

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,

Petitioner,

v.

PERCEPTIVE AUTOMATA LLC,

Patent Owner.

Case No. IPR2025-01574

Patent No. 11,126,889

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Pursuant to 35 U.S.C. § 313 and 37 C.F.R. § 42.107, Patent Owner Perceptive Automata LLC (“Perceptive”) submits this Preliminary Response to the Petition for *Inter Partes* Review (“Petition”) filed by Tesla, Inc. (“Petitioner”) and challenging claims 1-20 of U.S. Patent No. 11,126,889 (the “’889 patent”) (Ex. 1001). The Board should not institute *inter partes* review because Petitioner has not met its burden of showing a reasonable likelihood of prevailing on any of its proposed grounds of unpatentability, each based on obviousness combinations under 35 U.S.C. § 103(a).

The Petition suffers from many fundamental flaws, each of which warrants denial of institution. The Petition’s allegations are deficient because the references of the proposed grounds do not teach all limitations of the challenged claims. Furthermore, Petitioner failed to identify with particularity the material disclosure of the references where the recited claim language is allegedly met. Instead, Petitioner improperly cites to large sections of references and relies on innumerable string citations, making it impossible to determine the particular evidence Petitioner is relying on in support of its conclusory assertions.

Furthermore, the grounds are redundant where Petitioner failed to explain why it relied on additional references to combinations of references that it alleged already rendered the claims obvious, or any explanation as to why one ground is preferred over another. To this end, Petitioner implicitly acknowledges that: (i) the Huval-

Ross combination of Ground 1 is deficient by also asserting the Huval-Ross-Cox combination of Ground 2, the Huval-Ross-Munro combination of Ground 3, and the Huval-Ross-Cox-Munro combination of Ground 4; (ii) the Huval-Ross-Cox combination of Ground 2 is deficient by also asserting the Huval-Ross-Cox-Munro combination of Ground 4; and (iii) the Huval-Ross-Munro combination of Ground 3 is deficient by also asserting the Huval-Ross-Cox-Munro combination of Ground 4. None of the permutations of these four references disclose or render obvious the independent claims of the '889 patent.

To justify the institution of an *inter partes* review, Petitioner must establish that there is a “reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For at least the reasons discussed in this Preliminary Response, Petitioner has not shown a reasonable likelihood of prevailing on any of the challenged claims and institution should be denied.

II. THE '889 PATENT AND THE CHALLENGED CLAIMS

A. Overview of the '889 Patent

The inventions disclosed and claimed in the '889 patent generally relate to systems, computer-implemented methods, and computer readable media associated with controlling autonomous vehicles by “judging the behavior of people near a vehicle in a way that more closely resembles how human drivers would judge the

behavior.” Ex. 1001, 3:50-53. The ’889 patent discloses an implementation for achieving this result by obtaining user responses of images displaying road scenes to determine a road user’s “state of mind—e.g. that a pedestrian is likely to cross the street or that an oncoming vehicle is unlikely to be willing to yield to the vehicle containing the sensor if the vehicle containing the sensor needs to turn.” *Id.* at 10:24-43; *see also id.* at 5:46-6:7, 9:1-10:5. The images of road users (e.g., motorists, cyclists, pedestrians) in a road scene can be captured by the autonomous vehicle and sent to a remote location for obtaining user responses and training a learning based model. *Id.* at 7:45-8:8. Training dataset(s) comprising summary statistics of the user responses are used to train a learning based model so that the learning based model can predict whether a road user in a new image has a given “state of mind—e.g. that a pedestrian is likely to cross the street or that an oncoming vehicle is unlikely to be willing to yield to the vehicle containing the sensor if the vehicle containing the sensor needs to turn.” *Id.* at 10:24-43; *see also id.* at 6:44-7:25, 11:10-12:25. “The trained model or algorithm makes a prediction of what a pedestrian or other person shown in the ‘live data’ would do based on the summary statistics and/or training labels” *Id.* at 7:26-29; *see also id.* at 12:26-13:53. “The predictions produced by the trained model comprise a set of predictions of the state of mind of road users that can then be used to improve the performance of autonomous vehicles, robots,

virtual agents, trucks, bicycles, or other systems that operate on roadways by allowing them to make judgments about the future behavior of road users based on their state of mind.” *Id.* at 7:38-44.

B. Claim Overview

Independent claims 1, 2, and 12 are reproduced below:

Claim 1	Limitations
1[pre]	A computer system comprising: a computer processor; and a non-transitory computer readable storage medium storing instructions that when executed by the computer processor cause the computer processor to perform steps of a computer-implemented method for controlling an autonomous vehicle based on a predicted state of mind of road users in a scene captured by a camera of the autonomous vehicle, the steps comprising:
1[a]	receiving a plurality of images displaying road scenes captured by one or more vehicles;
1[b]	receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images;
1[c]	generating a training dataset comprising summary statistics of user responses describing the state of minds of road users displayed in the plurality of images;
1[d]	training, using the training dataset, a supervised learning based model configured to predict summary statistics describing a state of mind of a road user displayed in an input image;

1[e]	receiving, by an autonomous vehicle, a new image captured by a camera of the autonomous vehicle, the new image of a scene including a road user;
1[f]	predicting, by the autonomous vehicle, using the supervised learning based model, summary statistics describing a state of mind of the road user in the new image; and
1[g]	controlling the autonomous vehicle based on the prediction of the supervised learning based model.
Claim 2	Limitations
2[pre]	A computer-implemented method for controlling an autonomous vehicle based on a predicted state of mind of road users in a scene captured by a camera of the autonomous vehicle, the method comprising:
2[a]	receiving a plurality of images displaying road scenes captured by one or more vehicles;
2[b]	receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images;
2[c]	generating a training dataset comprising summary statistics of user responses describing the state of minds of road users displayed in the plurality of images;
2[d]	training, using the training dataset, a supervised learning based model configured to predict summary statistics describing a state of mind of a road user displayed in an input image;
2[e]	receiving, by an autonomous vehicle, a new image captured by a camera of the autonomous vehicle, the new image of a scene including a road user;
2[f]	predicting, by the autonomous vehicle, using the supervised learning based model, summary statistics describing a state of mind of the road user in the new image; and

2[g]	controlling the autonomous vehicle based on the prediction of the supervised learning based model.
Claim 12	Limitations
12[pre]	A non-transitory computer readable storage medium storing instructions that when executed by a computer processor cause the computer processor to perform steps of a computer-implemented method for controlling an autonomous vehicle based on a predicted state of mind of road users in a scene captured by a camera of the autonomous vehicle, the steps comprising:
12[a]	receiving a plurality of images displaying road scenes captured by one or more vehicles;
12[b]	receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images;
12[c]	generating a training dataset comprising summary statistics of user responses describing the state of minds of road users displayed in the plurality of images;
12[d]	training, using the training dataset, a supervised learning based model configured to predict summary statistics describing a state of mind of a road user displayed in an input image;
12[e]	receiving, by an autonomous vehicle, a new image captured by a camera of the autonomous vehicle, the new image of a scene including a road user;
12[f]	predicting, by the autonomous vehicle, using the supervised learning based model, summary statistics describing a state of mind of the road user in the new image; and
12[g]	controlling the autonomous vehicle based on the prediction of the supervised learning based model.

III. LEVEL OF ORDINARY SKILL

For the limited purpose of this Preliminary Response, Patent Owner does not contest Petitioner's definition of a person of ordinary skill in the art, but reserves the right to do so if trial is instituted.

IV. CLAIM CONSTRUCTION

Patent Owner submits that the Board need not construe any claim terms in a particular manner to arrive at the conclusion that the Petition is substantively deficient. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (claims "need only be construed 'to the extent necessary to resolve the controversy'").

V. APPLICABLE LEGAL STANDARDS

The Board may only grant a petition for *inter partes* review where "the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a); 37 C.F.R. § 42.108(c). Petitioner bears the burden of showing that this statutory threshold has been met. *See Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) ("[T]he Petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable."); *Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, CBM2012-00003, Paper 8 at 14-15 (P.T.A.B. Oct. 25, 2012) (representative) ("[I]t is the

responsibility of the Petitioner to clearly articulate [the proposed combination].”); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4); *see also* USPTO, OFFICE PATENT TRIAL PRACTICE GUIDE, Statutory Requirements (Dec. 12, 2025) (“The Board . . . may institute a trial where the petitioner establishes that the standards for instituting the requested trial are met Conversely, the Board may not authorize a trial where the information presented in the petition, taking into account any patent owner preliminary response, fails to meet the requisite standard for instituting the trial.”).

Each of Petitioner’s Grounds relies on obviousness. Section 103 of the Patent Act provides that “[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a). The obviousness analysis requires several threshold inquiries identified below.

A. Claims cannot be found obvious if an element is missing and expert testimony cannot supply the missing claim element.

If a single element of the claim is absent from the prior art, the claim cannot be considered obvious. *See CFMT, Inc. v. YieldUp Int’l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (“Obviousness requires a suggestion of all limitations in a claim.”) (citing *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974)); *In re Rijckaert*, 9 F.3d

1531, 1534 (Fed. Cir. 1993) (reversing obviousness rejection where prior art did not teach or suggest all claim limitations); *Garmin Int’l, Inc. v. Patent of Cuozzo Speed Techs. LLC*, No. IPR2012-00001, Paper 15 at 15 (P.T.A.B. Jan. 9, 2013) (refusing to institute an IPR under 35 U.S.C. § 103 where prior art did not disclose all claim limitations). Further,

Because an *inter partes* review may only be requested “on the basis of prior art consisting of patents or printed publications,” 35 U.S.C. § 311(b), expert testimony cannot take the place of disclosure from patents or printed publications. In other words, expert testimony may explain “patents and printed publications,” but is not a substitute for disclosure in a prior art reference itself.

OFFICE PATENT TRIAL PRACTICE GUIDE at § I.G.

B. A petition must address the *Graham* factors.

Obviousness is resolved on a number of factual determinations including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of ordinary skill in the art. *See Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). These factors provide the threshold “background” for the obviousness determination, and without undertaking this analysis, a proper obviousness determination cannot be made. *Id.* at 18 (“Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and

the level of ordinary skill in the pertinent art resolved. *Against this background, the obviousness or nonobviousness of the subject matter is determined.*") (emphasis added).

In view of this clear Supreme Court precedent, it is not surprising that Petitions for IPR “must address the *Graham* factors.” *Eizo Corp. v. Barco N.V.*, No. IPR2014-00358, Paper 11 at 29-30 (P.T.A.B. July 23, 2014) (citing *Graham*, 383 U.S. at 17-18). For example, the Board faulted the petitioner in *Eizo* for failing to identify the differences between the claimed subject matter and the prior art. *Id.* at 29-30. In particular, the Board found insufficient the petitioner’s “conclusory assertion” that “[t]o the extent [the first reference] may not explicitly teach” the limitation, the second reference “explicitly teaches this limitation.” *Id.* at 30. The Board explained that “such an assertion *fails* to resolve the exact differences sought to be derived from” the second reference. *Id.* (finding that petitioner had not shown a reasonable likelihood of prevailing on that ground) (emphasis added). Other Board decisions have reached the same result. *See, e.g., Moses Lake Indus., Inc. v. Enthone, Inc.*, No. IPR2014-00246, Paper 6 at 17 (P.T.A.B. June 18, 2014); *eBay, Inc. v. Paid, Inc.*, No. CBM2014-00125, Paper 15 at 21 (P.T.A.B. Sept. 30, 2014).

VI. THE PETITION DOES NOT DEMONSTRATE THAT THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER GROUND 1

For Ground 1, Petitioner contends that Huval in view of Ross renders claims 1-20 obvious. Huval and Ross fail to disclose a number of limitations in independent claims 1, 2, and 12, and Petitioner provides no meaningful explanation about how it would have been obvious to modify these references to add those missing limitations. Petitioner has thus failed to meet its burden as to Ground 1.

A. [1b], [2b], [12b] – Petitioner failed to meet its burden to demonstrate that Huval or Ross disclose or render obvious “each user response describing a state of mind of a road user displayed in one or more images” of the independent claims

Limitation [2b] of independent claim 2 recites “receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images.”¹ Petitioner acknowledges that Huval fails to teach, suggest, or disclose “each user response *describing a state of mind of a road user* displayed in one or more images.” *See* Pet. at 29-33. The best that Petitioner can assemble is that Huval discloses “each user response describing...a road user displayed in one or

¹ Patent Owner addresses independent claim 2 as to all Grounds because claim 2 is the independent claim that Petitioner focuses on for all Grounds. *See, e.g.*, Pet. at 26. Patent Owner’s arguments with respect to claim 2 apply to all challenged claims, including independent claims 1 and 12.

more images” while omitting the limitation that each user response describes “a state of mind of a road user displayed in one or more images.” *See* Pet. at 30-31. As Petitioner acknowledges, Huval only teaches, suggests, or discloses that its user responses merely classify the identity of an object (e.g., is the object a vehicle or a pedestrian), which is not a user response “*describing a state of mind of a road user displayed in one or more images.*” *Id.*

Petitioner also does not allege that Ross teaches, suggests, or discloses “each user response *describing a state of mind of a road user displayed in one or more images.*” *See* Pet. at 32-33. Petitioner’s allegation as to this claim element is limited to the following allegations:

The combination of Ross and Huval further teaches that each of the annotation responses describes a *state of mind of a road user displayed in one or more images*. EX1003, ¶90. In the Huval-Ross combination, the human annotation process would have included the labeling of observed road user (e.g., vehicle, pedestrian, bicyclist) actions in image data captured by vehicles, where such labeled actions correspond to the intents of road users and thus describe the state of minds of the road users (*each user response describing a state of mind of a road user displayed in one or more images*). EX1004, ¶¶0008-0012, 0021-0022, 0036-0050, 0069, 0071-0092, Figs. 1, 2A, 2B, 3, 5; EX1005, 1:55-2:13, 4:33-46, 9:13-10:10, 15:1-16:41; Section X.A.2; EX1003, ¶90.

Pet. at 32. This analysis is wholly conclusory and improper. Indeed, Petitioner does not even allege that Ross teaches, suggests, or discloses this limitation. *See id.* If a single element of the claim is absent from the prior art, the claim cannot be considered obvious. *See CFMT*, 349 F.3d at 1342. Given that Petitioner does not allege that any of the references of this combination teach, suggest, or disclose this limitation, the challenged claims cannot be considered obvious. *See id.*

The best that Petitioner can muster is that the alleged combination “**would have included** the labeling of observed road user . . . actions . . . where such labeled actions correspond to the intents of road users and thus describe the state of minds of the road users.” Pet. at 32. (emphasis added). Petitioner’s allegations that the combination “would have included” a feature—without pointing to any express disclosure (or arguing any type of inherent disclosure)—cannot satisfy Petitioner’s burden. Petitioner’s proposed combination and conclusory outcome is based entirely on hindsight, using the claims of the challenged patent as a blueprint.

Despite string-citing 45 paragraphs from Huval and over two columns of disclosure from Ross, Petitioner does not identify with any particularity what it perceives as the claimed “user response *describing a state of mind of a road user* displayed in one or more images.” *See id.* Indeed, Ross does not mention a “user response,” much less contain any mention of “annotation” or “label.” *See Ex. 1005*

at *passim*. Rather, Petitioner’s string citations to Ross are directed to a model making a prediction about whether a road user will take any of the actions in a predetermined list of actions, not about the claimed “user response *describing a state of mind of a road user* displayed in one or more images.” *See id.* at 1:55-2:13, 4:33-46, 9:13-10:10, 15:1-16:41.

The remainder of Petitioner’s allegations as to this claim element describe the types of actions disclosed in Ross, but these allegations do not elaborate as to where or how Ross supposedly teaches, suggests, or discloses the claimed “user response *describing a state of mind of a road user* displayed in one or more images.” *See* Pet. at 32-33. Petitioner incorporates a previous portion of its Petition, Section X.A.2, as one of its string citations. *Id.* at 32. But Section X.A.2 merely points to six pages of additional conclusory allegations with a plethora of string citations. *See* Pet. at 20-26. Indeed, this section does not even map any alleged prior art to the recited claim language, but is instead Petitioner’s general section on its alleged motivations to combine Ross and Huval. *Id.* This is not the particularity required by statute. To the contrary, this approach “would require the panel or the Patent Owner to scour the Petition to discern Petitioner’s evidence . . . which lacks particularity and is tantamount to impermissibly shifting Petitioner’s burden under 35 U.S.C. §

312(a)(3).” *InVue Sec. Prods., Inc. v. Mobile Tech., Inc.*, No. IPR2019-00078, Paper 7 at 15 (P.T.A.B. May 1, 2019).

Petitioner also repeatedly cites to its expert declaration in support of its arguments, but that declaration fares no better than the arguments in the Petition itself. For example, in paragraph 90, Petitioner’s expert makes the same conclusory and unfounded allegations made in the Petition. *See* Pet. at 32; Ex. 1003 at ¶ 90. Petitioner’s expert does not specifically identify any disclosure from Ross or Huval or any additional reasoning to support his statement, which merely parrots the language from the Petition. *See id.* Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Upjohn Co. v. Mova Pharm. Corp.*, 225 F.3d 1306, 1311 (Fed. Cir. 2000) (“Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity determination.”) (quoting *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 138 (Fed. Cir. 1986) (“Although in some circumstances unsupported oral testimony can be sufficient to provide prior

knowledge or use, it must be regarded with suspicion and subjected to close scrutiny.”). This is particularly problematic in cases in which, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art. *See KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (stating that a “factfinder . . . must be cautious of arguments reliant upon *ex post* reasoning”); *Arendi S.A.R.L. v. Apply, Inc.*, 832 F.3d 1355, 1361-62 (Fed. Cir. 2016) (holding that reliance on common sense in an obviousness analysis is “typically invoked to provide a known motivation to combine, not to supply a missing claim limitation”) (emphasis omitted). Although doing so might be permissible when “the limitation in question [is] unusually simple and the technology particularly straightforward” (*id.* at 1362), Petitioner has not alleged that to be the case here, much less provided support for such an allegation. *See* Pet. at 32-33. The Trial Practice Guide makes clear that “expert testimony cannot take the place of disclosure from patents or printed publications” and “is not a substitute for disclosure in a prior art reference itself.” *See* OFFICE PATENT TRIAL PRACTICE GUIDE at § I.G.

Claim limitations [1b] and [12b] of independent claims 1 and 12 also require “each user response *describing a state of mind of a road user* displayed in one or

more images.” For the same reasons discussed above with respect to claim limitation [2b], Petitioner has not met its burden as to claim limitations [1b] and [12b].

In sum, Petitioner has not met its burden as to Ground 1. The Huval-Ross combination does not teach, suggest, or disclose claim limitations [1b], [2b], or [12b]. Further, Petitioner has wholly failed to provide any type of meaningful analysis as to these claim limitations. *See Harmonic*, 815 F.3d at 1363 (“[T]he Petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.”); *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018) (“rather than create (another) agency-led, inquisitorial process for reconsidering patents, Congress opted for a party-directed, adversarial process”); 37 C.F.R. § 42.22(a)(2) (“Each petition . . . must include . . . a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent.”); 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”); 35 U.S.C. § 312(a)(3) (Petitioner bears the burden of identifying “in writing and with particularity . . . the evidence that supports the grounds for the challenge to each claim”); *TCL Communication Technology Holdings Ltd. v. Dataquill Limited*, No. IPR2020-00746, Paper 21 at 22 (P.T.A.B. Sept. 18, 2020) (“It is Petitioner’s responsibility to cite specific evidence to support its arguments, not the Board’s”—

nor Patent Owner’s—“responsibility to piece together evidence or speculate as to Petitioner’s position.”); *see also Whole Space Industries Ltd. v. Zipshade Industrial (B.V.I.) Corp.*, No. IPR2015-00488, Paper 14 at 18 (P.T.A.B. July 24, 2015) (citations omitted). Indeed, as emphasized by the Federal Circuit, “[i]t is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016). As such, Petitioner has failed to meet its burden as to Ground 1 and the same should be rejected.

B. [1c], [2c], [12c] – Petitioner failed to meet its burden to demonstrate that Huval or Ross disclose or render obvious “summary statistics of user responses describing the state of minds of road users displayed in the plurality of images” of the independent claims

Limitation [2c] of independent claim 2 recites “generating a training dataset comprising *summary statistics of user responses describing the state of minds of road users* displayed in the plurality of images.” Petitioner acknowledges that Huval fails to teach, suggest, or disclose “summary statistics of user responses describing the state of minds of road users displayed in the plurality of images.” *See* Pet. at 33-37. The best that Petitioner can assemble is that Huval discloses “generating a training dataset comprising summary statistics of user responses describing...road users displayed in the plurality of images” while omitting the limitation that the

summary statistics of user responses describe “the state of minds of road user displayed in one or more images.” *See id.*

Petitioner also does not allege that Ross teaches, suggests, or discloses “*summary statistics of user responses describing the state of minds of road users displayed in the plurality of images.*” *See id.* The only allegations provided by Petitioner as to this claim element are wholly reproduced below:

In combination with Ross, the Huval’s response annotation labels would also correspond to the intents and actions of road users in training images and thus describe the state of minds of such road users (*user responses describing the state of minds of road users displayed in the plurality of images*). EX1003, ¶95; *supra* Section X.A.2 (motivation to combine) and Section X.A.3.c (element 2[b]).

Pet. at 36-37. This analysis is wholly conclusory and improper. Indeed, Petitioner does not even allege that Ross teaches, suggests, or discloses this limitation. *See id.* If a single element of the claim is absent from the prior art, the claim cannot be considered obvious. *See CFMT*, 349 F.3d at 1342. Given that Petitioner does not allege that any of the references of this combination teach, suggest, or disclose “*summary statistics of user responses describing the state of minds of road users displayed in the plurality of images,*” the challenged claims cannot be considered obvious.

The best that Petitioner can muster is that “[i]n combination with Ross, the Huval’s response annotation labels *would* also correspond to the intents and actions of road users in training images and thus describe the state of minds of such road users.” Pet. at 36 (emphasis added). Petitioner’s proposed combination and conclusory outcome is based entirely on hindsight, using the claims of the challenged patent as a blueprint.

Petitioner provides several string citations to large chunks of Huval and Ross, but Petitioner does not identify with any particularity what it perceives as the claimed “*summary statistics of user responses describing the state of minds of road users displayed in the plurality of images.*” *Id.* at 36-37. Indeed, Ross does not mention a “user response,” much less contain any mention of “statistics,” “annotation,” or “label.” *See* Ex. 1005 at *passim*. Rather, Petitioner incorporates by reference its analysis of limitation [2b] in Section X.A.3.c of the Petition, which is directed to a different limitation and fails to properly allege that Ross discloses “user response *describing a state of mind of a road user displayed in one or more image*” of limitation [2b] as discussed herein at Section VI.A. *See* Pet. at 29-33. Furthermore, Section X.A.3.c does not address the limitation [2c] of the claimed “*summary statistics of user responses describing the state of minds of road users displayed in the plurality of images.*” *Id.* One of the string citations is directed to incorporating

by reference Section X.A.2 of the Petition. *Id.* at 32. But Section X.A.2 just leads to another six pages of additional conclusory allegations with an innumerable number of string citations. *See* Pet. at 20-26. Indeed, Section X.A.2 is the same section Petitioner relies on for its analysis of the recited claim language of limitation [2b] and other limitations. This section does not map any alleged prior art to the recited claim language. *Id.* This is not the particularity required by statute. To the contrary, this approach “would require the panel or the Patent Owner to scour the Petition to discern Petitioner’s evidence . . . which lacks particularity and is tantamount to impermissibly shifting Petitioner’s burden under 35 U.S.C. § 312(a)(3).” *InVue*, No. IPR2019-00078, Paper 7 at 15.

In support of Petitioner’s analysis of this claim element, Petitioner also relies on its expert declaration, paragraph 95, where Petitioner’s expert makes the same conclusory and unfounded allegations made by Petitioner. *See* Pet. at 37; Ex. 1003 at ¶ 95. Petitioner’s expert does not provide any material disclosure with any specificity from Ross or Huval nor does Petitioner’s expert provide any additional reasoning to support his statement. *See* Ex. 1003 at ¶ 95. Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the

opinion is based is entitled to little or no weight.”); *Upjohn*, 225 at 1311 (“Lack of factual support for expert opinion to factual determinations, however, may render the testimony of little probative value in a validity determination.”) (quoting *Ashland Oil*, 776 at 294); *Carella*, 804 at 138 (“Although in some circumstances unsupported oral testimony can be sufficient to provide prior knowledge or use, it must be regarded with suspicion and subjected to close scrutiny.”). This is particularly problematic in cases in which, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art. *See KSR*, 550 U.S. at 421 (stating that a “factfinder . . . must be cautious of arguments reliant upon *ex post* reasoning”); *Arendi*, 832 F.3d at 1361-62 (holding that reliance on common sense in an obviousness analysis is “typically invoked to provide a known motivation to combine, not to supply a missing claim limitation”) (emphasis omitted). Although doing so might be permissible when “the limitation in question [is] unusually simple and the technology particularly straightforward” (*id.* at 1362), Petitioner has not alleged that to be the case here, much less provided support for such an allegation. *See* Pet. at 32-33. The Trial Practice Guide makes clear that “expert testimony cannot take the place of disclosure from patents or printed publications” and “is not a substitute for

disclosure in a prior art reference itself.” *See* OFFICE PATENT TRIAL PRACTICE GUIDE at § I.G.

Claim limitations [1c] and [12c] of independent claims 1 and 12 also require “each user response *describing a state of mind of a road user* displayed in one or more images.” For the same reasons discussed above with respect claim limitation [2c], Petitioner has not met its burden as to claim limitations [1c] and [12c].

In sum, Petition has not met its burden as to Ground 1. The Huval-Ross combination does not teach, suggest, or disclose claim limitations [1c], [2c], or [12c]. Further, Petitioner has wholly failed to provide any type of meaningful analysis in the Petition as to these claim limitations. *See Harmonic*, 815 F.3d at 1363 (“[T]he Petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.”); *SAS Inst.*, 138 S. Ct. at 1355 (“rather than create (another) agency-led, inquisitorial process for reconsidering patents, Congress opted for a party-directed, adversarial process”); 37 C.F.R. § 42.22(a)(2) (“Each petition . . . must include . . . a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent.”); 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”); 35 U.S.C. § 312(a)(3) (Petitioner bears the burden of identifying “in writing and with

particularity . . . the evidence that supports the grounds for the challenge to each claim”); *TCL Communication Technology Holdings*, No. IPR2020-00746, Paper 21 at 22 (“It is Petitioner’s responsibility to cite specific evidence to support its arguments, not the Board’s”—nor Patent Owner’s—“responsibility to piece together evidence or speculate as to Petitioner’s position.”); *see also Whole Space Industries*, No. IPR2015-00488, Paper 14 at 18 (citations omitted). Indeed, as emphasized by the Federal Circuit, “[i]t is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” *Intelligent Bio-Sys.*, 821 F.3d at 1369. As such, Petitioner has failed to meet its burden as to Ground 1 and the same should be rejected.

VII. THE PETITION DOES NOT DEMONSTRATE THAT THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER GROUND 2

For Ground 2, Petitioner contends that Huval in view of Ross and Cox renders claims 1-20 obvious. Huval, Ross, and Cox fail to disclose a number of limitations in independent claims 1, 2, and 12, and Petitioner provides no meaningful explanation about how it would have been obvious to modify these references to add those missing limitations. Thus, the Board should deny institution as to Ground 2. Indeed, Petitioner’s attempted reliance on Cox to fill in gaps of Huval and Ross highlight the deficiencies of the references asserted in Ground 1.

A. [1b], [2b], [12b] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Cox disclose or render obvious “each user response describing a state of mind of a road user displayed in one or more images” of the independent claims

As to the claim limitations [1b], [2b], and [12b] of “each *user response describing a state of mind of a road user* displayed in one or more images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1b], [2b], and [12b] of Ground 1. *See* Pet. at 63, 68. For all the same reasons discussed in Section VI.A herein as to claim limitations [1b], [2b], and [12b] of Ground 1, Petitioner has failed to meet its burden as to Ground 2 because Petitioner has wholly failed to provide any type of meaningful analysis in the Petition as to the claim limitations recited in [1b], [2b], and [12b] of Ground 2.

B. [1c], [2c], [12c] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Cox disclose or render obvious “summary statistics of user responses describing the state of minds of road users displayed in the plurality of images” of the independent claims

As to the claim limitations [1c], [2c], and [12c] of “*summary statistics of user responses describing the state of minds of road users* displayed in the plurality of images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1c], [2c], and [12c] of Ground 1. *See* Pet. at 63-65, 68. For all the same reasons discussed in Section VI.B herein as to claim limitations [1c], [2c], and [12c] of Ground 1, Petitioner has failed to meet its burden as to Ground 2 because Petitioner has wholly failed to provide any type of meaningful

analysis in the Petition as to the claim limitations recited in [1c], [2c], and [12c] of Ground 2.

As to these claim limitations, Petitioner relies on Cox for its alleged disclosure of “summary statistics of user responses,” but not for its alleged disclosure of “*user responses describing the state of minds of road users* displayed in the plurality of images” recited in independent claims 1, 2, and 12. *See* Pet. at 63-65, 68.

Obviousness is resolved on a number of factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of ordinary skill in the art. *Graham*, 383 U.S. at 17–18. Petitions for IPR “must address the *Graham* factors.” *Eizo*, No. IPR2014-00358, Paper 11 at 29–30 (citing *Graham*, 383 U.S. at 17-18). For example, the Board faulted the petitioner in *Eizo* for failing to identify the differences between the claimed subject matter and the prior art. *Id.* at 29-30. In particular, the Board found insufficient the petitioner’s “conclusory assertion” that “[t]o the extent [the first reference] may not explicitly teach” the limitation, the second reference “explicitly teaches this limitation.” *Id.* at 30. The Board explained that “such an assertion fails to resolve the exact differences sought to be derived from” the second reference. *Id.* (finding that petitioner had not shown a reasonable likelihood of prevailing on that ground). Other Board decisions have reached the

same result. *See, e.g., Moses Lake Indus.*, No. IPR2014-00243, Paper 6 at 18; *eBay*, No. CBM2014-00125, Paper 15 at 21.

Petitioner's analysis of limitations [1c], [2c], and [12c] fails to address the *Graham* factors. Petitioner made no attempt to identify any differences between the claimed limitations and the disclosures of Huval and Ross. *See* Pet. at 63-65, 68. Petitioner necessarily acknowledges that some claimed elements are lacking from Huval and Ross, or else it would not be relying on Cox for its disclosure of "summary statistics of user responses," which is not even the operative limitation recited in the claim limitations. *See* Pet. at 63-65, 68. However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross combination that Cox would allegedly cure. This is not a trivial defect. The Supreme Court has explicitly stated that the *Graham* factors, including the "differences between the prior and the claims at issue," provide the necessary "background" against which the "the obviousness or nonobviousness of the subject matter is determined." *Graham*, 383 U.S. at 17-18. Petitioner's wholly incomplete analysis in this regard is even more deficient than the faulty analysis in *Eizo*. For at least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 2.

C. [1d], [2d], [12d] – Petitioner wholly failed to address the *Graham* factors

as to the independent claims

Petitioner's analysis of limitations [1d], [2d], and [12d] fails to address the *Graham* factors. In particular, Petitioner did not attempt to identify any differences between the claimed limitations and the disclosure of Huval and Ross. *See* Pet. at 65-67, 68. Petitioner necessarily acknowledges that some claimed elements are lacking from Huval and Ross, or else it would not be relying on Cox for these claim limitations. However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross combination that Cox would allegedly cure. Without identifying these differences, a proper obviousness determination cannot be made. *Graham*, 383 U.S. at 17-18. Petitioner's wholly incomplete analysis in this regard is even more deficient than the faulty analysis in *Eizo* and warrants denial. *See Eizo*, No. IPR2014-00358, Paper 11 at 29-30. For at least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 2.

VIII. THE PETITION DOES NOT DEMONSTRATE THAT THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER GROUND 3

For Ground 3, Petitioner contends that Huval in view of Ross and Munro renders claims 1-20 obvious. Huval, Ross, and Munro fail to disclose a number of limitations in independent claims 1, 2, and 12, and Petitioner provides no meaningful explanation about how it would have been obvious to modify these references to add those missing limitations. Thus, Petitioner has failed to meet its burden as to Ground

3. Indeed, Petitioner’s attempted reliance on Munro to fill in gaps of Huval and Ross highlight the deficiencies of the references asserted in Ground 1.

A. [1b], [2b], [12b] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Munro disclose or render obvious “each user response describing a state of mind of a road user displayed in one or more images” of the independent claims

As to the claim limitations [1b], [2b], and [12b] of “*each user response describing a state of mind of a road user* displayed in one or more images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1b], [2b], and [12b] of Ground 1. *See* Pet. at 72, 74. For all the same reasons discussed in Section VI.A herein as to claim limitations [1b], [2b], and [12b] of Ground 1, Petitioner has not met its burden as to Ground 3 because Petitioner has wholly failed to provide any type of meaningful analysis in the Petition as to the claim limitations recited in [1b], [2b], and [12b] of Ground 3.

B. [1c], [2c], [12c] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Munro disclose or render obvious “summary statistics of user responses describing the state of minds of road users displayed in the plurality of images” of the independent claims

As to the claim limitations [1c], [2c], and [12c] of “*summary statistics of user responses describing the state of minds of road users* displayed in the plurality of images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1c], [2c], and [12c] of Ground 1. *See* Pet. at 72-74. For all the same reasons discussed in Section VI.B herein as to claim limitations [1c],

[2c], and [12c] of Ground 1, Ground 3 should be denied because Petitioner has wholly failed to provide any meaningful analysis in the Petition as to the claim limitations recited in [1c], [2c], and [12c] of Ground 3.

As to these claim limitations, Petitioner relies on Munro for its alleged disclosure of “summary statistics,” but not for its alleged disclosure of “*summary statistics of user responses describing the state of minds of road users* displayed in the plurality of images” recited in independent claims 1, 2, and 12. *See* Pet. at 72-74.

Petitioner’s analysis of limitations [1c], [2c], and [12c] fails to address the *Graham* factors. In particular, Petitioner did not even attempt to identify the differences between the claimed limitations and the disclosure of Huval and Ross. *See* Pet. at 63-65, 68. Petitioner necessarily acknowledges that some claimed elements are lacking from Huval and Ross, or else it would not be relying on Munro for its disclosure of “summary statistics.” However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross combination that Munro would allegedly cure. Without identifying these differences, a proper obviousness determination cannot be made. *Graham*, 383 U.S. at 17-18. Petitioner’s wholly incomplete analysis in this regard is even more deficient than the faulty analysis in *Eizo* and warrants denial. *See Eizo*, No. IPR2014-00358, Paper 11 at 29-30. For at

least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 3.

C. [1d], [2d], [12d] – Petitioner wholly failed to address the *Graham* factors as to the independent claims

Petitioner’s analysis of limitations [1d], [2d], and [12d] fails to address the *Graham* factors. In particular, Petitioner did not even attempt to identify the differences between the claimed limitations and the disclosure of Huval and Ross. *See* Pet. at 73-74. Petitioner necessarily acknowledges that some claimed elements are lacking from Huval and Ross, or else it would not be relying on Munro for this claim limitation. However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross combination that Munro would allegedly cure. Without identifying these differences, a proper obviousness determination cannot be made. *See Graham*, 383 U.S. at 17-18. Petitioner’s wholly incomplete analysis in this regard is even more deficient than the faulty analysis in *Eizo* and warrants denial. *See Eizo*, No. IPR2014-00358, Paper 11 at 29–30. For at least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 3.

IX. THE PETITION DOES NOT DEMONSTRATE THAT THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER GROUND 4

For Ground 4, Petitioner contends that Huval in view of Ross, Cox, and Munro renders claims 1-20 obvious. Huval, Ross, Cox, and Munro fail to disclose a number

of limitations in independent claims 1, 2, and 12, and Petitioner provides no meaningful explanation about how it would have been obvious to modify these references to add those missing limitations. Thus, Petitioner has not met its burden as to Ground 4. Indeed, Petitioner's attempted reliance on Munro and Cox to fill in gaps of Huval and Ross highlight the deficiencies of the references asserted in Ground 1. Furthermore, Petitioner's attempted reliance on Munro to fill in gaps of Huval, Ross, and Cox highlight the deficiencies of the references asserted in Ground 2. Moreover, Petitioner's attempted reliance on Cox to fill in gaps of Huval, Ross, and Munro highlight the deficiencies of the references asserted in Ground 3.

A. [1b], [2b], [12b] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Munro disclose or render obvious “each user response describing a state of mind of a road user displayed in one or more images” of the independent claims

As to the claim limitations [1b], [2b], and [12b] of “each *user response describing a state of mind of a road user* displayed in one or more images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1b], [2b], and [12b] of Ground 2. *See* Pet. at 76, 78. For all the same reasons discussed in Section VII.A herein as to claim limitations [1b], [2b], and [12b] of Ground 2, Petitioner has failed to meet its burden as to Ground 4 because Petitioner has wholly failed to provide any type of meaningful analysis in the Petition as to the claim limitations recited in [1b], [2b], and [12b] of Ground 4.

B. [1c], [2c], [12c] – Petitioner failed to meet its burden to demonstrate that Huval, Ross, or Munro disclose or render obvious “summary statistics of user responses describing the state of minds of road users displayed in the plurality of images” of the independent claims

As to the claim limitations [1c], [2c], and [12c] of “*summary statistics of user responses describing the state of minds of road users* displayed in the plurality of images” recited in independent claims 1, 2, and 12, Petitioner refers back to its analysis of claim limitations [1c], [2c], and [12c] of Ground 2 and Ground 3. *See* Pet. at 76, 78. For all the same reasons discussed in Sections VII.B and VIII.B herein as to claim limitations [1c], [2c], and [12c] of Grounds 2 and 3, Petitioner has failed to meet its burden as to Ground 4 because Petitioner has wholly failed to provide any type of meaningful analysis in the Petition as to the claim limitations recited in [1c], [2c], and [12c] of Ground 4.

Petitioner’s analysis of limitations [1c], [2c], and [12c] fails to address the *Graham* factors. In particular, Petitioner did not even attempt to identify the differences between the claimed limitations and the disclosure of the Huval-Ross-Cox combination or the Huval-Ross-Munro combination. *See* Pet. at 76, 78. Petitioner necessarily acknowledges that some claimed elements are lacking from the Huval-Ross-Cox combination, or else it would not be relying on Munro. However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross-Cox combination that Munro would allegedly cure. Additionally,

Petitioner acknowledges that some claimed elements are lacking from the Huval-Ross-Munro combination, or else it would not be relying on Cox. However, Petitioner fails to provide any explanation as to the deficiencies in the Huval-Ross-Munro combination that Cox would allegedly cure. Without identifying differences between the challenged claims and the prior art, a proper obviousness determination cannot be made. *See Graham*, 383 U.S. at 17-18. Petitioner's wholly incomplete and uncomprehensible analysis in this regard is much more deficient than the faulty analysis in *Eizo* and warrants denial. *See Eizo*, No. IPR2014-00358, Paper 11 at 29-30. For at least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 4.

C. [1d], [2d], [12d] – Petitioner wholly failed to address the *Graham* factors as to the independent claims

Petitioner's analysis of limitations [1d], [2d], and [12d] fails to address the *Graham* factors. In particular, Petitioner did not even attempt to identify the differences of the claimed limitations and the disclosure of Huval, Ross, Cox, and Munro. *See Pet.* at 76-78. Petitioner necessarily acknowledges that some claimed elements are lacking from each of Huval, Ross, Cox, and Munro, or else it would not be relying on all of these references for these claim limitations. However, Petitioner fails to provide any explanation as to the deficiencies of each of the references that the other references would allegedly cure. Without identifying

differences between the challenged claims and the prior art, a proper obviousness determination cannot be made. *See Graham*, 383 U.S. at 17-18. Petitioner’s wholly incomplete analysis in this regard is even more deficient than the faulty analysis in *Eizo* and warrants denial. *See Eizo*, No. IPR2014-00358, Paper 11 at 29-30.

Furthermore, Petitioner’s analysis for these limitations of Ground 4 is so confusing that it is impossible for the Board or Patent Owner to even discern what Petitioner is alleging. *See Pet.* at 76-78. Petitioner inappropriately invites the Board and Patent Owner to search the record for evidence that might support the full breadth of Petitioner’s contentions. *See Netflix, Inc. v. DivX, LLC*, 84 F.4th 1371, 1377 (Fed. Cir. 2023) (“[T]he Board should also not have to decode a petition to locate additional arguments beyond the ones clearly made.”). For at least these additional reasons, Petitioner has not shown a reasonable likelihood of prevailing on Ground 4.

X. THE CHALLENGED CLAIMS ARE ENTITLED TO PATENTABLE WEIGHT

The determination of whether a claim limitation is entitled to patentable weight under the printed matter doctrine comprises a two-part analysis as set forth in *In re DiStefano*, 808 F.3d 845, 848-851 (Fed. Cir. 2015). To be considered printed matter, the claim limitation in question “must be matter claimed for what it communicates.” *Id.* at 849. Furthermore, the claim limitation is printed matter “only if it claims the content of information.” *Id.* at 848. “Only if the limitation in question

is determined to be printed matter does one turn to the question of whether the printed matter nevertheless should be given patentable weight.” *Id.* at 850.

Printed matter is given patentable weight if the “claimed informational content has a functional or structural relationship to the substrate.” *Id.* A limitation deemed to be printed matter is entitled to patentable weight if it is “interrelated with the rest of the claim.” *Praxair Distrib., Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1033 (Fed. Cir. 2018); *see also id.* at 1033 (“By interrelating the claimed information regarding correlations between nitric oxide, LVD, and pulmonary edema with the concrete step of discontinuing treatment of the information . . . the printed matter . . . has a functional relationship to the rest of the claim[,] giving the printed matter patentable weight.”). The Federal Circuit has also stated that it “consider[s] whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.” *C R Bard Inc. v. Angiodynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020).

As an initial matter, Petitioner improperly attempts to shift the burden to Patent Owner by stating that “[p]rinted matter is *only* entitled to patentable weight if it is functionally related to the substrate on which the information is present.” Pet.

at 81 (emphasis added). Petitioner relies on and misinterprets *In re Marco Guldenaar Holding B.V.*, which actually holds that “claim limitations directed to the content of information and lacking a requisite functional relationship are not entitled to patentable weight.” Pet. at 81 (citing to *In re Marco Guldenaar Holding B.V.*, 911 F.3d 1157, 1161 (Fed. Cir. 2018) (quoting *Praxair*, 890 F.3d at 1032)). However, it is Petitioner’s burden to establish that the claim limitations in question are not entitled to patentable weight. See *FanDuel, Inc. v. Interactive Games LLC*, 966 F.3d 1334, 1341 (Fed. Cir. 2020) (“In an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. § 316(e), and that burden never shifts to the patentee.”); *In re Lowry*, 32 F.3d 1579, 1584 (Fed. Cir. 1994) (“Even assuming, arguendo, that data objects and data structures are analogous to printed matter . . . the burden of establishing the absence of a novel, nonobvious functional relationship rests with the PTO.”)

Like Petitioner’s analysis regarding its alleged obviousness allegations, Petitioner’s allegations regarding printed matter are conclusory and lack any meaningful analysis as to the independent claims.² Indeed, Petitioner has failed to

² For purposes of Patent Owner’s Preliminary Response, Patent Owner only addresses the limitations of the independent claims.

meet its burden because Petitioner's allegations lack a showing with any particularity that any limitation of the challenged claims is printed matter as a threshold issue. *See* Pet. at 80 ("Because each of the above limitations are defined by the information contained in various data elements, they are patent ineligible printed matter."). For example, Petitioner does not allege which particular claim element is "matter claimed for what it communicates," much less what is being communicated and to whom. *Id.*; *see In re DiStefano* at 848-49.

Indeed, Petitioner does not and cannot cite to any case law that has found claim limitations similar to the challenged limitations to be printed matter. *See* Pet. at 80. Remarkably, Petitioner relies on *C R Bard Inc. v. AngioDynamics, Inc.* as standing for the proposition that a patent cannot cover certain limitations of the challenged claims. Pet. at 80. But the limitations discussed in *C R Bard* are directed to humans that perform a medical procedure involving physical implants with identifiers physically printed on the physical implants, not to claim limitations performed by a machine or a computer, or anything close to the substance of the challenged limitations. *C R Bard*, 979 F.3d at 1376-77, 1381-82. Nor would such a discussion be relevant in *C R Bard*, because there, unlike here, "the parties agree that the asserted claims include printed matter," a fact which Petitioner sweeps under the rug. *Id.* at 1381. Each of the cases relied on by Petitioner are directed to limitations

performed by humans that involve information actually printed on a physical object that conveys information to the human. *See Praxair*, 890 F.3d at 1028-29 (The claims are performed by humans and “generally require supplying a medical provider with a cylinder of nitric oxide gas and providing the medical provider with certain prescribing information relating to the harmful effects of nitric oxide for certain patients”); *In re Marco Guldenaar Holding B.V.*, 911 F.3d at 1161 (Claims directed to humans playing a dice game, where markings on dice convey information to a human).

The claim limitations at issue here are not printed matter and do not comprise matter claimed for what it communicates that merely conveys information. For example, the claims require at least one computer to perform or be configured to perform the steps of “receiving a plurality of images displaying road scenes captured by one or more vehicles,” “receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images,” “generating a training dataset comprising summary statistics of user responses describing the state of minds of road users displayed in the plurality of images,” “training, using the training dataset, a supervised learning based model configured to predict summary statistics describing a state of mind of a road user displayed in an input image,” “receiving, by an autonomous vehicle, a new image captured by a

camera of the autonomous vehicle, the new image of a scene including a road user,” “predicting, by the autonomous vehicle, using the supervised learning based model, summary statistics describing a state of mind of the road user in the new image,” and “controlling the autonomous vehicle based on the prediction of the supervised learning based model.” Indeed, Patent Owner could not find any district court or Federal Circuit cases that discuss printed matter for limitations akin to the challenged limitations. If such claim limitations were printed matter based on Petitioner’s allegations, one would expect a plethora of court orders discussing this issue. However, Petitioner has not and cannot show this.

Assuming *arguendo* that the claim limitations are deemed to be printed matter, Petitioner fails to meet its burden that the limitations are not owed any patentable weight. Pet. at 81. Again, Petitioner only relies on cases directed to steps performed by a human involving matter actually printed on a physical substrate (e.g., markings on dice and instructions for a health care worker). *Id.* Petitioner then relies on these cases to allege that limitations of the challenged claims “merely inform[] people of the claimed information” without further analysis or explanation as to how this allegation is related to the challenged claims. *Id.*

Indeed, the Federal Circuit has found a functional relationship where the claim requires a human taking a specific medical action based on printed matter

comprising instructions related to the medical action because the interrelated claim information creates a functional relationship with a concrete step of discontinuing treatment because of that information. *See Praxair*, 890 F.3d at 1035. Similarly, the claims of the '889 patent interrelate information with concrete steps based on the alleged printed matter information. For example, a training dataset is generated based on receiving a plurality of user responses, a supervised learning based model is trained using the training dataset, summary statistics are predicted by an autonomous vehicle using the supervised learning based model, and the autonomous vehicle is controlled based on the prediction. *See Ex. 1001*, claims 1, 2, and 12. In sum, user responses relating to a state of mind of a road user in captured images are used for training data, which is used to train a learning model, which is used for predicting a state of mind of a road user in a new image, which is used to ultimately control the vehicle. Concrete steps such as “generating a training dataset,” “training . . . [a] model,” “predicting . . . summary statistics,” and “controlling the autonomous vehicle” are analogous to the concrete step of “discontinuing treatment.” *See Praxair* at 1035; *see also Ex. 1001*, claims 1, 2, and 12. The concrete steps of each challenged claim are interrelated with the alleged printed matter limitations, and the concrete steps are taken based on the alleged printed matter limitations.

Petitioner conclusorily alleges that limitations of the challenged claims “merely inform[] people of the claimed information,” without further analysis or explanation. Pet. at 81. For example, what “people” are merely being informed, when the independent claims recite steps performed by computers. The Federal Circuit has provided that it “consider[s] whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.” *C R Bard*, 979 F.3d at 1381. The challenged claims do not “merely inform” people of the claimed information. Instead, while the challenged claims refer to certain types of data, they recite numerous limitations that interact to cause specific actions in a claimed process, as previously discussed. For example, claim 1 of the ’889 patent recites:

receiving a plurality of images displaying road scenes captured by one or more vehicles;

receiving a plurality of user responses, each user response describing a state of mind of a road user displayed in one or more images;

generating a training dataset comprising summary statistics of uses responses describing the state of minds of road users displayed in the plurality of images;

training, using the training dataset, a supervised learning based model configured to predict summary statistics describing a state of mind of a road user displayed in an input image;

receiving, by an autonomous vehicle, a new image captured by a camera of the autonomous vehicle, the new image of a scene including a road user;

predicting, by the autonomous vehicle, using the supervised learning based model, summary statistics describing a state of mind of the road user in the new image; and

controlling the autonomous vehicle based on the prediction of the supervised learning based model.

Ex. 1001, claim 1 (emphasis added). The limitations also “create a new functionality in a claimed device” regarding the claimed “learning based model” and/or “autonomous vehicle.” *C R Bard*, 979 F.3d at 1381.

Although Petitioner claims the alleged “printed matter limitations do not have any such functional relationship with the ‘substrate,’ which in this case is computer memory” (Pet. at 81), there is no basis for Petitioner’s conclusion that the substrate is simply “computer memory.” Rather, “substrate . . . encompasses the structural elements of the claimed invention.” *C R Bard*, 979 F.3d at 1381. The structural elements of the claimed inventions include elements such as the autonomous vehicle, learning models, computers, memory comprising software instructions, processors, etc. As previously discussed, each of the challenged limitations has a functional

relationship with such structural elements. For example, a functional relationship to a substrate has been found when software causes information to be displayed on a computer screen. *See Hafeman v. LG Elecs., Inc.*, Civil Action No. 6:21-cv-00696-ADA-DTG, 2023 U.S. Dist. LEXIS 66459, at *23 (W.D. Tex. Apr. 17, 2023). This is analogous to the claims at issue here, where software causes, for example, a computer processor to perform one or more of the challenged limitations that ultimately lead to software controlling the autonomous vehicle.

In sum, the challenged claim limitations do not comprise printed matter. Even if they did, the printed matter is still owed patentable weight. Petitioner has failed to meet its burden to hold otherwise.

XI. PATENT OWNER'S FINAL COMMENTS

Patent Owner does not concede the legitimacy of any arguments in the Petition that are not specifically addressed herein and expressly reserves the right to rebut any such arguments in its Patent Owner Response if *inter partes* review is instituted. Similarly, Patent Owner also does not concede any underlying contentions in the Petition and reserves the right to rebut them later. Additionally, Patent Owner is not limited to the arguments presented here in this Preliminary Response, but expressly reserves the right to raise further arguments, including claim construction arguments, not presented in this Preliminary Response.

XII. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board decline to institute *inter partes* review of the '889 patent.

Dated: January 7, 2026

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Preliminary Response complies with the type-volume limits of 37 C.F.R. § 42.24(b)(1) because it contains 10,616 words, excluding the parts of this Patent Owner's Preliminary Response that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Patent Owner's Preliminary Response.

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing Patent Owner's Preliminary Response was served on January 7, 2026, to Lead and Back-up Counsel for Petitioner at the service address provided in Petitioner's Mandatory Notices:

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