (Ex-1008), and U.S. Patent No. 5,219,264 (“McClure”) (Ex-1009). The Petition’s arguments regarding claims 45-47, 51, 56-57, 59-60 and 68-69 (“Challenged Claims”) are sparse and lack support. The Board should deny institution due to deficiencies in the Petition’s analysis of the prior art relied upon in the grounds.

II. THE ’474 PATENT

The ’474 patent, titled “Artificially intelligent systems, devices, and methods for learning and/or using a device’s circumstances for autonomous device operation,” discloses systems and methods for learning and using a device’s circumstances for autonomous device operation. Ex-1001, Abstract, 1:58-64. The

'474 patent discloses systems and methods for autonomous driving by learning and using a device's circumstances including detecting objects with various properties along with correlated instruction sets for operating the device in various circumstances. *Id.*, 67:19-60, claim 45.

Prior to the innovations described in the '474 patent, "[c]ommonly employed device or system operating techniques lack[ed] a way to learn [the] operation of a device or system and enable autonomous operation of a device or system." *Id.*, 1:51-54. The '474 patent solved this problem by utilizing a sophisticated system for learning the scenarios encountered by a device and distilling those scenarios into a set of circumstances (which may include one or more objects) and then using correlated instructions that can be efficiently performed autonomously. *Id.*, 67:19-60, claim 45.

Referring to Figure 38 (shown below) and the specification's description of Figure 38, for example, vehicle 98a includes sensors 92, such as a camera 92a, that capture the vehicle's 98a's surrounding. *Id.*, 162:58-164:15, Fig. 38, claim 45. The vehicle's computer(s) process the output from the sensors 92 to form a circumstance representation that includes object representations 625 representing objects 615aa-ad (people, boulders, materials, vehicles, etc.) in the vehicle's surrounding. *Id.*, Fig. 38. If a vehicle's computer(s) detect a match with a previously learned circumstance representation, the vehicle 98a performs autonomous operation using previously

learned instructions 526 correlated with the previously learned circumstance representations. *Id.*, 162:58-164:15, Fig. 38, claim 45.

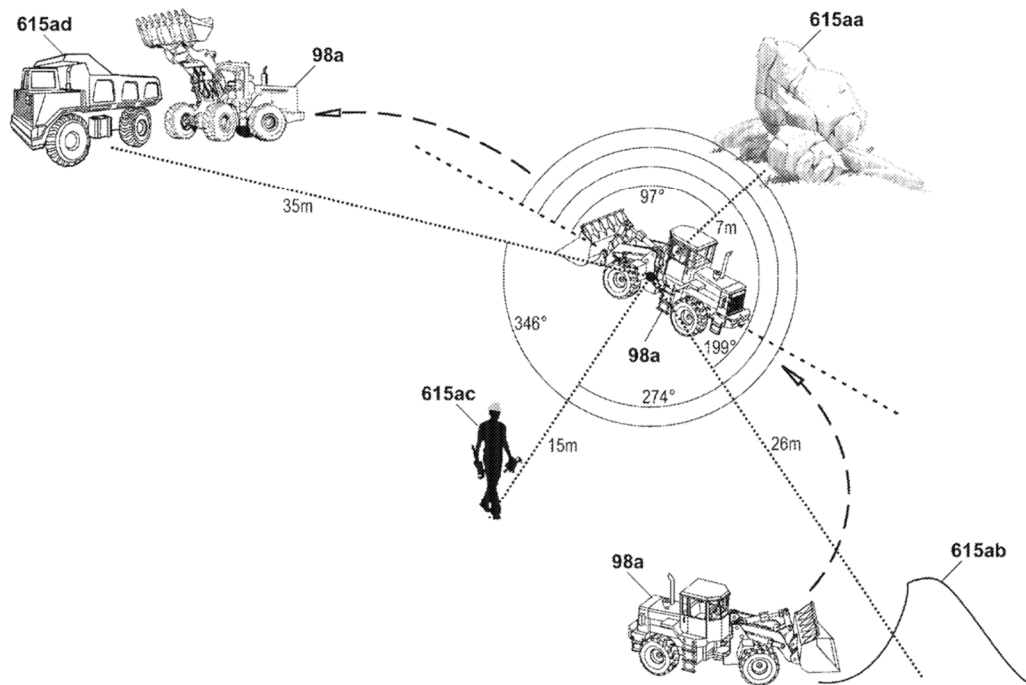


FIG. 38

Ex-1001, Fig. 38.

The '474 patent describes and claims methods and systems implementing its innovative techniques for autonomous operation. For example, one such method is claimed in claim 45. Claim 45 is directed to a first device with a knowledgebase that includes one or more inputs for inputting at least a portion of a circumstance representation, wherein the one or more inputs are correlated with one or more

instruction sets for operating a second device. This claim uses correlations between inputs and instruction sets to achieve autonomous operation. The claim contains numerous limitations that the Petition has not established are disclosed, suggested or rendered obvious by the cited references.

III. PERSON OF ORDINARY SKILL IN THE ART

For purposes of this stage of the proceeding only, Patent Owner adopts Petitioner's definition of a person of ordinary skill in the art (POSA). Petition, 7.

IV. ALLEGED PRIOR ART

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

A. BUIBAS (EX-1005)

Buibas is titled "Neural Network Learning and Collaboration Apparatus and Methods" and discloses an "[a]pparatus and methods for learning and training in neural network-based devices." Ex-1005, Abstract. Buibas discloses a "robotic brain" that "may comprise one or more neural networks." *Id.*, ¶[0079]. Figure 10 of Buibas, shown below, discloses that a processing apparatus 1000 receives sensor input 1020. *Id.*, ¶[0136]. This input is transformed into an encoded signal 1026, which is sent to detectors 1002_n, which are used for object detection. *Id.*, ¶¶[0137]-[0139].

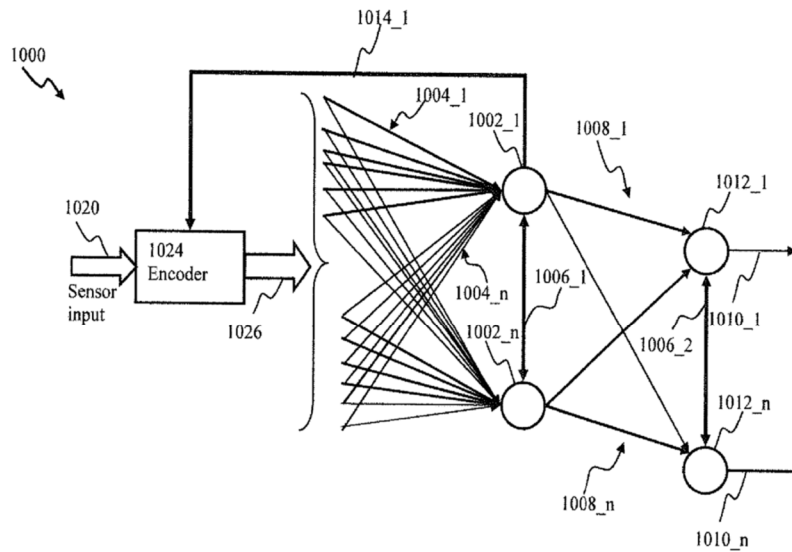


FIG. 10

Ex-1005, Fig. 10.

B. GROTMOL (EX-1008)

Grotmol discloses a 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-1008, 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. 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.” *Id.* 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.

Figure 1 from Grotmol, shown below, discloses that robot 160 includes sensor 166. *Id.*, 8:57-61. Sensor 166 provides “information associated with objects within the field-of-view 168.” *Id.*, 8:64-66. Grotmol discloses that its device also includes a memory that stores “training sets,” which may include “an instance of the video frame, an instance of the binary signal, and an instance of a motor control indication configured to cause the robot to execute an action.” *Id.*, 3:35-39. Further, the adaptive controller included in the robot disclosed in Grotmol is not a knowledgebase because the controller itself must be loaded with information, or a trained configuration. *Id.*, 33:21-33.

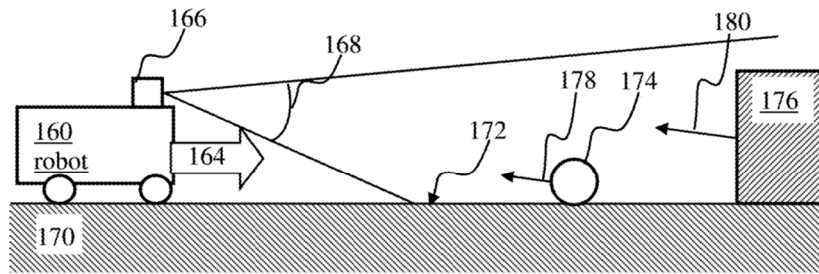


FIG. 1

Ex-1008, Fig. 1.

C. SINYAVSKIY (EX-1006)

Sinyavskiy is titled “Stochastic Spiking Network Learning Apparatus and Methods” and discloses a “framework” to “enable [an] adaptive spiking neuron signal processing system to flexibly combine different learning rules.” Ex-1006, Abstract. Sinyavskiy discloses “spiking” neural networks that can be trained to control the operation of robotic devices. Ex-1006, ¶¶[0185]-[0188]. The neural network 600 disclosed by Sinyavskiy in Figure 6 “may comprise several partitions 610, 620, 630, comprising one or more of nodes 602 receiving inputs 612 {X} via connections 604, and providing outputs via connections 608.” *Id.*, ¶[0185].

D. VERSACE (EX-1007)

Versace is titled “Methods and Apparatus for Autonomous Robotic Control” and relates to “fus[ing] multi-sensory information to identify nearby objects of interest more quickly.” Ex-1007, Abstract. Versace discloses a system that provides “a unified mechanism for identifying, learning, localizing, and tracking objects in an

arbitrary sensory system, including data streams derived from” different sensors. Ex-1007, ¶[0030].

E. MCCLURE (EX-1009)

McClure relates to a “mobile robot or automatic guided vehicle having a multijointed robot arm.” Ex-1009, Abstract. “The robot arm has a gripper and charge coupled device camera mounted at the free end of the arm. The gripper is for engaging, holding and releasing workpieces. The robot arm transfers workpieces to and from process machines or storage areas. The robot arm finds the workpiece or the place to set it down by looking at two light emitting diodes placed a known distance and orientation away from the workpiece or set down place. The robot arm and camera are controlled by a computer on board the vehicle.” *Id.*

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 Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (P.T.A.B. Aug. 14, 2015).

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. PETITIONER HAS NOT ESTABLISHED A REASONABLE LIKELIHOOD THAT THE CITED PRIOR ART RENDERS THE CHALLENGED CLAIMS UNPATENTABLE

A. Ground 1A Fails

Regarding Ground 1A, Petitioner fails to show that Buibas in view of Sinyavskiy renders obvious claims 45-47, 51, 56-57, 59, and 68-69 of the '474 patent. Petitioner fails to show that Buibas and Sinyavskiy disclose or suggest multiple limitations in independent claim 45, from which the other claims ultimately depend. Further, Petitioner has failed to perform a proper obviousness analysis with respect to claim 45. As a result, Ground 1A fails.

1. Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed Circumstance Representation and One or More Inputs for Inputting At Least a Portion of a Circumstance Representation

Claim 45 requires a first device comprising:

a knowledgebase that includes *one or more inputs for inputting at least a portion of a circumstance representation*, wherein the one or more inputs are correlated with one or more instruction sets for operating a second device.

Ex-1001, Claim 45 (emphasis added).

Buibas and Sinyavskiy fail to disclose or suggest “one or more inputs for inputting at least a portion of a circumstance representation” as required by claim 45. While the Petition is unclear, Petitioner appears to contend that the “encoded sensory signals and information about the environment” disclosed in Buibas are the claimed “at least a portion of a circumstance representation.” Petition, 21. Petitioner also maps Buibas’s “data” to the claimed at least a portion of a circumstance representation. Petition, 21 n.4. ***But Petitioner has not explained at all how these signals, information, and data are circumstance representations.***

Petitioner’s expert, Dr. Janet, also vaguely points to the “encoded sensory signals and information” received by the brain image in Buibas but ***fails to explain how*** these encoded sensory signals and information are at least a portion of a circumstance representation, as required by claim 45. Ex-1003, ¶73. And Dr.

Janet's contention that the "encoded sensory signals and information" are received by the brain image in Buibas is wrong since Buibas, throughout its disclosure, clearly defines a brain image as a collection of weights as in "the brain image 1404 may comprise the network weights so that the download effectuates the weight configuration of the computerized neuromorphic apparatus network." Ex-1005, ¶[0183], and in "[t]he training menu may be used to load active 'brain images' (e.g., synaptic weight data configurations or profiles) onto the neuromorphic apparatus." *Id.*, ¶[0179]. Thus, ***a brain image in Buibas is a collection of weights that inherently and by Buibas's explicit disclosure do not receive any input***, much less Petitioner's and Dr. Janet's asserted "encoded sensory signals and information." Further, Dr. Janet later appears to map "data" received by an interface of the knowledgebase to the claimed "at least a portion of a circumstance representation," Ex-1003, ¶73 n.6, but Dr. Janet again fails to explain ***how*** data can be the claimed circumstance representation. The Board and PO are not expected to divine the meaning and fill analysis gaps for Petitioner. "The burden is on Petitioner, not the Board, to specify with particularity how [the prior art] teaches [various claimed features]." *Amazon Web Servs., Inc. v. Saint Regis Mohawk Tribe*, IPR2019-00103, Paper No. 22 at 17 (P.T.A.B. May 10, 2019). Tesla's and Dr. Janet's failure to properly map disclosure from Buibas to the claimed "at least a portion of a circumstance representation" dooms their arguments.

Because Petitioner has failed to show how Buibas discloses at least a portion of a circumstance representation, Petitioner has also failed to show how Buibas discloses one or more inputs for inputting the “at least a portion of a circumstance representation.” Petitioner contends that the “brain image” in Buibas “includes an ‘interface’ or ‘connections’ (one or more inputs) that allow the brain image to receive encoded sensory signals and information about the environment.” Petition, 21. While Buibas does disclose an “input interface configured to receive an input sensory signal,” Ex-1005, ¶[0073], ***Petitioner has not explained, and Buibas does not disclose, how that input sensory signal is the claimed circumstance representation.*** And, as discussed above, a brain image in Buibas is ***a collection of weights*** that inherently and by Buibas’s explicit definition ***does not include any interface or connections***, much less Petitioner’s asserted “an ‘interface’ or ‘connections’ (one or more inputs) that allow the brain image to receive encoded sensory signals and information about the environment.” Petition, 21. As a result, Petitioner has failed to show how Buibas discloses the claimed one or more inputs for inputting at least a portion of a circumstance representation.

2. Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed First Device Comprising a Knowledgebase Including One or More Inputs Correlated with One or More Instruction Sets for Operating a Second Device

Claim 45 requires a *first device comprising*:

a knowledgebase that includes one or more inputs for inputting at least a portion of a circumstance representation, *wherein the one or more inputs are correlated with one or more instruction sets for operating a second device.*

Ex-1001, Claim 45 (emphasis added).

Buibas and Sinyavskiy do not disclose or suggest the claimed first device comprising a knowledgebase including inputs correlated with instruction sets for operating a second device. Buibas’s “brain image” that Petitioner maps to this claimed element, Petition, 17-23, *is a collection of weights, that inherently and by Buibas’s explicit disclosure does not include any inputs, any instruction sets*, or anything other than weights. Ex-1005, ¶¶[0089]-[0090], [0123], [0179], [0183]. Buibas discloses loading this collection of weights (brain image) from one robot to another robot and never discloses instruction sets for operating another robot *since the brain image does not include any instruction sets*. As a result, Buibas fails to disclose or suggest the claimed first device comprising a knowledgebase including inputs correlated with instruction sets for operating a second device.

Petitioner's statement that "according to Buibas, the 'brain image' for a particular task/behavior is configured, when executed, to issue 'commands,'" Petition, 23, is Petitioner's own words, is conclusory, is unsupported by Buibas's disclosure, and says nothing about the claimed instruction sets for operating a second device. Petitioner is wrong even in its own manufactured statement since Buibas discloses that brain images are "*synaptic weight data* configurations or profiles." Ex-1005, ¶[0179] (note that Buibas also uses different labels for brain images, including "efficacy vector," *id.*, ¶[0089], and "weight vector," *id.*, ¶[0090]). Thus, Buibas specifically discloses that its brain image is a collection of weights, not anything that includes any inputs or any instruction sets, let alone the claimed inputs correlated with instruction sets for operating a second device.

Buibas includes plentiful evidence of what a brain image is. For example, Buibas explains that "the network weight configuration [or brain image] of a single 'trained' apparatus is downloaded into other (untrained) devices." Ex-1005, ¶[0090]. Buibas also discloses that "the target configuration may comprise network weights downloaded into the target robotic device. In some implementations, the target configuration may comprise network weights vector stored within the cloud server and available for subsequent downloads to one or more robotic devices." *Id.*, ¶[0123]. Even further, Buibas discloses that "[a]n authenticated user connecting through a user interface device 1202 connects to the cloud server, and identifies a

brain image 1404 to be loaded onto the computerized neuromorphic apparatus 1150.” *Id.*, ¶[0183]. The other robot then “downloads the selected brain image, and set its synaptic weights appropriately.” *Id.* The brain image comprises “the network weights so that the download effectuates the weight configuration of the computerized neuromorphic apparatus network.” *Id.* Thus, Buibas discloses that what is loaded from an originating robot into a receiving robot is the weights of the brain image that does not even contemplate any instruction sets, and especially not instruction sets for operating a second device, or anything else for that matter.

Finally, Petitioner’s argument that “the inputs (one or more inputs) of partition 630 (knowledgebase) are correlated with the outputted motor control commands” in Sinyavskiy, Petition, 26, is Petitioner’s own words, is conclusory, is unsupported by Sinyavskiy, and says nothing about instruction sets for operating a second device. Sinyavskiy only disclose neurons providing spiking output, Ex-1006, ¶[0186], and *never mentions or even contemplates instruction sets for operating a second device*. Thus, nothing in Sinyavskiy discloses or suggests the claimed first device comprising a knowledgebase including inputs correlated with instruction sets for operating a second device.

As a result, Buibas discloses loading a collection of weights (brain image) from one robot to another robot that does not even contemplate instruction sets for operating another robot since *the brain image does not include any instruction sets*.

And Sinyavskiy *does not even mention instruction sets for operating a second device comprised in a first device*. Therefore, Buibas-Sinyavskiy fails to disclose the claimed “first device comprising: ... a knowledgebase including the one or more inputs are correlated with one or more instruction sets for operating a second device.”

3. Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest the Claimed Determining the One or More Instruction Sets for Operating the Second Device Using a Correlation Between Inputs and the One or More Instruction Sets for Operating the Second Device

Claim 45 requires:

*determining the one or more instruction sets for operating the second device at least by: inputting at least a portion of the generated circumstance representation into the one or more inputs, and **using a correlation between the one or more inputs and the one or more instruction sets for operating the second device**.*

Ex-1001, Claim 45 (emphasis added).

Buibas and Sinyavskiy fail to disclose or suggest “determining the one or more instruction sets for operating the second device at least by . . . using a correlation between the one or more inputs and the one or more instruction sets for operating the second device” as required by claim 45. As discussed above, Buibas discloses sharing weights or brain images among robots that has no relevance to the claimed instruction sets for operating the second device. And nothing in Sinyavskiy

even contemplates the claimed instruction sets for operating the second device. Since the references do not disclose or suggest the claimed instruction sets for operating a second device, the references cannot and do not disclose or suggest determining the instruction sets for operating the second device by using a correlation between the inputs and the instruction sets for operating the second device.

Petitioner contends that “[i]n the Buibas-Sinyavskiy combination, the encoded sensory signal is predictably provided to the input interface/connections (one or more inputs) of an individual partition of the brain (knowledgebase) configured to produce control outputs (e.g., motor commands) (one or more instruction sets) for a particular task or behavior of the robot.” Petition, 34. This statement is Petitioner’s own words, is conclusory, and is unsupported by either reference. And Petitioner’s own manufactured statement still ***does not say anything about the claimed instruction sets for operating a second device***, nor can it, since Buibas and Sinyavskiy never disclose instruction sets for operating a second device, as discussed above.

Petitioner also cites its previous discussion regarding claim limitation 45.1 and contends that Buibas’s system “uses this correlation to determine one or more commands (one or more instruction sets) appropriate to carry out that particular task or behavior.” Petition, 35, and Petitioner also argues that “[w]hen the robot (first

device) operates autonomously to perform a particular task or behavior implemented by the partition, it uses this correlation to determine one or more commands (one or more instruction sets) appropriate to carry out that particular task or behavior in view of the inputted encoded sensory signal.” Petition, 36. Again, these statements do not mention anything about the claimed instruction sets for operating a second device. And as previously mentioned, Buibas discloses using weights or weight vectors and does not disclose instruction sets for operating a second device. ***Petitioner ignored the “instruction sets for operating a second device” limitation*** of claim 45, which is a fatal flaw for Petitioner’s argument for the entire claim 45. Thus, Buibas and Sinyavskiy fail to disclose or suggest “determining the one or more instruction sets for operating the second device at least by . . . using a correlation between the one or more inputs and the one or more instruction sets for operating the second device” as required by claim 45.

4. Claim 45: Buibas and Sinyavskiy Do Not Disclose or Suggest Executing the Instruction Sets for Operating the Second Device and the First Device Performing the Operations Defined by the Instruction Sets for Operating the Second Device

Claim 45 requires:

at least in response to the determining, executing the one or more instruction sets for operating the second device, wherein the first device autonomously performs one or more operations defined

by the one or more instruction sets for operating the second device.

Ex-1001, Claim 45.

Since Buibas and Sinyavskiy do not disclose or suggest the claimed “determining the one or more instruction sets for operating the second device,” Buibas and Sinyavskiy cannot and do not disclose “at least in response to the determining, executing the one or more instruction sets for operating the second device,” and “the first device autonomously performs one or more operations defined by the one or more instruction sets for operating the second device” because the executing is performed “in response to the determining” and the “operations are defined” by the instruction sets for operating the second device.

5. Claim 45: Petitioner Has Failed to Perform a Proper Obviousness Analysis Regarding Buibas and Sinyavskiy

Ground 1A, which the Petition characterizes as an obviousness ground under 35 U.S.C. § 103 (Petition, 1), lacks 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]jections 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 Ground 1A, there is no articulated reasoning regarding what specific elements of claim 45 Buibas (the

base reference for Ground 1A) does not disclose. Consequently, the Petition's analysis with respect to that claim is deficient.

Petitioner has failed to perform a proper obviousness analysis because Petitioner has failed to identify anything in the claims that Buibas lacks disclosure of for Ground 1A. A proper obviousness analysis requires ascertaining the "differences between the prior art and the claims at issue." *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17-18 (1966). The Petition fails to specifically identify any claimed features that are not disclosed in Buibas and how Sinyavskiy discloses the missing claim elements. Petition, 12-38. Thus, Petitioner cannot prevail on this ground because it has failed to perform a proper obviousness analysis.

Additionally, Petitioner has not presented any rationale to combine or modify the references and has not presented a reasonable expectation of success, which further dooms the alleged combination of the references.

6. Claims 46-47, 51, 56-57, 59, 68-69

Regarding Ground 1A, Petitioner fails to show that Buibas in view of Sinyavskiy renders claim 45 of the '474 patent obvious as discussed above. Petitioner fails to show that the references disclose or suggest numerous features of claim 45 and Petitioner has failed to perform a proper obviousness analysis using the references. Because claims 46-47, 51, 56-57, 59, 68-69 depend from claim 45 or from a claim that ultimately depends from claim 45, Petitioner has failed to show

that the references disclose or suggest all of the limitations of claims 46-47, 51, 56-57, 59, 68-69 and has failed to perform a proper obviousness analysis, and thus those claims are not obvious over Buibas in view of Sinyavskiy.

B. Ground 1B Fails

Regarding Ground 1B, Petitioner fails to show that Buibas in view of Sinyavskiy renders claim 45 of the '474 patent obvious. Petitioner fails to show that the references disclose the claimed circumstance representation and several other limitations required by claim 45. Further, Petitioner has failed to perform a proper obviousness analysis for claim 45, as discussed above. Because claim 60 ultimately depends from claim 45, Petitioner has failed to show that the references disclose or suggest all of the limitations of claim 60, and thus that claim is not obvious over Buibas in view of Sinyavskiy and Versace.

C. Ground 2A Fails

Regarding Ground 2A, Petitioner fails to show that Grotmol discloses claims 45-47, 51, 59, and 68-69. Petitioner fails to show that Grotmol discloses several claim limitations of claim 45. Because the reference fails to disclose these limitations, and because claims 46-47, 51, 59, and 68-59 ultimately depend on claim 45, Ground 2A fails.

1. Claim 45: Grotmol Does Not Disclose the Claimed First Device Comprising: Knowledgebase That Includes One or More Inputs for Inputting at Least a Portion of a Circumstance Representation, Wherein the One Or More Inputs are Correlated With One Or More Instruction Sets for Operating a Second Device

Claim 45 requires, among other things, a first device comprising:
a knowledgebase that includes one or more inputs for inputting
at least a portion of a circumstance representation,
wherein the one or more inputs are correlated with one or more
instruction sets for operating a second device.

Ex-1001, Claim 45.

Grotmol fails to disclose “a first device comprising: a knowledgebase that includes one or more inputs for inputting at least a portion of a circumstance representation, wherein the one or more inputs are correlated with one or more instruction sets for operating a second device.”¹ Petitioner contends that Grotmol’s

¹ Petitioner maps the “sensory input” disclosed in Grotmol’s Figure 10B to the claimed circumstance representation in some Petition sections and maps the “extracted features” extracted by the “feature extractors” in Grotmol’s Figure 10B to the claimed circumstance representation in other Petition sections. Petition, 56-57. Petitioner’s mapping on this element is unclear in the Petition, and thus Petitioner has failed in its analysis of this element.

adaptive controller is the claimed knowledgebase, Petition, 56. But Grotmol discloses nothing about *the adaptive controller on a robot having any instruction sets for operating another robot* (i.e., “instruction sets for operating a second device” in claim 45). Further, the adaptive controller in Grotmol that Petitioner relies on (Petition, 56-57) *is never loaded from one robot to another robot to ever enable the first device to comprise instruction sets for operating a second device*, as required by claim 45.

Grotmol’s disclosure that “[a] saved configuration may be loaded into the robot . . . the trained configuration may be loaded to one or more other robots in order to provide learned behaviors,” Ex-1008, 33:27-32, confirms that the saved/trained configuration is a distinct entity from the adaptive controller. This disclosure in Grotmol specifically refers to *loading a trained configuration into another robot, not loading an adaptive controller into another robot nor even loading a trained configuration into an adaptive controller on another robot*. Petitioner has not mapped Grotmol’s “robot” or “trained configuration” to the knowledgebase in claim 45, but has mapped Grotmol’s “adaptive controller” to the claimed knowledgebase, and the adaptive controller is never loaded from one robot into another robot in Grotmol. Thus, Grotmol’s discussion of loading a trained configuration into a robot is irrelevant under Petitioner’s mapping and Petitioner fails in its contention that the adaptive controller in Grotmol is the knowledgebase

comprised in the first device that includes instruction sets for operating a second device, as required by claim 45.

Petitioner's next argument that Grotmol's RKNN classifier table is the claimed knowledgebase also fails. Petition, 57-60. The RKNN classifier table discussed in Grotmol is a collection of data in a memory. Ex-1008, 29:12-60, Figs. 14, 15. Like any collection of data, *the RKNN classifier table does not have inputs* and thus the table cannot be the claimed knowledgebase that specifically includes inputs.

In sum, the adaptive controller in one robot in Grotmol that Petitioner maps onto the knowledgebase in claim 45 does not have any instruction sets for operating another robot since *Grotmol never discloses that the adaptive controller is loaded from one robot to another robot to ever enable the first device to comprise a knowledgebase that includes instruction sets for operating a second device*, as required by claim 45.

2. Claim 45: Grotmol Does Not Disclose the Claimed Determining, Executing, and Autonomously Performing Operations

Claim 45 also requires:

determining the one or more instruction sets for operating the second device at least by: inputting at least a portion of the generated circumstance representation into the one or more inputs, and using a

correlation between the one or more inputs and *the one or more instruction sets for operating the second device*; and

at least in response to the determining, *executing the one or more instruction sets for operating the second device*, wherein the first device autonomously performs one or more operations defined by *the one or more instruction sets for operating the second device*.

Ex-1001, Claim 45 (emphasis added).

Grotmol fails to disclose “determining the one or more instruction sets for operating the second device at least by: inputting at least a portion of the generated circumstance representation into the one or more inputs, and using a correlation between the one or more inputs and the one or more instruction sets for operating the second device” as required by claim 45. Since Grotmol fails to disclose the claimed “knowledgebase” that includes “one or more instruction sets for operating the second device,” as discussed above, Grotmol cannot and does not disclose the claimed “determining the one or more instruction sets for operating the second device,” as required by claim 45.

Additionally, since Grotmol fails to disclose the claimed “determining the one or more instruction sets for operating the second device,” as discussed above, Grotmol cannot and does not disclose the claimed “executing the one or more instruction sets for operating the second device” and “the first device autonomously performs one or more operations defined by the one or more instruction sets for

operating the second device” because the executing is performed “in response to the determining” and the “operations are defined” by the instruction sets for operating the second device.

3. Claims 46-47, 51, 59, 68-69

Regarding Ground 2A, Petitioner fails to show that Grotmol discloses claim 45 of the '474 patent as discussed above. Petitioner fails to show that the reference discloses the claimed knowledgebase and several other limitations required by claim 45. Because claims 46-47, 51, 59, and 68-69 depend from claim 45 or from a claim that ultimately depends from claim 45, Petitioner has failed to show that Grotmol discloses all of the limitations of claims 46-47, 51, 59, and 68-69, and thus those claims are not anticipated by Grotmol.

D. Ground 2B Fails

Regarding Ground 2B, Petitioner fails to show that Grotmol discloses claim 45 of the '474 patent as discussed above. Petitioner fails to show that the reference disclose the claimed knowledgebase and several other limitations required by claim 45. Because claim 60 ultimately depends from claim 45, Petitioner has failed to show that Grotmol discloses all of the limitations of claims 60 and thus that claim is not obvious over Grotmol in view of McClure.

E. Ground 2C Fails

Regarding Ground 2C, Petitioner fails to show that Grotmol in view of Buibas discloses or suggests claims 45-47, 51, 56-57, 59, and 68-69 of the '474 patent. Petitioner fails to show that Grotmol or Buibas disclose or suggest several claim limitations of claim 45. Because the references fail to disclose or suggest these limitations, and because claims 46-47, 51, 56-57, 59, and 68-69 ultimately depend from claim 45, Ground 2C fails.

1. Claim 45: Grotmol and Buibas Do Not Disclose or Suggest the Claimed Knowledgebase, Determining, Executing, and Autonomously Performing Operations

Petitioner argues that “[t]he Grotmol-Buibas combination of Ground 2B renders obvious all limitations of claims 45-47, 51, 56-57, 59, and 68-69 for each of the reasons discussed above in Ground 2A.” Petition, 80. As discussed above, the adaptive controller in one robot in Grotmol that Petitioner maps onto the knowledgebase in claim 45 does not have any instruction sets for operating another robot since *Grotmol never discloses that the adaptive controller is loaded from one robot to another robot to ever enable the first device to comprise a knowledgebase that includes instruction sets for operating a second device.* This causes Grotmol to further fail to disclose other dependent elements (e.g., determining, executing, and autonomously performing operations) of claim 45. Also as discussed above, Buibas discloses loading a collection of weights (brain image) from one robot to another

robot that does not even contemplate instruction sets for operating another robot since *the brain image does not include any instruction sets*. This causes Buibas to further fail to disclose other dependent elements of claim 45. Therefore, as discussed above with respect to Ground 2A, Grotmol fails to disclose the claimed knowledgebase of claim 45 and several other limitations of that claim. Further, Petitioner has failed to explain how Buibas discloses the knowledgebase or any of the other limitations missing in Grotmol with respect to Grounds 2A or 2B.

Finally, Petitioner has failed to perform a proper obviousness analysis using these references for similar reasons discussed above with respect to the Buibas-Sinyavskiy combination including (i) failing to specifically identify any claimed features that are not disclosed in Grotmol and how Buibas discloses the missing claim elements, and (ii) failing to present any rationale to combine or modify the references and any reasonable expectation of success, all of which doom the alleged combination of the references. Because Grotmol and Buibas fail to disclose or suggest the claimed knowledgebase and several other limitations (e.g., determining, executing, and autonomously performing operations) of claim 45, Ground 2C fails with respect to claim 45.

2. Claims 46-47, 51, 56-57, 59, and 68-69

Regarding Ground 2C, Petitioner fails to show that Grotmol in view of Buibas renders claim 45 of the '474 patent obvious as discussed above. Petitioner fails to

show that the references disclose or suggest the claimed knowledgebase and several other limitations required by claim 45. Because claims 46-47, 51, 56-57, 59, and 68-69 depend from claim 45 or from a claim that ultimately depends from claim 45, Petitioner has failed to show that Grotmol in view of Buibas discloses or suggests all of the limitations of claims 46-47, 51, 56-57, 59, and 68-69 and thus those claims are not obvious over Grotmol in view of Buibas.

F. Ground 2D Fails

Regarding Ground 2D, Petitioner fails to show that Grotmol in view of Buibas discloses or suggests claim 45 of the '474 patent as discussed above. Petitioner fails to show that the references disclose or suggest the claimed knowledgebase and several other limitations required by claim 45. Because claim 60 ultimately depends from claim 45, Petitioner has failed to show that Grotmol in view of Buibas discloses or suggests all of the limitations of claims 60 and thus that claim is not obvious over Grotmol in view of Buibas and McClure.

VII. CONCLUSION

Accordingly, for at least the reasons set forth above, institution of *inter partes* review should be denied.

Dated: July 24, 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 PRELIMINARY RESPONSE** specified in 37 C.F.R. § 42.24 have 5,940 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: July 24, 2024

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CERTIFICATION OF SERVICE

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

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