

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.
Petitioner,

v.

PERCEPTIVE AUTOMATA LLC
Patent Owner.

Case No. IPR2025-01575
Patent 11,753,046

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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LIST OF EXHIBITS

Ex. No.	Description	New
1001	U.S. Patent No. 11,753,046 (“’046 Patent”)	
1002	File History of U.S. Patent No. 11,753,046	
1003	Declaration of Dr. Jason Janét	
1004	U.S. Patent Application Publication No. 2017/0099200 (“Ellenbogen”)	
1005	U.S. Patent No. 10,496,091 (“Ross”)	
1006	U.S. Patent Application Publication No. 2016/0162456 (“Munro”)	
1007	International Publication WO 2014/210334 (“Cox”)	
1008	File History of U.S. Patent No. 10,402,687	
1009	File History of U.S. Patent No. 10,614,344	
1010	File History of U.S. Patent No. 11,126,889	
1011	Complaint in <i>Perceptive Automata LLC v. Tesla, Inc.</i> , Case No. 2:25-cv-00742 (E.D. Tex. filed July 23, 2025)	
1012	U.S. Patent No. 10,733,506 (“Ogale”)	
1013	CV of Dr. Jason Janét	
1014	Tesla’s Notice of Sotera Stipulation	
1015	Patent Owner Voluntary Dismissal – EXTX-2:25-cv-00742 (filed December 29, 2025)	
1016	Patent Owner Complaint – WDTX-7:25-cv-00594 (filed December 29, 2025)	
1017	Motion to Stay – WDTX-7:25-cv-00594 (filed January 5, 2025)	
1018	Docket Navigator – Judge David Counts Statistics	
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1021	Docket – WDTX-7:25-cv-00594	
1022	Personal Website of Dr. Samuel English Anthony	
1023	Transcript of Deposition of Dr. Eli Saber (Day 1)	X
1024	Transcript of Deposition of Dr. Eli Saber (Day 2)	X
1025	U.S. Patent No. 10,614,344	X

1026	U.S. Patent No. 11,126,889	X
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The only limitations that Patent Owner (“PO”) Perceptive Automata LLC disputes in its Patent Owner Response (Paper 15, “POR”) involve “*users*”¹ (which PO asserts should be construed as “road users”) and “*summary statistics*.” These arguments should be rejected because they rely on improper interpretations of the claims and misunderstand the Petition’s combinations. PO’s arguments about *summary statistics* also rely on non-patentable printed matter. PO further misapprehends the Petition when challenging Petitioner’s proposed motivations to combine. Finally, PO’s arguments concerning the *Graham* factors and the qualifications of Petitioner’s expert are meritless.

I. CLAIM CONSTRUCTION

A. PO’s express construction of “*user(s)*”

In contrast to the claims of the related ’344 and ’889 patents, the patentee declined to claim a “road” or “road user” in the ’046 patent. EX1025, claims 1-22; EX1026, claims 1-20. PO now tries to undo this strategic choice, replacing the term “user” in the claims with “road user.” POR, 8-10.

PO’s sole basis for reading “road user” into the claims, is a string cite to *example embodiments* in the specification. POR, 8-9. But “[e]mbodiments in the specification—even if there is only one embodiment—cannot limit the scope of the claims absent the patentee’s words or expressions of manifest exclusion or

¹ Claim language is italicized throughout unless otherwise noted.

restriction.” *Apple Inc. v. Wi-LAN Inc.*, 25 F.4th 960, 967 (Fed. Cir. 2022) (internal quotation marks omitted). PO does not cite, and the ’046 patent specification does not contain, any “words or expressions of manifest exclusion or restriction” suggesting that “user” refers only to “road users.” *See id.*

In the ’046 patent specification, a “road user” is someone using a road, while a “user” may be any person using something. *Compare* EX1001, 3:47-50 (“predicting the state of mind of road users”) *with id.*, 4:36-40 (“recording responses of multiple users (or human observers) to the information”). The specification also describes predicting user behavior without reference to a “road user.” *See id.*, Fig 2A at Step 214 (“Apply model to other video data to generate a prediction of *user* behavior...”). The specification further includes broad language that “[t]he disclosed subject matter is capable of other embodiments and of being practiced and carried out in various ways” and that “the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.” *Id.*, 15:17-22. PO cannot ignore these statements to read a preferred embodiment into the claims.

B. PO’s implied construction of “*summary statistics...*”

Most of PO’s arguments depend on a narrow interpretation of “*summary statistics describing the state of mind of the user in the image based on the received responses from the plurality of human observers.*” PO’s narrow interpretation

should be rejected procedurally because PO never specifies its proposal, and rejected on the merits because PO ignores both the claim language and the specification.

1. PO never sets forth its construction

PO's construction "should not be a moving target"—it should have been clearly presented in the POR, so Petitioner had an adequate opportunity to respond. *See Finnigan Corp. v. Int'l Trade Comm'n*, 180 F.3d 1354, 1363 (Fed. Cir. 1999). Despite disputing Petitioner's application of "plain and ordinary meaning," PO **never says** how it is interpreting the disputed phrase. POR, 16-25, 28-30, 36-41, 45-50; *see also* Petition (Paper 1) ("Pet."), 20-27, 32, 33-34, 42-43, 45, 52-54, 64-70, 74-76. Instead, PO asserts that "[t]he Board need not construe any other claim terms [(besides "user")] in a particular manner[.]" POR, 10; EX1023, 112:3-9, 127:1-128:15, 336:20-337:15. PO's expert, Dr. Saber, was similarly evasive when asked how he interpreted this language. *See, e.g.*, EX1023, 124:10-126:15; 128:16-130:2; 152:1-155:22. PO should not be allowed to advance an unstated claim construction.

Relatedly, PO has not also demonstrated that its implied construction is proper under *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005). Having failed to explain in its POR why its interpretation is proper, any further claim construction arguments should be considered waived. *In re Baxter Int'l*, 678 F.3d 1357, 1362 (Fed. Cir. 2012); *In re NuVasive*, 842 F.3d 1376, 1380-81 (Fed. Cir. 2016) (finding

a patent owner waived arguments omitted from its POR); *Google LLC v. Uniloc 2017 LLC*, IPR2020-00447, Paper 21 at 9-10 n. 6 (May 11, 2021).

2. PO and Dr. Saber’s interpretations of the claims are flawed

Even without making an affirmative argument, PO implicitly construed the “*summary statistics...*” limitations to require a direct record of user responses concerning the state of mind of a user (or “road user”) in the image. For example, PO admits that Cox’ psychometric data “‘characterizes the annotation of the training objects by annotators’ and that ‘may include [...] accuracy of feature classification.’” POR, 16-17. So, there is no dispute that the psychometric data may indicate whether a given annotation accurately reflects the state of mind of a user. POR, 16-17. But PO nonetheless contends—without explanation—that this psychometric data does not “‘describ[e] the state of mind of the user in the image’ in any way.” *Id.*; *see also id.*, 18, 19, 20. Dr. Saber further confirmed in his deposition that he believed that *summary statistics* must give a quantification of “the state of mind that -- that the autonomous vehicle of the ’046 is trying to predict.” EX1023, 331:15-334:11.

Contrary to PO’s implied construction, the claims do not call for summary statistics that **directly record** a user’s state of mind. Instead, a different element in the claims—*the received responses from the plurality of human observers*—must “represent[] a judgment by the human observer of the state of mind of the user in the image[.]” EX1001, Claims 1, 8, 15. It would thus be illogical to interpret the

“summary statistics” as also directly “representing a judgment by the human observer of the state of mind of the user in the image.”² The claims instead call for the summary statistics to provide a separate **description**, which need not be a direct record of the state of mind. *Id.*

The specification also confirms that the summary statistics need not directly record the user’s state of mind. While some embodiments tie the *summary statistics* directly to the user’s state of mind, in other examples the *summary statistics* describe the states of mind indirectly, through qualitative information about the human observer responses. *See* EX1001, 6:24-28; *see also id.*, 2:50-57, 9:64-10:3, 10:54-60, 11:7-15, Claims 7, 14, 16. PO’s implied claim construction improperly excludes such examples of “*summary statistics*” from the claims. *Eko Brands, LLC v. Adrian Rivera Maynez Enters., Inc.*, 946 F.3d 1367, 1373 (Fed. Cir. 2020).

3. Petitioner correctly applies the plain and ordinary meaning

Breaking the relevant claim language into parts, the plain and ordinary meaning of “*generating summary statistics*” includes generating numbers summarizing a collection of information. *See* Pet., 20- 23. Those “*summary*

² PO does not dispute that the cited primary references disclose *response[s]* *representing a judgment by the human observer of the state of mind of the user in the image* as required.

statistics” must then “***describ[e]*** the state of mind of the user in the image based on the received responses from the plurality of human observers.” As explained above (Section I.B.2), the description in the *summary statistics* is not limited to a direct statement about the state of mind. Indeed, the phrase “*based on the received responses from the plurality of human observers*,” confirms that this description may reference additional information, besides the ultimate state of mind. The ’046 patent specification further confirms that the summary statistics can describe “the state of mind of the user” indirectly, e.g., “in terms of certain parameters associated with the statistics, such as a content of a response, a time associated with entering a response, and a position of an eye of a human observer associated with the response.” EX1001, 6:24-28.

4. The “*summary statistics*” in 1[c], 8[c], and 15[c] need not be the same “*summary statistics*” as in 1[b], 8[b], and 15[b]

PO and Dr. Saber take the position that the **output** “*summary statistics*” in limitations 1[c], 8[c], and 15[c] must be the same “*summary statistics*” as used for **training** in limitations 1[b], 8[b], and 15[b]. POR, 23-25; *id.*, 40-41, 48-50; EX1023, 165:17-180:22. But it is nonsensical to say that a model trained on one set of “*summary statistics*” will output those same statistics. A trained model reacting to new stimuli will estimate how human annotators would hypothetically annotate

the stimuli—it does not output the exact same training data as a prediction. *See* EX1023, 64:6-65:10.

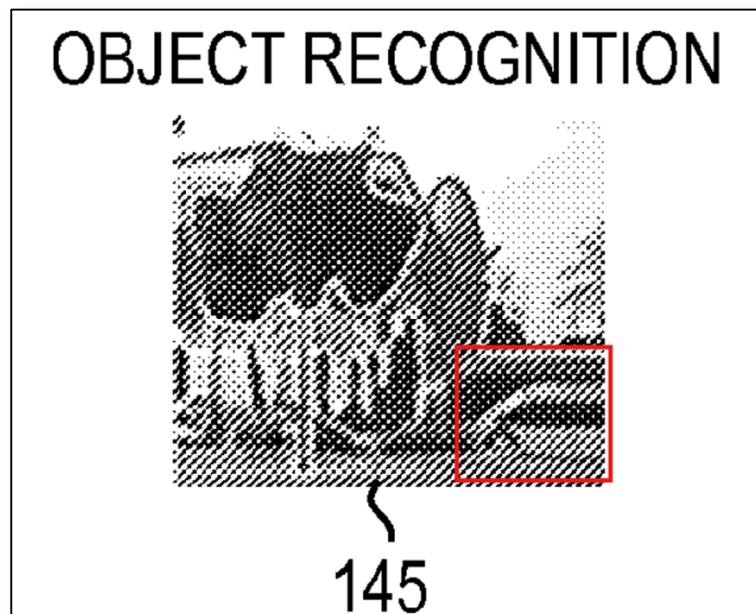
The specification uses the phrase “summary statistics” to separately refer to both a variety of training data, and a variety of output from the model. *See* EX1001, 6:14-49, 9:59-10:49, 13:24-27 (“These [predicted] summary statistics are an estimate of what the summary statistics would be for a collection of human observers...”). So, while the output in limitations 1[c], 8[c], and 15[c] must also qualify as “*summary statistics*,” the output statistics need not be the same as the training data.

The claims also use different language when referring to the same *summary statistics*. When limitation 1[b-iv] referred back to the same *summary statistics* as in 1[b-iii], it referred to “***the summary statistics***.” Limitations 1[c], 8[c], and 15[c] do not use “the” when introducing “*summary statistics*,” and they also refer to “***a*** state of mind of the user in the input image,” which further confirms that these are new *summary statistics*. Moreover, limitations 1[c], 8[c], and 15[c] do not require that the *summary statistics* be *based on the received responses from the plurality of human observers*, further differentiating that the two uses of *summary statistics*.

II. COX TEACHES “USERS” AND “ROAD USERS”

For the reasons discussed in Section I.A, PO’s narrow construction of “user” should be rejected. PO does not argue that Cox fails to disclose a “user” under the plain and ordinary meaning construction applied in the Petition.

However, even under PO’s erroneous construction for “user,” Cox renders the claims obvious. POR, 16. Cox’s people/faces in images reflect people partaking in an activity or otherwise using an object, which would have been “for example as a road user within the context of ‘driverless’ vehicles[.]” Pet., 15-16; EX1007, ¶¶0007-0010, 0016-0018, 0029, 0044, 0056; EX1003, ¶71. Cox’s examples of objects expressly include “a tree, *a car*, *a bus*, a building, and *a street* in a given image.” EX1007, ¶0016 (emphasis added). An example involving a car (boxed below) is also shown in Figure 1A:



Id., Fig. 1A (annotated); *contra* POR, 16; EX1023, 303:3-306:3 (dismissing Cox’s disclosure as “marketing and hand-waving”).

III. COX TEACHES THE CLAIMED “SUMMARY STATISTICS”

A. Cox teaches limitations 1[b-iii], 8[b-iii], and 15[b-iii]

Cox teaches *generating* multiple sets of *summary statistics* for training a model, each of which *describ[es] the state of mind of the user in the image based on the received responses from the plurality of human observers*: psychometric data, item-response curves, human-weighted loss function, and end-of test statistics. Pet., 20-23. PO relies on a nearly identical conclusory rebuttal for each of these statistics, claiming that each “do[es] not ‘describ[e] the state of mind of the user in the image.’” POR, 17-20. PO is wrong on each account.

1. Psychometric data

Just like summary statistics in the ’046 patent specification, Cox’s psychometric data *describ[es] the state of mind of the user in the image based on the received responses from the plurality of human observers* because the data describes the emotions of a user in a sample training image based on features of the annotation set received from the human annotators. Pet. 20-21, EX1007, ¶¶0008, 0018, 0029, Fig. 3. At a minimum, psychometric data describing how accurately annotators identified the subject emotion *describ[es] the state of mind of the user in the image based on the received responses from the plurality of human observers*.

See EX1007, ¶¶0008, 0026. Identifying responses about a state of mind as “accurate” or “inaccurate” necessarily provides information about (i.e., *describ[es]*) the underlying state of mind.

Besides its implied claim construction, PO makes no specific arguments about why psychometric data in Cox does not “*describ[e] the state of mind of the user in the image based on the received responses from the plurality of human observers.*” POR, 17. And because PO’s implicit construction is flawed (*supra* Section I.B.2-3), the Board should reject PO’s argument.

2. Item-response curves

PO describes item-response curves in Cox as showing “how consistent are judgment across a population,” and plotting “the respondents’ ability and accuracy of their responses.” POR, 18. As with psychometric data, statistics summarizing the consistency and accuracy of human responses about a state of mind necessarily *describ[es]* the underlying state of mind, based on the received responses.

3. Human-weighted loss function

PO admits that “the human-weighted loss function Cox describes can be derived based in part on the classification data” (which is the user responses), but nonetheless PO asserts that this function “does not ‘*describ[e]* the state of mind of the user in the image.’” POR, 19. Contrary to PO’s conclusory assertion, deriving a function based on the user responses is a way to describe those responses,

consistent with the '046 patent. *See e.g.*, EX1001, 10:61-11:19 (describing exemplary summary statistics “calculated from the implicit measurements of the responses listed above”).

4. End-of test statistics

PO asserts that “a POSITA would have expected [the end-of-test statistics] to contain information about the annotators’ performance and accuracy, not about the state of mind of any user in any image.” POR, 20. But “information about the annotators’ performance and accuracy” necessarily reflects the underlying state of mind of the users in an annotated image. For example, a statement that the annotator mislabeled an image communicates information about what the correct label would have been.

B. Cox teaches limitations 1[b-iv], 8[b-iv], and 15[b-iv]

PO does not dispute that psychometric data in Cox is *stor[ed] ... in association with the image as part of the training data*, as required in limitations 1[b-iv], 8[b-iv], and 15[b-iv]. *See* POR, 22-23. Instead, PO relies only on its argument that the psychometric data does not satisfy limitations 1[b-iii], 8[b-iii], and 15[b-iii], which are addressed above. *Id.*

With regards to item-response curves, human-weighted loss functions, and end-of-test statistics, PO argues that the Petition is deficient for failing to discuss how these summary statistics would be stored. *Id.*, 22. This argument ignores the

interwoven relationship between psychometric data and these additional data structures in Cox. *See* Pet. 20-23; EX1007, ¶¶0007, 0029, 0048, Fig. 3. There is no reason to believe these items would be stored separately from the psychometric data.

C. Cox teaches limitations 1[c], 8[c], and 15[c]

Contrary to PO's conclusory assertion (POR 24), the Petition thoroughly explains how Cox optimizes the model to minimize differences between predicted classifications (output *summary statistics*) and the training data (Pet., 25-27). Because PO makes only a conclusory denial, it is unclear whether PO disputes (i) whether Cox's classification is not structurally a *summary statistic* or (ii) whether Cox's classification does not *describ[e] a state of mind of the user in the input image*. Regardless, the output classification in Cox *summar[izes]* how the model thinks a collection of annotators would have classified a user in an input image. EX1003, ¶82; EX1007, ¶0032; *see also* EX1023 64:11-22. So, the output classification is a *summary statistic* and it *describ[es] a state of mind of the user in the input image*.

PO wrongly suggests that the classifications in Cox are limited to "face present" or "face not present." POR. 23. Cox expressly contemplates using its system to identify, *inter alia*, cars and buses in an image (EX1007, ¶0016 and Fig. 1A (145)), and identifying the emotions of subjects in images (*id.*, ¶¶0016, 0049, 0057).

IV. PO’S ARGUMENTS AGAINST GROUNDS 2 AND 3 HAVE SAME FLAWS

For Grounds 2 (Cox+Ross) and 3 (Cox+Ellenbogen), PO relies on the same disputes raised in Ground 1, which fail for the reasons addressed above. *See* POR, 28-31 and 35; *supra* Section III.A.

The combination with Ross in Ground 2 further undercuts PO’s conclusory arguments regarding limitations 1[c], 8[c], and 15[c]. In the proposed combination, “Cox’s system is trained to analyze an action by a person or road user, reflecting a possible intent in images, as taught by Ross.” Pet., 36. The output (*summary statistics*) from a model trained in this way describes what a road user in an image is likely to do, i.e., *a state of mind of the user in the input image*.

V. COMBINING COX WITH AGGREGATION FROM MUNRO GENERATES FURTHER SUMMARY STATISTICS

Anticipating that PO would dispute Cox’s disclosure of *summary statistics*, Petitioner proposed an alternative ground combining Cox with Munro’s teachings about aggregating annotations from multiple humans. Pet, 49. PO feigns confusion about this proposed combination (POR, 38) but later acknowledges that the proposed combination involves using “tallies to aggregate the number of annotators who similarly classified the emotional state of the user in the training image” (*id.*, 41). These tallies are additional *summary statistics* that satisfy limitations 1[b-iii], 8[b-iii], and 15[b-iii] and 1[b-iv], 8[b-iv], and 15[b-iv].

A. Cox and Munro teach limitations 1[b-iii], 8[b-iii], and 15[b-iii]

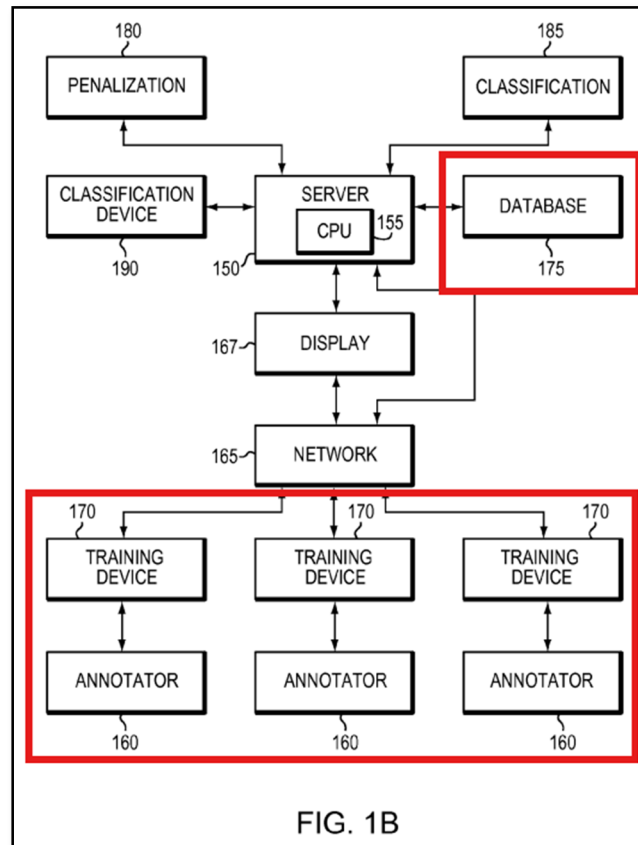
PO primarily (and wrongly) argues that the aggregation proposed in Munro is inapplicable to Cox because Munro is focused on training with documents for natural language models. POR, 37. However, this argument concerns **whether** a POSITA would make the combination, not if that combination would satisfy the claims. PO's arguments on motivations to combine fail for reasons discussed below. *Infra*, Section VIII.B.

PO's only argument about whether the combination of Cox and Munro would satisfy the claims focuses on Munro's aggregation **in isolation**, not in combination with Cox. *See* POR, 37 ("Nothing in Munro suggests that its tallies 'describ[e] the state of mind of the user in the image.'"). Whether Munro discloses aggregating this type of response is irrelevant because the annotator responses in Cox already describe the state of mind of the user in an image. *See* Pet., Section X.A.2.a. Introducing aggregation from Munro does not change the content of the annotator responses in Cox, which still involve the required state of mind.

B. Cox and Munro teach limitations 1[b-iv], 8[b-iv], and 15[b-iv]

Cox already teaches storing data used in the training process in "a database of training objects." Pet., 23; EX1007, ¶¶0007-0009, 0017-0020, 0032. The combination with Munro simply adds more data (tallies) to use in the training

process. This additional data would logically be stored in the same place (database 175) as the other data used for training, like psychometric data. *See* Pet., 53-54.



EX1007, Fig. 1B (annotated).

PO's arguments about excluding annotations are also misguided. *Contra* POR, 39-40. Even accepting PO's hypothesis that sometimes tallies associated with a specific excluded annotated image could be excluded from the training database (which is a speculative hypothesis), in no scenario would ***all*** annotated images be excluded—that would make training impossible. Therefore, because some annotations must be retained for training, even in PO's hypothetical some

annotations and tallies would be stored in Cox’s database of training objects, which is enough to satisfy the claims.

C. Cox and Munro teach limitations 1[c], 8[c], and 15[c]

The *summary statistics* in limitations 1[c], 8[c], and 15[c] need not be the same *summary statistics* as in limitations 1[b], 8[b], and 15[b]. *Supra*, Section I.B.4. With this context, PO’s argument that “[n]othing in either Cox or Munro suggests ‘predict[ing]’ any such tallies” is a strawman. POR, 41. While the Cox-Munro model training includes aggregated tallies, as taught by Munro, the output of the model remains predicting a classification (e.g., a *state of mind*) as taught by Cox. Pet., 54 and 27.

VI. PO MISAPPREHENDS THE COMBINATION OF ELLENBOGEN AND MUNRO

PO’s arguments do not align with how the Petition relies on Ellenbogen and Munro. The Petition relies on Ellenbogen’s description of a “composite output” generated from the responses from multiple human agents regarding the behavior or activity of a person in an image, and Munro’s teaching that such input from multiple annotators can be aggregated, tallying the number of annotators who classified a training sample as having various labels. Pet., 64-65. So, in the Ellenbogen-Munro combination, the information used to train the model includes an aggregate number (*summary statistics*) of annotators who classified the behavior or activity as having

various labels in their responses (*describing the state of mind of the user in the image based on the received responses from the plurality of human observers*). *Id.*

A. Ellenbogen and Munro teach limitations 1[b-iii], 8[b-iii], and 15[b-iii]

First, PO argues that “Ellenbogen does not teach an ‘aggregate’ of any kind.” POR, 45. But Petitioner is not relying on Ellenbogen for aggregation—that is taught by Munro. *See* Pet., 64-65. Second, PO argues that Munro does not *describ[e] the state of mind of the user in the image* because “[n]othing in Munro suggests that its tallies have anything to do with an image, because Munro’s disclosure concerns analysis of documents, not images.” POR, 46. But again, Petitioner is not relying on Munro for the content of the human annotations—that is taught by Ellenbogen. *See* Pet., 64-65. This attempted misdirection is PO’s only argument. PO does not dispute that the agent responses in Ellenbogen *describ[e] the state of mind of the user in the image*, and PO does not dispute that Munro teaches aggregating human responses for training data. That is the combination presented by Petitioner, and PO has not presented any sound rebuttal.

B. Ellenbogen and Munro teach limitations 1[b-iv], 8[b-iv], and 15[b-iv]

PO acknowledges that “Munro’s system includes a ‘client data store’ (i.e., a database of training data) that contains ‘a repository of data that is used to train and ultimately generate the natural language model.’” POR, 47 (quoting Pet. 66); *see*

also EX1006, ¶0061. Nonetheless, PO confusingly asserts that “nothing in any of these disclosures teaches storing Munro’s tallies from its aggregation process in any location, let alone ‘in association with the image as part of the training data.’” POR, 47. To the contrary, as explained in the Petition, a POSITA would have known to store the Ellenbogen-Munro composite (the identified *summary statistics*) in the client data store that PO references. Pet., 65-66. Further, the composite would be associated with the underlying training reference (*image*) using the “computed score” disclosed in Munro. *Id.*; EX1006, ¶0141. PO does not meaningfully engage with this disclosure, and its blanket denials are ineffective. *Samsung Electronics Co. Ltd. et al. v. Harbor Island Dynamic, LLC*, IPR2024-01402, Paper 32 at 16 (PTAB Mar. 16, 2026); *Comcast Cable Communications, LLC v. Rovi Guides, Inc.*, IPR2019-00281, Paper 39 at 88 (PTAB June 26, 2020).

PO’s argument regarding Munro’s tallies being used to exclude certain documents (POR, 47) fails for the reasons addressed in Section V.B.

C. Ellenbogen and Munro teach limitations 1[c], 8[c], and 15[c]

As explained above (Section I.B.4), there is no requirement for *summary statistics* in limitations 1[c], 8[c], and 15[c] to be the same as *summary statistics* in limitations 1[b], 8[b], and 15[b]. *Contra* POR, 48-49.

PO also misapprehends what Petitioner is citing in Ellenbogen as the predicted *summary statistics describing a state of mind of the user in the input image*. *Id.*,

49-50. Ellenbogen teaches that its model can “recognize suspicious behavior in that environment on its own,” and such “suspicious behavior” corresponds to predicting *a state of mind of the user in the input image*. Pet., 68-70; EX1004, ¶0057. Ellenbogen also outputs a confidence score for a given classification, which can be binary *or multiclass*. Pet., 68-69; EX1004, ¶0166. A multiclass confidence score describing predictions of suspicious behavior is a *summary statistic* (e.g., the confidence score) *describing a state of mind* (e.g., suspicious behavior) *of the user in the input image*. Pet. 69-70.

PO does not address the prediction of suspicious behavior in Ellenbogen; PO only discusses a binary classification on whether an object is present. POR, 49-50. This is another strawman, as Petitioner is not relying on a present/not present prediction. Because PO ignores Ellenbogen’s prediction of suspicious behavior, PO’s arguments are moot.

VII. PERCEPTIVE IS RELYING ON PRINTED MATTER

The parties do not dispute the core operation in the prior art and the claims: a supervised learning model is trained on human labeled data (*summary statistics* 1[b]) to output a prediction (additional *summary statistics* 1[c]) about a user’s state of mind. POR 3-5, EX1023, 55:21-56:10; 57:18-59:20. The only disputes concern the content of alleged “*summary statistics*.” Because these disputes are limited to the content of information, any purported distinction is printed matter.

PO's legal arguments regarding printed matter are misguided, particularly with respect to *In re Lowry*, 32 F.3d 1579 (Fed. Cir. 1994). POR, 52-56. *Lowry* involved data structures tied to computer memory performance. 32 F.3d at 1583. Because these data structures improve the operation of a computer, it makes sense that this type of content would be outside the scope of printed matter, a doctrine which originates from subject matter eligibility restrictions. *C.f.*, *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (holding “data structure designed to improve the way a computer stores and retrieves data in memory” subject matter eligible under Section 101). With this context, *Lowry* should not be read to categorically exclude computer information from the printed matter doctrine. To the contrary, the Federal Circuit later clarified that “the doctrine has evolved over time to guard against attempts to monopolize the conveyance of information ***using any medium.***” *C R Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020) (collecting cases).

PO also misapplies the distinction between claiming types of information, versus the content of information. *Contra* POR, 55. A limitation requiring “an image” claims a type of information, but a limitation specifying that image must include a user claims the content of the information. Similarly, a requirement that a user receive a “request” is one thing, but a modifier specifying that the request includes “a question about a state of mind of the user” claims the content of that

request. *Id.* Just so, a claim requiring *summary statistics* arguably relates to the type of information, but a claim specifying what those *summary statistics* describe is directed at the content of the information.

PO's arguments about an alleged functional relationship with the substrate are similarly misguided. POR, 57-59. The **content** of the "*summary statistics*" has no functional role in the claims. Nothing in the '046 patent suggests that any operation depends on whether the "*summary statistics*" directly describes for a user's state of mind, versus a describing the state of mind through qualities of received human annotations. Indeed, the '046 patent describes a wide variety of possible summary statistics usable in a variety of ways. *See* EX1001, 6:14-49. Certainly, there is no suggestion that the basic computer silicon—the substrate, in this context—changes operation based on the content of "*summary statistics*."

VIII. A POSITA WOULD HAVE BEEN MOTIVATED TO COMBINE THE CITED REFERENCES

A. Cox and Ross

PO misapprehends two bullet points in the Petition explaining how Cox and Ross would be combined: first modifying the training data collected (in view of Ross), and second modifying the training to use the new data. Pet. at 36. Ignoring these bullet points, PO wrongly asserts that "Petitioner's lone modification of Cox based on Ross appears to be that, in view of Ross, the 'user' in the image of Cox can be 'a person or road user[,]'” and “[n]owhere does the Petition describe how a

POSITA would have accomplished this modification.” POR, 31. PO then misconstrues the two bullet point explanations as Petitioner’s “first” and “second alleged motivation to combine.” POR, 32. These are not the motivations to combine; these bullet points describe the proposed combination.

PO incorrectly argues that a POSITA would not be motivated to combine Cox and Ross because Cox is limited to “determining the presence or absence of a face in images” and Ross is limited to “predicting what an object in a road scene.” POR, 31-32. This ignores Cox’s disclosure says that it’s techniques may be directly applied to “driverless / semiautonomous automobiles” (EX1007, ¶0056) and that the system be used to identify (*inter alia*) cars, busses, and streets (*id.*, ¶0016). PO and its expert refuse to address this disclosure, and PO’s expert even attempts to dismiss this disclosure as “just marketing and hand-waving.” EX1023, 304:9-305:2; *see also id.*, 296:18-300:18, 305:22-306:1.

For the same reason, PO’s hindsight accusation is baseless. POR, 33-34. Cox itself suggests that its techniques could be applied to a self-driving application, and Ross provides details about how a POSITA could accomplish that. Pet, 38 (citing EX1007, ¶0056). In view of Cox’s direct disclosure, PO’s suggestion that Petitioner is modifying Cox with Ross solely because they both refer to making human-like predictions is false. *Contra* POR 33-34.

Lastly, the so called “fundamental differences” in Ross’s and Cox’s architecture that PO emphasize are irrelevant. POR, 32-33. The proposed combination has nothing to do with Ross’s architecture; the only proposed modifications are to the content of the training data used in Cox. Pet. 36. There is no need to modify Cox’s architecture.

B. Cox and Munro

PO again overstates how alleged “fundamental differences” between Cox and Munro would impact the proposed combination. POR, 42-43. The Petition does not propose transplanting Munro’s entire system into Cox; the Petition applies Munro’s suggested aggregation for annotator responses to Cox’s system. Pet. 49-52. This discrete modification would have been straightforward and well-understood. *Id.*

PO’s complaint that Munro’s aggregation “relates specifically to an issue in natural language processing” is also baseless. POR, 42-43. The same potential use of aggregated data to exclude certain training data could be used for both natural language and image-based training. *Contra id.* The ’046 patent describes exactly this process: using information about the human annotations when deciding whether to exclude annotations from a given observer. EX1001, 9:64-10:3 (“The summary statistics might include unweighted information from all observers, *or might exclude observers* based on extrinsic or intrinsic criteria [...]” (emphasis added)). Because the ’046 patent contemplates the same type of application, the Board should

not credit PO's self-serving argument that "excluding data in an autonomous driving context would not be practical." POR, 42-43.

C. Ellenbogen and Munro

PO wrongly repeats the same flawed arguments about combining Ellenbogen and Munro as addressed above for Cox and Munro. POR, 50-51. PO overstates the so-called "fundamental differences" between Ellenbogen and Munro, which are not pertinent to the discrete combination proposed in the Petition. *Id.* And, PO also repeats its baseless assertion that "performing such an aggregation process and excluding data in an autonomous driving context would not be practical," which directly contradicts an example in the '046 patent. *Id.*; EX1001, 9:64-10:3. These arguments are flawed for the reasons addressed above (*supra*, Section VIII.B), and they do not rebut the motivation to combine presented in the Petition (Pet., 55-59).

IX. THE PETITION ADDRESSES THE GRAHAM FACTORS

The Petition includes a detailed obviousness analysis that identified the relevant level of skill in the art, discussed every prior art reference at issue, and compared those references to the challenged claims.

Regarding Ground 1, PO suggests that the Petition must identify a missing limitation from Cox to present an obviousness challenge. POR, 26-27. But the Federal Circuit has made clear that a disclosure that teaches all limitations of a claim (i.e., anticipates) also renders the claim obvious, "for anticipation is the epitome of

obviousness.” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019); *see also, Semiconductor Components Industries, LLC et al. v. Greenthread LLC*, IPR2023-01244, Paper 129 at 58-59 (PTAB Dec. 8, 2025).

Regarding Ground 4, PO suggests that Petitioner cannot alternatively rely on Munro to teach limitations that Cox alone satisfies. POR, 43. But arguing in the alternative is a well-established practice. *See, e.g., Amazon.com, Inc. et al. v. Soundclear Technologies LLC*, IPR2025-00565, Paper 39 at 95-97, 104-105 (PTAB July 27, 2026); *Google LLC v. DH International LTD.*, IPR2024-01322, Paper 33 at 25, 63, 75 (PTAB Feb. 10, 2026).

This case is also unlike *Ezio Corp., Moses Lake*, or *eBay*. POR, 28-29. Unlike *Eizo*, the Petition here affirmatively identified the specific, discrete issue addressed by a fallback combination and was not conclusory. *Compare Eizo Corp. v. Barco N.V.*, IPR2014-00358, Paper 11 at 29-30 (PTAB July 23, 2014), *with* Pet., 49-54. *Moses Lake* is distinguishable because the petitioner there “merely recite[d] different elements” of “Other References” and “did not indicate how or why those elements would have been adopted[.]” *Moses Lake Indus., Inc. v. Enthone, Inc.*, IPR2014-00246, Paper 6 at 16-17 (PTAB June 18, 2014). *Ebay* is irrelevant because it dealt with a single-reference ground, not a specific proposed combination. *eBay, Inc. v. Paid, Inc.*, CBM2014-00125, Paper 15 at 21 (PTAB Sept. 30, 2014).

X. DR. JANET IS A POSITA AND HIS TESTIMONY SHOULD BE GIVEN WEIGHT

PO's citation to *Kyocera Senco* is inapposite because that case dealt with an expert who did not qualify as a POSITA, which is not the case here. POR, 7; *Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1377-78 (Fed. Cir. 2022). Dr. Janét's education (e.g., Ph.D. in Electrical and Computer Engineering, awarded in 1998) and work experience (e.g., "robotics, sensors, artificial intelligence, pattern analysis, and automation fields" since 1991) met the agreed standard for a POSITA at the relevant time. EX1003, ¶¶2-21; EX2039, ¶52.

PO's assertion that Dr. Janét's declaration "adds nothing," is also meritless. *See e.g.*, POR, 17-20, 24. Dr. Janét appropriately included the reasoning and underlying facts that support his positions in his declaration. EX1003, *passim*, ¶¶69-243.

XI. CONCLUSION

Petitioner requests that the Board find the challenged claims unpatentable.

Respectfully Submitted,

Date: September 8, 2026

/Roger Fulghum/
Roger Fulghum
Reg. No. 39,678
Lead Counsel for Petitioner, Tesla, Inc.

CERTIFICATE OF COMPLIANCE

I hereby certify that this Petitioner's Reply to Patent Owner's Response complies with the type-volume limitations of 37 C.F.R. § 42.24(c)(1) because it contains 5,592 words (as determined by the Microsoft Word word-processing system used to prepare the reply), excluding the parts of the reply exempted by 37 C.F.R. § 42.24(c).

Respectfully submitted,

BAKER BOTTS L.L.P.

/Roger Fulghum/

Roger Fulghum

Reg. No. 39,678

Lead Counsel for Petitioner, Tesla, Inc.

Date: September 8, 2026

Baker Botts L.L.P.

910 Louisiana Street

Houston, TX 77002

Phone: (713) 229-1707

roger.fulghum@bakerbotts.com

CERTIFICATE OF SERVICE

The undersigned certifies that on September 8, 2026, a complete and entire copy of the **PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**, including exhibits EX1023-1026, were served on Patent Owner electronically via email on the following counsel of record for Patent Owner:

Charles Austin Ginnings (austin@nelbum.com)

John P. Murphy (murphy@nelbum.com)

perceptive@nelbum.com

Date: September 8, 2026

/Roger Fulghum/
Roger Fulghum,
Reg. No. 39,678
Lead Counsel for Petitioner, Tesla, Inc.