In the Matter Of:

Tesla, Inc. v

Perceptive Automata, LLC

Jason Janet, Ph.D.

June 04, 2026

LEXITAS™

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case No. IPR2025-01573
Patent No. 10,614,344

TESLA, INC.,

Petitioner,

-vs-

PERCEPTIVE AUTOMATA LLC,

Patent Owner.
_____/

DEPOSITION OF
JASON JANET, PH.D.

Thursday, June 4, 2026
10:05 a.m. - 5:14 p.m.

Remote Location
Via Zoom Videoconference
All Parties Remote

Stenographically reported by:
Erica Field, RDR, CRR, CA-CSR, TX-CSR,
GA-CSR, WA-CSR, NM-CCR, IL-CSR, NJ-CCR,
FL-FPR, OR-CSR, NY Notary, FL Notary,
AK Notary, DC Notary
Job No. 1025544

Perceptive Exhibit 2043
IPR2025-01573

Page 2

REALTIME VIDEOTAPED STENOGRAPHIC DEPOSITION of JASON JANET, PH.D., taken in the above-entitled matter before ERICA FIELD, RDR, CRR, California Certified Shorthand Reporter (License No. 14516), Texas Certified Shorthand Reporter (License No. 12724), Oregon Certified Shorthand Reporter (License No. 240103), New Jersey Certified Court Reporter (License No. 30XI00244800), New Mexico Certified Court Reporter (License No. 575), Washington Certified Shorthand Reporter (License No. 22020479), Illinois Certified Shorthand Reporter (License No. 084004952), Georgia Certified Court Reporter (License No. 5338-8044-2296-7296), Florida Professional Reporter (License No. 1109), New York Notary, Florida Notary, Alaska Notary, DC Notary taken via remote videoconference on Thursday, June 4, 2026, commencing at 10:05 a.m.

Page 3

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Page 4

INDEX OF PROCEEDINGS

WITNESS	PAGE
JASON JANET	
DIRECT EXAMINATION BY MR. GINNINGS	6
CROSS-EXAMINATION BY MR. BARAZESH	194
CERTIFICATE OF REPORTER	196
ERRATA SHEET	197

Page 5

EXHIBITS

EXHIBIT	DESCRIPTION	PAGE
Exhibit 1	Petition For Inter Partes Review of Claims 1-22 of U.S. Patent No. 10,614,344	11
Exhibit 2	Petition For Inter Partes Review of Claims 1-22 of U.S. Patent No. 11,126,889	14
Exhibit 3	Petition For Inter Partes Review of Claims 1-22 of U.S. Patent No. 11,753,046	15
Exhibit 4	Petition For Inter Partes Review of Claims 1-22 of U.S. Patent No. 11,467,579	16
Exhibit 5	Petition For Inter Partes Review of Claims 1-22 of U.S. Patent No. 11,520,346	17
Exhibit 6	Declaration of Dr. Jason Janet Regarding U.S. Patent No. 10,614,344	18
Exhibit 7	Declaration of Dr. Jason Janet Regarding U.S. Patent No. 11,126,889	21
Exhibit 8	Declaration of Dr. Jason Janet Regarding U.S. Patent No. 11,753,046	22
Exhibit 9	Declaration of Dr. Jason Janet Regarding U.S. Patent No. 11,467,579	24
Exhibit 10	Declaration of Dr. Jason Janet Regarding U.S. Patent No. 11,520,346	25
Exhibit 11	U.S. Patent No. 10,614,344	26
Exhibit 12	U.S. Patent No. 11,126,889	28
Exhibit 13	U.S. Patent No. 11,753,046	29
Exhibit 14	U.S. Patent No. 11,467,579	30
Exhibit 15	U.S. Patent No. 11,520,346	31
Exhibit 16	U.S. Patent Application No. WO 2014/210334 Al	116

Perceptive Exhibit 2043
IPR2025-01573

Page 6

1 Thereupon,
2 the proceedings began at 10:05 a.m.:
3 Whereupon,
4 JASON JANET,
5 having been first duly sworn or affirmed, was
6 examined and testified as follows:
7 DIRECT EXAMINATION
8 BY MR. GINNINGS:
9 Q. Good morning, again, Dr. Janet.
10 A. Good morning.
11 Q. How are you doing today?
12 A. Well. How about you?
13 Q. Doing just fine. Am I correct
14 that you have been deposed a few times
15 before?
16 A. Yes, that's correct.
17 Q. Have you done them over the Zoom
18 platform like we're doing here today?
19 A. I would say the vast majority of
20 depositions since COVID began have been over
21 telecon.
22 Q. It's been the same for me. So
23 glad to hear I'm not the outlier. Is it safe
24 to say you're familiar with the process
25 today? I don't need to kind of go through

Page 7

1 how the deposition is going to work and kind
2 of the basics?
3 A. I think, generally, you know, it
4 never hurts to -- you know, for some clarity.
5 Q. Yeah, sure.
6 So just a couple of things. One
7 is, where are you located today?
8 A. I'm in Raleigh, North Carolina.
9 Q. Okay. Are you on campus right
10 now, in your office on campus or --
11 A. No. I'm in my office in
12 North Raleigh.
13 Q. Okay. Is there anyone in the room
14 with you today?
15 A. No.
16 Q. Do you have any hard copy
17 documents or papers or notes or anything in
18 front of you?
19 A. No.
20 Q. Okay. Do you have -- other than
21 the Zoom application that we are using for
22 this, do you have any other applications up
23 on your computer right now?
24 A. My e-mail.
25 Q. Okay.

Page 8

1 A. Because I'm assuming that some of
2 these documents may get sent that way. If
3 you want, I can close that.
4 Q. That would be preferable. I'm
5 going to -- as long as there aren't any
6 unforeseen technical issues, what I'm going
7 to do with the exhibits is put them in the
8 Zoom chat here, and you should be able to
9 download them there and open them from there.
10 A. Okay. I'm going to close my
11 e-mail and my calendar.
12 Q. All right. And just so I'm kind
13 of familiar with kind of what your setup is
14 and what you're looking at, are you on a
15 laptop? Do you have a monitor? What are you
16 using today?
17 A. Yeah, I have a laptop and I have
18 two monitors.
19 Q. Okay.
20 A. The laptop is showing the video.
21 You know, and when I download a document, I
22 will move it up to a monitor.
23 Q. Okay. Yeah, I just wanted to make
24 sure. There may be a time -- a few times
25 where I want to -- I don't want you to have

Page 9

1 to switch back and forth between things. So
2 if I'm showing you something in the Zoom app
3 and there's another document open, I just
4 want to make sure you're not having to flip
5 back and forth.
6 A. I appreciate that.
7 Q. And also, while we're on the
8 subject, I have a similar setup. I have my
9 laptop here in front of me, and I have two
10 monitors up here.
11 So it may look like I'm not
12 looking at you. It's because I've got the
13 documents and things up on my monitor here,
14 but the camera is on my laptop. So I
15 apologize if it looks like I'm -- it
16 obviously looks like I'm not looking at you,
17 but I am literally looking at you in the
18 video frame here. It doesn't look like it
19 through the eye of the camera.
20 A. Omnipresence.
21 Q. Okay.
22 A. I do have a small little note tab.
23 It's clean. It's just so if while you're
24 asking questions, I might jot something down.
25 I realize that you will want to see them

Perceptive Exhibit 2043
IPR2025-01573

Page 10

after or during, but is that okay?
Q. Yeah, that's fine. I'm not trying -- at no point am I trying to overwhelm anyone's capabilities or faculties or whatnot.
Do you have any questions for me about the process today before we get started?
A. No, I don't think so. I believe that we can go forward if you would like. I may have some questions in stride but not right now.
Q. Yeah. By all means, if anything comes up, feel free to ask me.
Now, you understand that this deposition is part of five IPR proceedings that have been brought by Tesla against my client, Perceptive Automata, right?
A. Yes, sir.
Q. And you have been retained by Tesla to offer opinions in connection with those IPR proceedings?
A. Correct.
Q. Okay. And this isn't the first time you have been retained by Tesla; is that

Page 11

right?
A. That's correct.
Q. You have done work for Tesla on other IPR proceedings in the past?
A. Yes, I have.
Q. Okay. What I want to do is I want to go ahead and get some of the exhibits out of the way here because there are five of these IPRs. It's going to be a little bit of a slog, but we'll get through them one by one here.
I'm going to start with -- I will mark as Exhibit 1 -- I'm sending it through the Zoom chat there. If you could download that and open it, and let me know when you have it open.
(Exhibit 1 was marked for identification.)
A. I'm just trying to figure out where it went.
BY MR. GINNINGS:
Q. Do you have Exhibit 1 open now?
A. Yes, sir.
Q. Have you seen Exhibit 1 before?
A. Yes.

Page 12

Q. Okay. And what is Exhibit 1?
A. Exhibit 1 is entitled Petition for Inter Partes Review of Claims 1 Through 22 of U.S. Patent 10,614,344.
Q. Okay. And you understand this is to be one of the five petitions for IPR that are -- this deposition concerns?
A. That's my understanding.
Q. And you have offered opinions as part of this -- in support of this petition for IPR; is that correct?
A. Yes, sir.
Q. And you read the patent number that's on the cover. I assume you're familiar with kind of the usual practice that we refer to those by the last three numbers of the patent number, so the '344 Patent here?
A. Yes, sir.
Q. Is it okay if I refer to that patent as the '344 Patent today?
A. Yes.
Q. Okay. The next question I'm going to ask, I'm going to ask about other documents too, but before I ask it, I just

Page 13

want to be clear that with this question, as with all questions today, I'm not looking for you to tell me anything that you may have discussed with Tesla's counsel in preparation for your deposition or other points in time.
With that understanding, though, what I want to know is did you review this document in preparation for your deposition today?
MR. BARAZESH: I'm just going to object on the basis of privilege, understanding the disclaimer, but just putting that on the record.
Dr. Janet, you can answer the question to the extent you don't disclose any -- the content of any privileged communications with counsel.
THE WITNESS: Thank you.
A. Short answer is yes.
BY MR. GINNINGS:
Q. Okay. I'm going to send Exhibit 2 here in the Zoom chat. If you can download that and open it and let me know when you have it open.

Perceptive Exhibit 2043
IPR2025-01573

Page 14

(Exhibit 2 was marked for identification.)
A. Okay.
BY MR. GINNINGS:
Q. Have you seen Exhibit 2?
A. Yes.
Q. And what is Exhibit 2?
A. Exhibit 2 is entitled Petition for Inter Partes Review of Claims 1 through 20 of U.S. Patent Number 11,126,889.
Q. Okay. And do you understand Exhibit 2 is another one of the petitions for IPR that this deposition is related to today?
A. Yes, sir.
Q. And you have offered opinions in that IPR proceeding in support of this petition, right?
A. Yes, sir.
Q. And same question with the same cautions. Did you review Exhibit 2 in preparation for your deposition today?
MR. BARAZESH: I'm just going to make the same objection as before on the basis of privilege.
Answer the question to the

Page 15

extent you don't close the content of any communication with counsel.
And I guess just to the extent there's going to be this question for all the other petitions, I'm lodging the same objection now.
MR. GINNINGS: And no issue there. And as I said before, I'm not looking to get into any of that. So...
MR. BARAZESH: Yep.
A. Yes, I did review it.
BY MR. GINNINGS:
Q. I put Exhibit 3 in the same chat if you can, again, download that and open it and let me know when you have it open.
(Exhibit 3 was marked for identification.)
11,753,046
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 3 before?
A. Yes, sir.
Q. And what is Exhibit 3?
A. Exhibit 3 is entitled Petition for

Page 16

Inter Partes Review of Claims 1 through 19 of U.S. Patent Number 11,753,046.
Q. And do you understand Exhibit 3 to be another one of the petitions for IPR that this deposition links to today?
A. Yes, sir.
Q. And you have offered opinions on behalf of Tesla in support of this IPR petition as well; is that right?
A. Yes, sir.
Q. And same cautions as before, but with that have you -- sorry, did you review Exhibit 3 in preparation for your deposition today?
A. Yes, sir.
MR. BARAZESH: Same objection.
A. Yes, sir, I did review.
BY MR. GINNINGS:
Q. You probably sense where this is going, but I'm putting Exhibit 4 in the Zoom chat here. You can download that and open it and let me know when you have it open.
(Exhibit 4 was marked for identification.)
A. I have it open.

Page 17

BY MR. GINNINGS:
Q. Have you seen Exhibit 4 before?
A. Yes.
Q. And what is Exhibit 4?
A. Exhibit 4 is entitled Petition for Inter Partes Review of Claims 1 through 20 of U.S. Patent Number 11,467,579.
Q. Do you understand Exhibit 4 to be another one of the petitions for IPR that this deposition today relates to?
A. Yes, sir.
Q. And did you review Exhibit 4 in preparation for your deposition today?
A. Yes, sir.
Q. I put Exhibit 5 in the Zoom chat, if you could download that and open it and let me know when you have it open.
(Exhibit 5 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 5 before?
A. Yes.
Q. What is Exhibit 5?
A. Exhibit 5 is entitled Petition for

Perceptive Exhibit 2043
IPR2025-01573

Page 18

1 Inter Partes Review of Claims 1 through 23 of
2 U.S. Patent Number 11,520,346.
3 Q. And do you understand Exhibit 5 to
4 be another one of the petitions for IPR that
5 this deposition today relates to?
6 A. Yes, sir.
7 Q. And did you review Exhibit 5 in
8 preparation for your deposition today?
9 A. Yes, sir.
10 Q. Now, am I correct that, as part of
11 each of the five IPR petitions that we just
12 looked at, you provided a written declaration
13 that contains your opinions in support of
14 those petitions?
15 A. Yes, sir.
16 Q. Putting Exhibit 6 in the Zoom
17 chat. If you can download that and open it.
18 Let me know when you have it open.
19 Declaration of Dr. Jason Janet Regarding U.S.
20 Patent No. 10,614,344
21 (Exhibit 6 was marked for
22 identification.)
23 A. I have it open.
24 BY MR. GINNINGS:
25 Q. Have you seen Exhibit 6 before?

Page 19

1 A. Yes.
2 Q. And what is Exhibit 6?
3 A. Exhibit 6 is entitled Declaration
4 of Dr. Jason Janet Regarding U.S. Patent
5 Number 10,614,344.
6 Q. And that patent number, just so we
7 are clear, is the same patent number as the
8 IPR petition which is Exhibit 1, right?
9 A. Yes, sir.
10 Q. Okay. And if you turn to the very
11 last page of Exhibit 6 for me, which is
12 page -- the very last page.
13 A. Sorry. Adobe is going a little
14 slow.
15 Q. It's a long document.
16 A. So I'm sorry, you said go to the
17 last page?
18 Q. Yes.
19 A. Okay.
20 Q. And is that your signature on the
21 last page, Dr. Janet?
22 A. Yes, it is.
23 Q. Now, just because different people
24 think about this differently, when I -- if I
25 want to direct you to a page in one of these

Page 20

1 exhibits today, is the PDF page number or the
2 document page number better for you?
3 A. Well, the PDF number I would say
4 is easier because I could just simply enter
5 that number --
6 Q. Okay.
7 A. -- into Adobe and it will go
8 straight to that. You know, if you give me
9 the document page number, I usually can
10 estimate what the PDF page number should be
11 and then I will have to do a little bit of
12 terminal, you know, searching. But it would
13 definitely be easier if you told me the PDF
14 page.
15 Q. Okay. And I think we are on the
16 same page there. But PDF pages, there's
17 102 PDF pages in Exhibit 6, right?
18 A. Yes, sir, that's what I'm seeing.
19 Q. All right. Exhibit 6 contains
20 your opinions in support of the IPR petition
21 that is Exhibit 1, right?
22 A. Yes, sir.
23 Q. And did you review Exhibit 6 in
24 preparation for your deposition today?
25 A. Yes, sir.

Page 21

1 Q. And since you prepared and signed
2 Exhibit 6, have you -- strike that.
3 Do you have any additions or
4 corrections to make to this declaration
5 today?
6 A. Not off the top of my head no,
7 sir.
8 Q. Next up is Exhibit 7 which I'm
9 putting in the Zoom chat here, if you can
10 download that and open it up, and let me know
11 when you have it open?
12 (Exhibit 7 was marked for
13 identification.)
14 A. Okay. I have it open.
15 BY MR. GINNINGS:
16 Q. Have you seen Exhibit 7 before?
17 A. Yes.
18 Q. And what is Exhibit 7?
19 A. Exhibit 7 is the Declaration of
20 Dr. Jason Janet, myself, regarding
21 U.S. Patent Number 11,126,889.
22 Q. And Exhibit 7 contains your
23 opinions in support of the IPR petition that
24 is Exhibit 2, right?
25 A. Yes.

Perceptive Exhibit 2043
IPR2025-01573

Page 22

Q. And if you go to the last page of Exhibit 7 for me, PDF Page 95. Let me know when you're there.
A. Okay.
Q. Is that your signature on the last page there?
A. Yes, sir.
Q. And do you have any additions or corrections to make to Exhibit 7 today?
A. Not that I can recall.
Q. I will put Exhibit 8 in the Zoom chat. If you could let me know when you have that open.
(Exhibit 8 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 8?
A. Yes.
Q. What is Exhibit 8?
A. Exhibit 8 is entitled Declaration of Dr. Jason Janet regarding U.S. Patent Number 11,753,046.
Q. And Exhibit 8 contains your opinions in support of the IPR petition that

Page 23

is Exhibit 3, right?
A. Yes.
Q. And go to the last page of the document, PDF Page 99 for me.
A. Yes.
Q. Is that your signature on the last page?
A. It is, yes.
Q. And do you have any additions or corrections to make to this declaration today?
A. Not as I'm aware right now.
Q. And did you review Exhibit 9 in preparation for your deposition today?
A. Yes, I did.
Q. And I apologize for backtracking, but I don't believe I asked you, do you still have Exhibit 8 open?
A. Yes.
Q. Did you review Exhibit 8 in preparation for your deposition today?
A. Yes.
Q. And I don't believe I asked it, so I will backtrack one more time, but Exhibit 7, did you review Exhibit 7 in

Page 24

preparation for your deposition today?
A. Yes.
Q. I will try to minimize the -- minimizing the backtracking here.
I'm going to put Exhibit 9 in the Zoom chat. If you could download that and let me know when you have it open.
(Exhibit 9 was marked for identification.)
A. Okay. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 9 before?
A. Yes, sir.
Q. And what is Exhibit 9?
A. Exhibit 9 is entitled Declaration of Dr. Jason Janet regarding U.S. Patent Number 11,467,579.
Q. And Exhibit 9 is -- contains your opinions in support of the IPR petition that is Exhibit 4, right?
A. Yes, sir. Hold on. Let me just double-check.
Q. Sure.
A. Yes.
Q. And can you go to the last page of

Page 25

Exhibit 9, PDF Page 99 for me.
A. Yes.
Q. And is that your signature on this page?
A. Yes, sir.
Q. Do you have any additions or corrections to make to Exhibit 9 today?
A. Not as I'm aware right now.
Q. Okay. And did you review Exhibit 9 in preparation for your deposition today?
A. Yes, sir.
Q. All right. And last but not least, putting Exhibit 10 in the Zoom chat. If you can download that and open it, and let me know when you have it open.
(Exhibit 10 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 10 before?
A. Yes.
Q. And what is Exhibit 10?
A. Exhibit 10 is entitled Declaration of Dr. Jason Janet regarding U.S. Patent

Perceptive Exhibit 2043
IPR2025-01573

Page 26

Number 11,520,346.
Q. Okay. And Exhibit 10 is your declaration in support of the IPR petition that is Exhibit 5, right?
A. Yes, sir.
Q. And can you turn to the last page of Exhibit 10, PDF Page 104, for me?
A. Yes, sir.
Q. And is that your signature on the last page here?
A. That is, yes, sir.
Q. And do you have any additions or corrections to make to Exhibit 10 today?
A. Not as I'm presently aware.
Q. And did you review Exhibit 10 in preparation for your deposition today?
A. Yes, sir.
Q. All right. Just a few more. I'm -- the next set of exhibits are going to be the patents that are the subject of these IPR proceedings. I'm going to go ahead and put Exhibit 11 in the Zoom chat. If you can let me know when you have that open.
(Exhibit 11 was marked for identification.)

Page 27

A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 11 before?
A. Yes.
Q. What is Exhibit 11?
A. Exhibit 11 is U.S. Patent Number 10,614,344.
Q. And is it okay if I refer to this as the '344 Patent today?
A. Yes, sir.
Q. And the '344 Patent here, Exhibit 11, is the patent that is the subject of the IPR petition that is Exhibit 1, right?
A. Yes.
Q. And it is also the patent that you discuss in the declaration that's Exhibit 6, right?
A. In my declaration, I refer to this as Exhibit 6? Is that what you're saying?
Q. I'm saying the patent that is the subject of this declaration, Exhibit 6, that's the '344 Patent which is Exhibit 11, right?
A. Correct.
Q. Okay. And did you review

Page 28

Exhibit 11 in preparation for your deposition today?
A. Yes, sir.
Q. I've put Exhibit 12 in the Zoom chat. If you can let me know when you have that one open.
(Exhibit 12 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 12 before?
A. Yes, sir.
Q. What is Exhibit 12?
A. Exhibit 12 is entitled Machine Learning Based Prediction of Human Interactions With Autonomous Vehicles, U.S. Patent Number 11,126,889.
Q. Okay if I refer to this as the '889 Patent today?
A. Yes, sir.
Q. And the '889 Patent, Exhibit 12, that's the patent that's the subject of the IPR petition Exhibit 2, right?
A. Yes, sir.
Q. And the '889 Patent, Exhibit 12,

Page 29

is a patent that you offer opinions in the declaration as Exhibit 7, right?
A. Yes, sir.
Q. Did you review Exhibit 12 in preparation for your deposition today?
A. Yes, sir.
Q. Exhibit 13 is in the Zoom chat. Can you let me know when you have that open?
(Exhibit 13 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 13 before?
A. Yes.
Q. And what is Exhibit 13?
A. Exhibit 13 is a U.S. patent entitled System and Method of Predicting Human Interaction with Vehicles, and it's U.S. Patent Number 11,753,046.
Q. And is it okay if I refer to this as the '046 Patent today?
A. Yes.
Q. And the '046 Patent, here Exhibit 13, is the patent that's the subject of the IPR petition as Exhibit 3, right?

Perceptive Exhibit 2043
IPR2025-01573

Page 30

A. Yes.
Q. And the '046 Patent is the patent that you offer opinions about in the declaration as Exhibit 8, right?
A. Yes.
Q. Exhibit 14 is in the Zoom chat. Let me know when you have that open.
(Exhibit 14 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 14 before?
A. Yes.
Q. What is Exhibit 14?
A. Exhibit 14 is U.S. patent entitled Probabilistic Neural Network for Predicting Hidden Context of Traffic Entities for Autonomous Vehicles, and it's U.S. Patent Number 11,467,579.
Q. Is it okay if I refer to this as the '579 patent today?
A. Yes.
Q. And the '579 patent, here Exhibit 14, is the patent which is the subject of the IPR petition which is

Page 31

Exhibit 4, right?
A. Yes.
Q. And the '579 patent is also the patent that you offered opinions about in the declaration that's Exhibit 9, correct?
A. Yes.
Q. Did you review Exhibit 14 in preparation for your deposition today?
A. Yes, sir.
Q. And last but not least, Exhibit 15 is in the Zoom chat. If you can let me know when you have that one open.
(Exhibit 15 was marked for identification.)
A. I have it open.
BY MR. GINNINGS:
Q. Have you seen Exhibit 15 before?
A. Yes.
Q. What is Exhibit 15?
A. Exhibit 15 is entitled System and Method of Predicting Human Interaction With Vehicles, Patent Number U.S. 11,753,046.
Q. I think we may be looking at a different document. You should have Exhibit 15 open.

Page 32

A. I'm sorry. '346. I apologize. I clicked on the wrong thing.
Q. It's okay.
A. Sorry about that. A lot of PDFs open right now.
Q. Yeah. So to make sure we're looking at the same thing here, what is Exhibit 15?
A. Exhibit 15 is entitled Navigating Autonomous Vehicles Based on Modulation of a World Model Representing Traffic Entities.
Q. And do you see the patent number on the top right on the first page?
A. Yes.
Q. U.S. Patent Number 11,520,346, right?
A. Yes.
Q. Is it okay if I refer to this as the '346 patent today?
A. Yes.
Q. Have you seen Exhibit 15 before?
A. Yes.
Q. Okay. And the '346 patent, Exhibit 15, is the patent that is the subject of the IPR petition that's Exhibit 5, right?

Page 33

A. Yes.
Q. And the '346 patent, Exhibit 15, is the patent that you offer opinions about in your declaration that's Exhibit 10, right?
A. Yes.
Q. Okay. Did you review Exhibit 15 in preparation for your deposition today?
A. Yes.
Q. Okay. So we have got Exhibits 1 through 5 are the petitions; 6 through 10 are the declarations; 11 through 15 are the five patents. Okay?
A. Yes.
Q. There will be a few others. We'll get to the others, but I just wanted to get that out of the way before we jump in here.
Now, I want to -- I want to start with your opinions relating to the '344 Patent and that declaration is Exhibit 6. Can you -- if you want to keep the others open, you can, but if you want to close them out, that's fine too, and just have Exhibit 6 open, if that's easier. It's up to you.
A. Counsel, if it's all right, I

Perceptive Exhibit 2043
IPR2025-01573

Page 34

would like to take down whatever we don't need because Adobe chokes periodically, as you know.
Q. Yeah.
A. All right. So we're going to focus on -- you said which one?
Q. Exhibit 6.
A. It's already slowing down.
Q. Do you have Exhibit 6 open?
A. I do. I'm trying to take down some others, and I'm trying to do that. I got the Adobe not responding at the top. So it's -- it will come back in a minute.
Q. I just want to make sure we weren't both waiting on the other.
A. I apologize.
Q. No. No. That's fine.
A. With your permission, Counsel, I think I'm going to just shut down Adobe and then bring those three exhibits up related to the '346.
Q. Yeah, sure.
A. Give me a second.
Q. Sorry. I thought that's what we were already doing.

Page 35

A. Well, I was trying to take it down, but for whatever reason, I've got an Adobe not responding and a spinning circle.
So we have the three exhibits for the '346 patent: the petition, the declaration -- my declaration, and the patent itself; is that right?
Q. Just to be clear, those are Exhibits 1, 6, and 11, right? That's what you have?
A. Correct.
Q. Okay. So focusing for the moment on your declaration, Exhibit 6, am I correct that -- just to kind of make sure we're on the same page here, there are three grounds of validity that you opine on in this declaration; is that correct?
And if it helps, I'm looking at the table of contents that starts on PDF Page 2.
MR. BARAZESH: Can I just clarify? I think Dr. Janet mentioned the '346. Are you looking at the -- meant to be looking at the '344 right now, just so everyone has the

Page 36

right documents pulled up?
MR. GINNINGS: Yeah, I believe he said '346, but I think the exhibits that I mentioned are all --
MR. BARAZESH: Yeah. They should be. I just want to make sure he's looking at the '346.
BY MR. GINNINGS:
Q. Dr. Janet, just to be clear, you have Exhibits 1, 6, and 11 up right now?
A. I have another Adobe issue here. Yeah, I apologize. I misspoke.
Q. All right. So just to be clear, you're looking at Exhibits 1, 6, and 11 right now?
A. Yes.
Q. And that's -- those are the petition, declaration, and patent, which are for the '344 Patent?
A. Yes.
Q. Okay. And in your declaration, Exhibit 6, you offer -- you allege three grounds of invalidity concerning the '344 Patent, correct?
A. Yes.

Page 37

Q. As I mentioned, I'm looking at the table of contents just to orient ourselves here --
A. Right.
Q. -- starting on PDF Page 2. Can you turn to PDF Page 2 for me, if you're not already there?
A. Yeah, I'm there. Sorry.
Q. Okay. And do you see the heading in the table of contents for Ground 1?
A. Yes.
Q. And the heading says Ground 1, Claims 1 through 22 are unpatentable under 35 U.S.C. Section 103 over Ross and Cox, right?
A. Yes, sir.
Q. So your opinions for Ground 1 are that Claims 1 through 22 of the '344 Patent are unpatentable under 35 U.S.C. Section 103 over Ross and Cox, right?
A. Yes, sir.
Q. And Section 103 is obviousness, right?
MR. BARAZESH: Objection to the extent you're calling for a legal

Perceptive Exhibit 2043
IPR2025-01573

Page 38

conclusion.
A. Generally speaking, that's my understanding.
BY MR. GINNINGS:
Q. And can you turn to PDF Page 4 for me?
A. I'm there.
Q. And do you see the heading for Section B, Ground 2 there in the middle of the page?
A. Yes.
Q. And the heading says: Ground 2, Claims 1 through 22 are unpatentable under 35 U.S.C. Section 103 over Ross, Cox, and Ogale, O-G-A-L-E.
Did I read that right?
A. Yes, sir.
Q. And so for Ground 2, you've offered opinions that Claims 1 through 22 of the '344 Patent are unpatentable as being obvious over Ross, Cox, and Ogale, right?
A. Yes, sir.
Q. And do you see the heading for Ground 3 at the bottom of that page?
A. I do.

Page 39

Q. And the heading says: Ground 3, Claims 1 through 5, 7 through 13 and 16 through 22 are unpatentable under 35 U.S.C. Section -- I believe there's a typo missing there -- over Zhang. Right?
A. Say that again, please.
Q. I believe there's a number missing in the middle of this heading. So I just want to -- we'll clear that up in just a second. Let me just ask a different question. Ground 3 -- strike that.
Why don't we -- since that says Page 72, why don't we go to -- go to PDF Page 78 for me.
A. Okay.
Q. And do you see the heading a few lines down from the top of the page for Ground 3 there?
A. I do, yes, sir.
Q. And Ground 3 concerns the Zhang reference; is that right, Z-H-A-N-G?
A. Correct.
Q. Okay. And it concerns -- Ground 3 concerns Claims 1 through 5, 7 through 13 and 16 through 22 of the '344 Patent, right?

Page 40

A. Yes.
Q. And can you go to the next page of Exhibit 6, PDF Page 79 for me.
A. Yes, sir.
Q. And do you see the numbered paragraph -- do you see Paragraph 161 in the middle of the page?
A. Yes.
Q. And in Paragraph 161, you state: In my opinion, Zhang renders obvious Claim 1.
Right?
A. Yes, sir.
Q. So am I correct that all three of the grounds of validity that you have opined on in this declaration are obviousness?
A. Yes, sir.
Q. And are you familiar with the concept of anticipation?
MR. BARAZESH: Objection to the extent calling for a legal conclusion.
A. Yes, I'm familiar with the concept.
BY MR. GINNINGS:
Q. Have you offered any anticipation opinions in this litigation, Dr. Janet?

Page 41

MR. BARAZESH: Same objection.
A. Just based on my understanding of obviousness and anticipation, which is articulated in I believe the legal standards section of my declaration, my grounds are based on obviousness.
BY MR. GINNINGS:
Q. So none of the grounds in this declaration are based on anticipation, right?
MR. BARAZESH: Same objection.
A. Based on my understanding of that legal standard, and I'm not a lawyer, but as a person of ordinary skill in the art, these grounds are based on obviousness.
BY MR. GINNINGS:
Q. Now, you mentioned the legal standards. Can you turn to PDF Page 18 of this same exhibit, Exhibit 6 for me?
A. Yes, sir.
Q. And do you see the section heading Legal Standards for Patentability?
A. I do yes, sir.
Q. Now, the -- and under that heading, beginning in Paragraph 7, you list a number of legal standards; is that right?

Perceptive Exhibit 2043
IPR2025-01573

Page 42

A. In Paragraph 27?
Q. Beginning in Paragraph 27, continuing on for a few pages after that, right?
A. Oh, okay.
MR. BARAZESH: Objection to form.
A. What was your question?
BY MR. GINNINGS:
Q. I was just -- in this section, the section that begins with that heading and begins with Paragraph 27, you have laid out a number of legal standards here, right?
MR. BARAZESH: Objection. Form.
BY MR. GINNINGS:
Q. Is that correct, Dr. Janet?
A. What I've laid out here is my understanding of these legal standards.
Q. Okay. And were these legal standards provided to you by counsel?
MR. BARAZESH: Objection to the extent you're calling for privileged communications.
Dr. Janet, you can answer that question if you don't -- to the extent

Page 43

you don't disclose the content of communications with counsel.
THE WITNESS: Understood.
MR. BARAZESH: Also objection to the extent it's calling for any legal conclusions.
A. Yes, I relied on counsel for giving the information to form the understanding I have which is articulated here in this section.
BY MR. GINNINGS:
Q. Okay. And these legal standards that you have listed here in this section, did you apply them in your analysis in this declaration?
MR. BARAZESH: Same -- same objections.
A. Yes, sir, if I understand the question properly.
BY MR. GINNINGS:
Q. If you turn to the next page, PDF Page 19 for me.
A. Okay.
Q. And do you see Paragraph 33 in the middle of the page?

Page 44

A. Yes, sir.
Q. In Paragraph 33, the first sentence here, you state: I understand that there are two ways in which prior art may render a patent claim unpatentable.
Right?
A. Yes, sir, that's how it reads.
Q. And the next sentence, you say: First, the prior art can be shown to anticipate the claim.
Right?
A. Yes, sir.
Q. And as we just covered, you haven't offered any opinions in this declaration about anticipation, right?
A. The grounds that I provided are based on my understanding of obviousness. If there is a misunderstanding that makes it -- that feeds the anticipation position, then I'm presently not aware of it, but I acknowledge that possibility.
Q. Just continuing on here in Paragraph 33, next sentence says: Second, the prior art can be shown to have made the claim obvious to a person of ordinary skill

Page 45

in the art.
Right?
A. Yes.
Q. And then you state: In this declaration, I focus on obviousness.
Right?
A. Correct. Yes, sir.
Q. And then you say: My understanding of the legal standard for obviousness is set forth below.
Right?
A. That's my understanding. Yes, sir.
Q. Okay. Paragraph 34 you state that: I understand that a claimed invention is not unpatentable -- sorry. Strike that. I'm going to start over since I've just misread it.
Paragraph 34 you say: I understand that a claimed invention is not patentable if it would have been obvious to a person of ordinary skill in the field of the invention at the time the invention was made.
Right?
A. Yes, sir.

Perceptive Exhibit 2043
IPR2025-01573

Page 46

Q. And would you apply that legal standard in rendering your obviousness opinions in this case -- in this declaration in Exhibit 6?
MR. BARAZESH: Objection.
A. I apologize. I spoke over counsel.
BY MR. GINNINGS:
Q. Go ahead.
A. Did the reporter get that?
Q. I don't see it, so --
THE STENOGRAPHER: No. Can you just repeat your answer?
A. I have -- I'm less clear in remembering exactly what the question was, and I want to make sure that the objection is on the record as well. Could I trouble you to reread that?
BY MR. GINNINGS:
Q. I will just -- I'll ask the question again.
The standard that you listed here in Paragraph 34 of your declaration, Exhibit 6, did you apply that legal standard in rendering the opinions in this

Page 47

declaration?
MR. BARAZESH: Objection. Form. Objection to the extent this is asking for legal conclusions.
A. I applied this with the caveat that this is my understanding. This is what I -- this is what I applied. Again, I'm not an attorney.
BY MR. GINNINGS:
Q. Okay. Paragraph 35, the next paragraph, Dr. Janet, you state: I understand that the obviousness standard is defined in the patent statute, 35 U.S.C. Section 103(a) as follows.
Right?
A. Yes.
Q. And Paragraph 36 continues on. It says: A patent may not be obtained through the invention -- start over again because I misread that.
Paragraph 36 states: A patent may not be obtained though the invention is not identically disclosed or described as set forth in Section 102 of this title if the differences between the subject matter sought

Page 48

to be patented and the prior art 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.
Right?
A. Yes, sir. That's how that reads.
Q. And then the last part of Paragraph 36 says: Patentability shall not be negatived by the manner in which the invention was made.
Right?
A. Yes, sir.
Q. And did you apply the legal standard here in Paragraph 36 in rendering your obviousness opinions in this declaration?
MR. BARAZESH: Objection. Form. And based on -- to the extent it's calling for a legal conclusion.
A. What I applied was how I understand this.
BY MR. GINNINGS:
Q. Now, the next paragraph, Paragraph 37, you state: I understand that

Page 49

the following standards govern the determination of whether a claim in a patent is obvious. I've applied these standards in my evaluation of whether the claims of the '344 Patent would have been considered obvious as of the priority date of that patent.
Right?
A. Yes, sir.
Q. Okay. Then you continue on in Paragraph 38. You state: I understand that to find a claim in a patent obvious, one must make certain findings regarding the claimed invention and the prior art. Specifically, I understand that the obviousness question requires consideration of four factors, although not necessarily in the following order.
Right?
A. Yes, sir.
Q. And the next four paragraphs list those four factors, correct?
A. Yes, sir.
Q. And the first one, Paragraph 39, is the scope and content of the prior art,

Perceptive Exhibit 2043
IPR2025-01573

Page 50

right?
A. Yes, sir.
Q. The next one, Paragraph 40, is the differences between the prior art and the claims at issue, right?
A. Yes, sir.
Q. Paragraph 41, the next one, is the knowledge of a person of ordinary skill in the pertinent art, correct?
A. Yes, sir.
Q. And the last one, Photograph 42, is whatever objective factors indicating obviousness or nonobviousness may be present in any particular case, right?
A. Yes, sir.
Q. Now, the legal standard that's set forth here in Paragraphs 38 through 42, did you apply that legal standard in rendering your obviousness opinions in this declaration?
MR. BARAZESH: Objection. Form and to the extent it's calling for a legal conclusion.
A. I applied my understanding of it.

Page 51

BY MR. GINNINGS:
Q. Okay. So in providing your obviousness opinions in this declaration, did you consider the four factors that are listed in Paragraphs 39 through 42?
MR. BARAZESH: Same objection. Same objections.
A. I applied how I understood them.
BY MR. GINNINGS:
Q. Okay. When you say you applied how you understood them, what do you mean by that?
MR. BARAZESH: Same objections.
A. I had mentioned before and happy to clarify, I'm not an attorney. I'm a person of ordinary skill in the art. And I'm offering it based on my understanding of the -- of the standards as they are explained to me by counsel.
BY MR. GINNINGS:
Q. Okay. So in providing your obviousness opinions in this declaration, did you consider the four factors that are listed in Paragraph 39 through 42 here?
MR. BARAZESH: Same objections.

Page 52

Also asked and answered.
A. I certainly applied my understanding of these four factors, yes, sir.
BY MR. GINNINGS:
Q. Okay. Now, let's go to -- I want to talk about Ground 3 in this declaration, and your opinions on that begin on PDF Page 78. And let me know when you're on PDF Page 78.
A. I'm there.
Q. Okay. Now, as we discussed earlier, Ground 3 is your opinions concerning obviousness over the Zhang reference relating to certain claims of the '344 Patent, right?
A. Yes, sir.
Q. And the first claim that you offer opinions on is Claim 1; is that right, in this ground?
A. Correct.
Q. And your opinions concerning Claim 1 in this ground begin on PDF Page 79, right?
A. Yes, sir.
Q. Now, your opinions on Claim 1

Page 53

begin on this page, PDF Page 79, and continue on for a few pages, just so I'm clear as to -- all the way to PDF Page 93, right?
A. As it relates just to Claim 1 you're asking?
Q. Yes.
A. Yes.
Q. Okay. Now, I want to talk about these opinions relating to Claim 1 in the same reference.
And my first question, Dr. Janet, is one of the factors that we just discussed in your legal standard section was -- and I will read it back to you. I can show it to you on the screen if you need to see it as well, but it's: The differences between the prior art and the claims at issue.
Do you remember discussing that a minute ago?
A. Generally, yes.
Q. Okay. Now, in providing your opinions here with respect to Claim 1 and the Zhang reference here in Ground 3, did you consider the differences between the Zhang reference in Claim 1?

Perceptive Exhibit 2043
IPR2025-01573

Page 54

MR. BARAZESH: Objection. Form. And to the extent it's calling for a legal conclusion.

A. I applied my understanding of that.

BY MR. GINNINGS:

Q. Okay. What are the differences between Zhang reference and Claim 1 of the '344 Patent?

MR. BARAZESH: Objection. Form.

A. I don't really consider them to be differences necessarily. I believe that a person of ordinary skill would look at them and appreciate how essentially identical they are. But if something is not particularly -- you know, particular word is not used that's in the claim language, that -- just to provide a little bit of an explanation, I offer a few things including, for example, on Paragraph 173, where I talk about Zhang's neural network of trajectory prediction module is executed to generate, quote, a set of predicted trajectories and confidence levels for each object in the image where the confidence levels, quote, correspond to a

Page 55

likelihood of the object to perform the predicted behavior.

I go on to say that: Zhang's set of predicted trajectories in confidence levels teaches an output statistical summary. The set of predicted trajectories and confidence levels summarize the various trajectories that an object in image data might take and the confidences associated with each prediction. This provides a statistical distribution and organization reflecting how an object is predicted to travel within the environment of Zhang's autonomous vehicle and how likely each prediction is.

So where there might be -- I would say for somebody that's not a person of ordinary skill -- a challenge in what these mean if not verbatim use of the claim language, I go on to say that: Because these values are a collection of numerical measurements, it's my opinion that a POSITA would have recognized that such values form statistics.

In Paragraph 174, it starts: My

Page 56

opinion Zhang further teaches that if, quote, if the, quote, set of predicted trajectories and confidence levels (i.e., output statistical summary) is characterizing a distribution barring the language of the claim of user responses expected to be received responsive to presenting the sensor data to a plurality of users, the user response is associated with a particular object as claimed. Zhang describes that its neural network of trajectory prediction, Module 175, is trained by training data that is, quote, real-world human behavior data, end quote, that represents, quote, human driving behaviors.

And I provide citations, although the exhibit number is probably different than what we're using here in this deposition.

And I go on to say that: Zhang explains that because the trajectory prediction Module 175 is trained in the training phase using real-world human behavior data, the predicted behavior and trajectories of vehicles or objects produced by the trajectory prediction module are

Page 57

closely correlated to the actual behavior and trajectories of vehicles in real-world environments with human drivers.

Going forward: Zhang's training data includes images that are labeled by human labelers to associate -- quote, associate a label -- and, by the way, human labels is plural -- to associate a label having behavior and direction information with each instance of a vehicle in the training data.

The labeled training represents different driving scenarios and includes, quote, human driver behavior, data related to how drivers typically react to actions performed by proximate vehicles, end quote.

A, quote, loss function is used to examine and correct the results of the training.

So in my opinion, a person of ordinary skill would have understood that loss functions are used in machine learning to quantify the error between the correct human labels of training images and a desired model output, and thus allowing for

Perceptive Exhibit 2043
IPR2025-01573

Page 58

adjustment of the model to reduce the error.
In regarding the model functionality during training, I explain how a person of ordinary skill would have understood that loss functions are used in machine learning to quantify the error between the correct human labels of training images and a desired model output. And thus allowing for adjustment of the model to reduce the error.
So I don't really see differences. And I certainly don't see -- I think the differences are more about the vernacular than they are about what they mean. And I offer up how a POSITA would see them to clarify that those differences really aren't differences.
Q. What do you mean when you say that -- how a POSITA would see them to clarify that those differences aren't really differences? Can you tell me what you mean by that?
A. Yeah. I probably shouldn't have used "differences" in the same sentence twice.

Page 59

How the -- what I think a non-POSITA would consider at face value to be differences really aren't differences. But it's -- you know, because it's not verbatim or might not be verbatim, I added the clarity from the perspective of person of ordinary skill.
Q. So I just want to make sure I'm following that. I believe that there were three portions that you pointed out, and I want to go back to each one. I believe the first one was in Paragraph 173; is that correct?
A. Yes.
Q. And then just to -- we'll come back to it, but I just want to make sure I've got each of the three. The next one is in Paragraph 174, right?
A. Correct.
Q. And the third one is in Paragraph 1 -- I apologize. Paragraph 177.
A. Yes.
Q. Okay. Let's first talk about the one in Paragraph 173.
MR. BARAZESH: Sorry, I don't

Page 60

want to interrupt, but we have been going about an hour and 20 minutes here. Would it make sense to just have a short break here or?
MR. GINNINGS: Yeah, let's get through and -- let me do with this paragraph and then we can -- we can hop off for a few minutes before we touch on the other two. Does that sound good?
MR. BARAZESH: Is that okay with you, Dr. Janet?
THE WITNESS: That works.
BY MR. GINNINGS:
Q. Okay. Paragraph 173. Now, I want to understand, is it your opinion here in Paragraph 173 that there are differences between Zhang and Claim 1 of the '344 Patent?
MR. BARAZESH: Objection. Form.
A. Well, as I mentioned, from my perspective and what I believe the perspective of a person of ordinary skill in the art, there aren't differences. I recognize that perhaps some things may not be verbatim, and so for someone that's a

Page 61

non-POSITA to read this at face value, they might think there is a difference, but I don't.
BY MR. GINNINGS:
Q. Okay. Now, in offering your opinions in this case, did you review the Zhang reference from the perspective of a POSITA or of a non-POSITA?
MR. BARAZESH: Objection. Form.
A. I might have cut you off, Counsel.
I reviewed it from the perspective of a POSITA.
BY MR. GINNINGS:
Q. And just to be clear, I just want to make sure we're orienting things correctly. This Paragraph 173 concerns what you've labeled as Element 1[b] of the claim, right? If you want to refer back to PDF Page 82, I believe is where you have to go back to double-check that.
A. Yes, sir.
Q. Okay. Now, so I'm clear, in Paragraph 173 here, is it your opinion that there's a difference between the Zhang reference and Element 1[b] of the -- Claim 1

Perceptive Exhibit 2043
IPR2025-01573

Page 62

of the '344 Patent?
MR. BARAZESH: Objection. Misstates testimony.
A. As I mentioned before, I believe that it's possible for a non-POSITA to perhaps get caught up if there's a difference in the specific terms that are used, and I try to look at that at least a little bit through that lens. But as a person of ordinary skill, I recognize that with the insights that a POSITA would have, that there really aren't differences.
And I understand this is perhaps bringing together one of those factors -- I'm sorry, bringing together multiple factors, but looking at it from my lens or through my lens, there really isn't a difference. And I explained how a POSITA would view that in this paragraph accordingly.
MR. GINNINGS: Before we turn to the next paragraph that you identified, let me go ahead and take a short break here and go off the record.
MR. BARAZESH: Sounds good.

Page 63

Are you good with five minutes, Dr. Janet?
THE WITNESS: I am. Thank you.
(A brief recess was held from 11:29 a.m. to 11:37 a.m.)
BY MR. GINNINGS:
Q. Welcome back, Dr. Janet.
A. Thank you.
Q. Before I continue on, do you have any additions or corrections to make to your testimony so far today?
A. No, sir, not so far.
Q. So before the break, we were talking about Ground 3 in the declaration, Exhibit 6 in the Zhang reference, right?
A. Yes.
Q. And we were talking about the issue of differences between the Zhang reference in Claim 1, right?
A. We were -- I struggle to put those in the differences category as I mentioned before. I think from -- through the lens of a person of ordinary skill, be very clear what those mean, that there really isn't a difference, but I will say that we were

Page 64

discussing what I believe you were calling potential differences.
Q. Okay. And before the break, we talked about Paragraph 173, right?
A. Yes, I believe so, yes.
Q. And the next paragraph that I believe you mentioned earlier was Paragraph 174, right?
A. Yes.
Q. And I want to -- just so it's clear here, as we discussed earlier, both of these paragraphs, Paragraphs 173 and 174 concern Element 1[b] of Claim 1, right?
A. Yes.
Q. And I -- just so I'm clear here, I want to -- I'm going to share my screen here for a second so I don't try to minimize your having to flip around. I just want to have Element 1[b] here while we're talking about for a second here.
This is what I have on the screen here, I'll represent to you, is Exhibit 1, the petition, and then the petition lays out these claim elements. I have 1[b] on the screen.

Page 65

Do you see it beginning with providing the sensor data here?
A. I do.
Q. Now, Element 1[b] -- I will just read it in its entirety. It's: Providing the sensor data as input to a supervised learning-based model. The supervised learning-based model configured to receive an input sensor data, displaying a particular object on a road and predicting an output statistical summary characterizing a distribution of user responses expected to be received responsive to presenting the sensor data to a plurality of users. The user response is associated with the particular object.
A. Yes, sir.
Q. Now, is it your opinion that the Zhang reference teaches Element 1[b] of this claim?
A. As I mentioned in Paragraph 177: In my opinion, the foregoing confirms that Zhang's, quote, set of predicted trajectories and confidence levels described above for operational use are also generated during

Perceptive Exhibit 2043
IPR2025-01573

Page 66

1 training. As noted above, it is my opinion
2 that a POSITA would have understood that loss
3 functions are used in machine learning to
4 quantify the error between the correct human
5 labels of training images and a desired model
6 output and thus allows for adjustment of the
7 model to reduce the error.
8 Zhang, therefore, teaches
9 predicting an output statistical summary
10 characterizing a distribution of user
11 responses expected to be received responsive
12 to presenting the sensor data of a plurality
13 of users. The user response is associated
14 with the particular object, and the training
15 context for the same reasons discussed above
16 in operational use.
17 Q. Okay. Appreciate that. I don't
18 think it answers the question that I asked,
19 though, which is: Is it your opinion that
20 the Zhang reference teaches Element 1[b] of
21 this claim?
22 A. So I just want to let you know I'm
23 looking at the '344 Patent because I want to
24 have these side by side.
25 Q. Okay.

Page 67

1 A. Well, the short answer is yes.
2 Q. Okay. Now, starting to ask about
3 Paragraph 174, which is on PDF Page 87. Can
4 you go to that page for me?
5 A. Yes.
6 Q. Now, this is a paragraph that you
7 identified earlier when I asked you whether
8 there are any differences between Claim 1 and
9 the Zhang reference, right?
10 A. I don't remember the exact
11 phrasing that you used, but we were talking
12 about -- or you were asking about what might
13 be construed as differences.
14 Q. Okay. Now, let me ask it this
15 way: Setting aside for the moment whether
16 you believe it's a difference or not, what is
17 the issue or difference or non-difference
18 that you identified in Paragraph 174 between
19 Element 1[b] and the Zhang reference?
20 MR. BARAZESH: Objection. Form.
21 A. If one were to scroll a little
22 further back in the declaration, you would
23 notice that there are two, I guess, use cases
24 for -- or use stages, and one relates to the
25 training part, and one relates to the model

Page 68

1 functionality during operational use.
2 Paragraphs 173 and 174 and 175
3 relate to the model functionality during
4 operational use. And the major point here is
5 that regardless of whether the neural network
6 in Zhang is during training or during
7 operational use, it discloses Element 1[b] in
8 the '344 Patent.
9 BY MR. GINNINGS:
10 Q. So I want to make -- maybe my
11 question wasn't clear. So let me try asking
12 it again.
13 Do you remember earlier I asked
14 you what the differences are between the
15 Zhang reference and Claim 1?
16 Do you remember that?
17 A. I remember you asked that
18 question, yes.
19 Q. And in your answer, you identified
20 three paragraphs from this declaration.
21 Do you remember that?
22 A. I identified three paragraphs that
23 didn't necessarily agree that they are
24 differences, just that they were paragraphs
25 wherein I explained that there really aren't

Page 69

1 differences.
2 Q. Okay. And so what I'm asking here
3 is in Paragraph 174, was the difference or
4 non-difference that you were explaining
5 between the Zhang reference in Claim 1?
6 MR. BARAZESH: Objection. Form.
7 And asked and answered.
8 A. I'm not really -- I can't really
9 agree that these are differences, I believe,
10 that as I explained here, that a person of
11 ordinary skill would understand that even
12 during operational use, this meets
13 Limitation 1[b] in the '344 Patent.
14 BY MR. GINNINGS:
15 Q. I want to clear -- clear whatever
16 up it is that you're not understanding about
17 my questions so that we can -- we can answer
18 it.
19 So earlier I asked you what the
20 differences are between Zhang in Claim 1, and
21 you identified three paragraphs where you
22 indicated that you explained in those
23 paragraphs why there aren't any differences.
24 What I want to understand is in
25 Paragraph 174, what, in your view,

Perceptive Exhibit 2043
IPR2025-01573

Page 70

1 non-difference are you pointing out between
2 the Zhang reference in Claim 1?
3 MR. BARAZESH: Objection. Form.
4 And asked and answered.
5 A. The -- if you look at the top of
6 174, this mentions that in my opinion, Zhang
7 further teaches that the, quote, set of
8 predicted trajectories and confidence levels
9 (i.e., output statistical summary) is
10 characterizing a distribution of user
11 responses expected to be received responsive
12 to presenting the sensor data to a plurality
13 of users. The user response is associated
14 with the particular object.
15 I mention in this paragraph
16 that -- saying: Described its neural network
17 of trajectory prediction is trained by
18 training data that is, quote, real-world
19 human behavior data that represents, quote,
20 human driving behaviors. Among other
21 things -- and I will skip a few points that
22 I've already, I believe, read into the
23 record.
24 But about midway down, that
25 paragraph, I mention that Zhang's training

Page 71

1 data includes images that are labeled by
2 human labelers, plural, to, quote, associate
3 a label having a behavior -- having behavior
4 and direction information with each instance
5 of a vehicle in the training data.
6 So a POSITA would have understood
7 that the loss functions are used in machine
8 learning to quantify the error between the
9 correct human labels of training images --
10 those labels come from a plurality of human
11 labelers -- and a desired model output and
12 thus allows for adjustment of the model to
13 reduce the error.
14 BY MR. GINNINGS:
15 Q. Okay. So is it that last sentence
16 there, where you say what a POSITA would have
17 understood? Is that the non-difference
18 you're trying to clarify?
19 MR. BARAZESH: Objection. Form.
20 A. I don't know how else to describe
21 it, other than what's written here, and would
22 really not want to try to explain it using
23 different terms for fear that that could get
24 misinterpreted.
25

Page 72

1 BY MR. GINNINGS:
2 Q. The other paragraph that you
3 identified earlier was Paragraph 177, right?
4 A. Correct. This relates to the
5 model functionality during, instead of
6 operation, but during training.
7 Q. Okay. Now, in paragraph --
8 A. Let me just say -- let me confirm
9 here because this might have been a wrap up
10 for both of those modes. Right. And I
11 believe it actually relates to both. But go
12 ahead. I'm sorry.
13 Q. Okay. Now what difference or
14 non-difference between the Zhang reference
15 and Element 1[b] do you identify in
16 Paragraph 177?
17 MR. BARAZESH: Objection. Form.
18 A. I think the -- among others, but a
19 major potential snag that somebody that's a
20 non-POSITA might have in reading this would
21 be just does -- first of all, does this
22 represent what a plurality of users would
23 have interpreted or how the information from
24 a plurality of users would have been
25 integrated into the training model.

Page 73

1 So this is really just explaining
2 that it's the same thing, even for the two
3 different modes, training and operation.
4 BY MR. GINNINGS:
5 Q. So is it your opinion, Dr. Janet,
6 that there are no differences between the
7 Zhang reference in Claim 1 of the
8 '344 Patent?
9 MR. BARAZESH: Objection. Form.
10 A. It is definitely my opinion that
11 in view of a person of ordinary skill in the
12 art's understanding of Claim Element 1[b],
13 that there really isn't a difference.
14 BY MR. GINNINGS:
15 Q. And what about for the other
16 elements of Claim 1?
17 MR. BARAZESH: Same objection.
18 A. Is that a blanket question or was
19 there something specific or do you want me
20 to --
21 BY MR. GINNINGS:
22 Q. Yeah, so I mean -- and I apologize
23 if there was a misunderstanding. I -- my
24 question was about Claim 1 as a whole, not
25 about just Element 1[b]. So let me just

Perceptive Exhibit 2043
IPR2025-01573

Page 74

re-ask the question.
Is it your opinion, Dr. Janet, that there are no differences between the Zhang reference and Claim 1 of the '344 Patent?
MR. BARAZESH: Objection. Form.
A. Paragraph 161, I say: In my opinion, Zhang renders obvious Claim 1. And when I view the claim elements of Claim 1, which I have described here in my declaration, weighted by the knowledge and view of a person of ordinary skill, essentially there aren't differences.
BY MR. GINNINGS:
Q. Now, we discussed earlier that your opinions concerning the Zhang reference and Claim 1 of the '344 Patent are based on obviousness, right?
A. Correct.
Q. Not anticipation?
A. I approached it based on my understanding of obviousness.
Q. Now, if it's your opinion that there are no differences between the Zhang reference and Claim 1, Dr. Janet, why did you

Page 75

not opine that the Zhang reference anticipates Claim 1?
MR. BARAZESH: Objection to form. Objection to the extent it's asking for a legal conclusion. And also objection in terms of privilege, if this is asking for work products or privileged communications between counsel or with counsel.
A. I just want to be clear here. I believe that when you look at the elements of Claim 1 of the '344 Patent through the lens of a person of ordinary skill in the art, who is also looking at Zhang, that the differences would be insignificant, and it would be very clear to that person of ordinary skill that the Zhang meets the limitations of each of those elements in the Claim 1.
BY MR. GINNINGS:
Q. And when you say "that the differences would be insignificant," what differences are you referring to?
MR. BARAZESH: Objection. Form.
A. I also feel like I've answered

Page 76

this question several times. The specific terminologies may be different from the claim language in the '344 Patent and the disclosure in the Zhang reference, but their fundamental meeting is there.
And the -- in view of a person of ordinary skill, the differences would be essentially not there. They would understand, I would understand that they are essentially saying the same thing.
Now, does that fall into the bucket of anticipation? I think that's a legal conclusion that needs to be drawn. I think that the preferred approach, given that a little bit of explanation as to how a person of ordinary skill would see things is why the obviousness category is selected. Again, if it fits into anticipation, then it fits there, but that's probably based on a legal conclusion, not something that I can provide.
BY MR. GINNINGS:
Q. I want to go back to an issue you raised a few minutes ago about Element 1[b], and can you go to -- still in Exhibit 6, PDF

Page 77

Page 86 for me?
A. Okay.
Q. And do you see Paragraph 172 at the top of that page?
A. I do.
Q. Okay. Now, in Paragraph 172, you state: In my opinion, the '344 Patent limitation predicting an output statistical summary characterizing a distribution of user responses expected to be received responsive to presenting the sensor data to a plurality of user, the user responses associated with a particular object may be interpreted to refer to functionality. The model is configured to perform during operational use as well as during training.
Right?
A. Yes, sir.
Q. And then you state: In either situation, Zhang teaches the limitation.
Correct?
A. Yes, sir.
Q. So I want to understand here, is it your -- strike that.
When you say that the -- that

Perceptive Exhibit 2043
IPR2025-01573

Page 78

1 limitation "may be interpreted to refer to
2 functionality, model is configured to perform
3 during operational use as well as during
4 training," are you saying that there may be
5 two different ways that element could be
6 interpreted?
7 MR. BARAZESH: Objection. Form.
8 Objection. Scope.
9 A. I don't necessarily think that
10 there are two different ways that it can be
11 interpreted. What I acknowledge is that when
12 it boils down to neural networks,
13 particularly as they're described by the
14 patents at issue and the invalidating prior
15 art that we're utilizing that there are
16 essentially two modes. You have training and
17 you have operational use.
18 And in training, during training,
19 or for training, there would be a collection
20 of -- I'm using this in the generic
21 sense -- human-based annotations or labels
22 and sometimes the statistics surrounding
23 those. And they would be required to teach
24 the neural network to represent not just the
25 specific data that is fed to it for learning,

Page 79

1 but to bridge any sort of gaps in that data
2 to represent what the plurality of users
3 would have concluded or opted to, you know,
4 do, choose, interpret.
5 And so then that, if you're no
6 longer in training mode but you're in
7 operational mode, the output still represents
8 what that collection of users would have
9 done, interpreted, you know, agreed with and
10 collectively, that sort of thing.
11 So I recognize there's two modes.
12 The claim does not -- that claim element does
13 not break out the -- that this strictly
14 relates to one mode over the other. So
15 appreciating that at least a person of
16 ordinary skill and maybe somebody who is not
17 but, you know, has some understanding about
18 learning-based models, and particularly
19 supervised learning-based models would or
20 could wonder as to which it relates to.
21 So in this situation, this
22 particular section, I talk about how the
23 model can be used during operational use
24 and -- or model can function, I should say,
25 and still meet the limitations of 1[b] and

Page 80

1 still meet the limitations of 1[b] during
2 training.
3 Q. Okay. So I want to be clear. So
4 in Paragraph 172, the italicized portion that
5 begins: predicting an output statistical
6 summary.
7 Do you see that?
8 A. Yes.
9 Q. That's language from Claim 1,
10 right, the italicized language there?
11 A. Yes, it starts Column 15, Line 34.
12 Q. You're looking at the patent
13 itself?
14 A. I'm looking at the patent, yes.
15 Q. All right. Now, in this
16 declaration Exhibit 6, you haven't offered
17 any claim construction opinions about this
18 italicized claim element, have you?
19 A. I just --
20 MR. BARAZESH: Objection. Form.
21 A. I just used the plain and ordinary
22 meaning.
23 BY MR. GINNINGS:
24 Q. Now, you anticipated my next -- my
25 next question there.

Page 81

1 So in offering your opinions here,
2 have you applied the plain and ordinary
3 meaning of that italicized phrase to a person
4 of ordinary skill in the art?
5 A. Yes. If I understand your
6 question correctly, I'm using a plain and
7 ordinary meaning from a perspective of a
8 person of ordinary skill in the art.
9 Q. And is the plain and ordinary
10 meaning to a person of ordinary skill in the
11 art of that phrase, does it refer to
12 functionality the model is configured to
13 perform during operational use or during
14 training?
15 MR. BARAZESH: Objection. Form.
16 A. As I explain in that same
17 paragraph, that italicized section may be
18 interpreted to refer to functionality the
19 model is configured to perform during
20 operational use as well as during training.
21 BY MR. GINNINGS:
22 Q. So under the plain and ordinary
23 meaning to a person of ordinary skill in the
24 art of that italicized phrase, does it refer
25 to functionality the model is configured to

Perceptive Exhibit 2043
IPR2025-01573

Page 82

perform during operational use or during training?
MR. BARAZESH: Objection. Form. Asked and answered.
A. The claim does not dedicate the content of that element to one particular mode, whether it's operational or training. So as I explained before, a person of ordinary skill would look at this and realize that it could apply to one or both. And I believe as a person of ordinary skill that it applies to both.
BY MR. GINNINGS:
Q. Okay. I want to focus in on -- what I will call like a subset of that element and focus in a little bit more on smaller pieces. I want to start with predicting an output statistical summary.
Do you see that phrase at the beginning of the italicized portion there in Paragraph 172?
A. I do.
Q. And do you apply the plain and ordinary meaning of that phrase in your analysis here?

Page 83

A. I do, did.
Q. Now, in your opinion what is the plain and ordinary meaning of an output statistical summary as used in Claim 1?
A. Well, that question requires a little bit of unpacking, but one aspect of that is that whether a neural network is in training mode or operational mode, it is still predicting an output statistical summary.
If it is strictly in training mode, then that prediction is corrected or it's compared to what the actual output should be and an error is calculated and it's applied to a weighting function, sometimes a multidimensional weighting function, and it's propagated back to correct the weights, sometimes referred to as synoptic weights.
But whether it's in training mode or operational mode, it's still providing that output statistical summary prediction.
Q. What is the plain and ordinary meaning of the phrase "an output statistical summary" that you applied in your analysis?
MR. BARAZESH: Objection. Form.

Page 84

A. An output statistical summary is the output values of the neural network, and they indicate some measure. A statistical summary can mean several things from a histogram to, you know, conditional means to include variances or accuracy, which are oftentimes used interchangeably.
But the -- the statistical summary, from my perspective as a person of ordinary skill, is one where you have a distribution of measurable outputs. And there are ways of characterizing that if one wants to. But at a minimum it's this distribution -- again, it could be a histogram. It could be a variety of things. Multimodal. You know, it could be a probability density function. It could be, you know, first order, second order, higher order statistics, but it's -- it's inclusive of all those things.
BY MR. GINNINGS:
Q. And when you say "a distribution of measurable outputs," what do you mean by that?
A. Well, I will just give you one

Page 85

example, and this isn't meant to say this is everything. So the individual value may represent a statistical measure. It could be a probability. It could be a variance. It could be a confidence level. It could be uncertainty which is one minus to confidence. Or you could have multiple outputs from a neural network that the -- you know, the different values can also fit into a distribution. So it's kind of the spectrum of outputs, both at an individual output node level or the collection of output nodes or neurons.
Q. And what, in your opinion, Dr. Janet, in Zhang teaches an output statistical summary?
A. Numerous times I mention in the same paragraphs, I believe, including Paragraph 175, that Zhang refers to the set of predicted trajectories and confidence levels.
Q. So that, in your opinion, is what Zhang teaches the claimed output statistical summary?
A. In Paragraph 173, just to start,

Perceptive Exhibit 2043
IPR2025-01573

Page 86

1 Zhang's neural network of trajectory
2 prediction Module 175 is executed to generate
3 a, quote, set of predicted trajectories and
4 confidence levels for each object.
5 That would be the output for each
6 object. In the image data, where the
7 confidence levels correspond to a likelihood
8 of the object performed the predicted
9 behavior, Zhang's, quote, set of predicted
10 trajectories and confident levels, end quote,
11 teaches an output statistical summary.
12 Q. So let's start with the set of
13 predicted trajectories. A set of predicted
14 trajectories is one or more predicted
15 trajectories, right?
16 MR. BARAZESH: Objection to
17 form.
18 A. What exactly are you referring to
19 here?
20 BY MR. GINNINGS:
21 Q. So you just read the sentence that
22 says: Zhang's set of predicted trajectories
23 and confidence levels teaches an output
24 statistical summary.
25 Right?

Page 87

1 A. Yes.
2 Q. So I'm asking about a -- first
3 part of that, a set of predicted
4 trajectories.
5 Is a set of predicted trajectories
6 one or more predicted trajectories?
7 MR. BARAZESH: Objection. Form.
8 Objection. Foundation.
9 A. Well, the set is of the predicted
10 trajectories and confidence levels.
11 BY MR. GINNINGS:
12 Q. Okay. So then is a set of
13 predicted trajectories in confidence levels
14 one or more predicted trajectories and
15 confidence levels?
16 MR. BARAZESH: Objection. Form.
17 Asked and answered.
18 A. They are plural, but the meaning
19 behind them being plural could mean based on
20 a per input basis or it could be that
21 multiple could be outputted. I would have to
22 double-check with Zhang, but the set is of
23 both.
24 BY MR. GINNINGS:
25 Q. Now, just to go back to the claim

Page 88

1 phrase here for a second in Paragraph 172,
2 the italicized language: Predicting an
3 output statistical summary. The next part of
4 the claim says: Characterizing a
5 distribution of user responses.
6 Right?
7 A. Correct.
8 Q. Now, is it your opinion that
9 Zhang's set of predicted trajectories and
10 confidence levels characterizes a
11 distribution of user responses?
12 A. Can you ask that again?
13 Q. Sure.
14 (Simultaneous unreportable crosstalk
15 occurs among parties.)
16 BY MR. GINNINGS:
17 Q. I just -- so the sentence that we
18 were talking about a few minutes ago in
19 Paragraph 173, you state: Zhang's, quote,
20 set of predicted trajectories and confidence
21 levels teaches an output statistical summary.
22 Right?
23 A. Correct.
24 Q. So it's your opinion that the set
25 of predicted trajectories and confidence

Page 89

1 levels in Zhang meets the claim requirement
2 of an output statistical summary, right?
3 A. Correct.
4 Q. And I want to understand. Is it
5 your opinion, then, that that set of
6 projected -- strike that. Let me start over
7 again.
8 Is it your opinion, then, that
9 Zhang's set of predicted trajectories and
10 confidence levels characterizes a
11 distribution of user responses?
12 A. Yes. As I mentioned before, a
13 little further down, just kind of jumping to
14 Paragraph 174 here, Zhang's training data
15 includes images that are labeled by human
16 labelers. And going back to your question,
17 the plurality of users.
18 Q. In your opinion, Dr. Janet, what
19 does that mean for an output statistical
20 summary to characterize a distribution of
21 user responses?
22 MR. BARAZESH: Objection. Form.
23 A. In Paragraph 175, I say that,
24 quote, the set of predicted trajectories and
25 confidence levels (i.e., output statistical

Perceptive Exhibit 2043
IPR2025-01573

Page 90

1 summary) therefore reflects the distribution
2 of various human labeler responses (i.e., in
3 the terminology of the claim element)
4 characterizing a distribution of user
5 responses indicating possible
6 trajectory/behaviors of the object that human
7 labelers would have identified for the object
8 in the image data and responded with by
9 labeling in the data when presented with the
10 data, just to say expected to be received
11 responsive to presenting the sensor data to a
12 plurality of users, the user response is
13 associated with the particular object.
14 BY MR. GINNINGS:
15 Q. Okay. I understand that's your
16 opinion about what in Zhang meets that claim
17 language. I'm trying to ask kind of a -- you
18 know, a little bit kind of lower-level
19 question of what does the phrase
20 "characterizing a distribution of user
21 responses" mean to a person of ordinary
22 skill?
23 MR. BARAZESH: Objection.
24 Scope.
25 A. Yes, I believe the answer is what

Page 91

1 I described. The set of predicted
2 trajectories and confidence levels are your
3 output statistical summary, and because they
4 were formed by annotations from multiple
5 labelers, I believe is the exact -- human
6 labelers, it reflects the distribution of the
7 various human labeler responses (i.e., it
8 characterizes a distribution of user
9 responses).
10 BY MR. GINNINGS:
11 Q. Okay. Again, I understand you're
12 reading to me what in your opinion in Zhang
13 meets that -- meets that claim language.
14 What I'm asking is: What is the
15 plain and ordinary meaning of that phrase
16 that you applied in your analysis?
17 MR. BARAZESH: Objection. Form.
18 Objection. Scope.
19 A. Well, I've offered some plain and
20 ordinary meaning interpretations, I think, on
21 a few things, but what specifically are you
22 asking me about?
23 BY MR. GINNINGS:
24 Q. I'm asking what plain and ordinary
25 meaning of that claim phrase you applied in

Page 92

1 rendering your analyses here.
2 A. What claim phrase?
3 Q. "Characterizing a distribution of
4 user responses."
5 MR. BARAZESH: Same objections.
6 Also asked and answered.
7 A. So my plain and ordinary meaning
8 here is reflecting the distribution of the
9 various human labeler responses.
10 MR. GINNINGS: I think before I
11 move on to the next thing here, I
12 think this is probably a good time to
13 go ahead and break for lunch since
14 it's been another hour. So we can go
15 ahead and go off the record.
16 (A lunch recess was held from
17 12:32 p.m. to 1:07 p.m.)
18 BY MR. GINNINGS:
19 Q. Welcome back, Dr. Janet.
20 A. Thank you.
21 Q. Thanks for all your time so far
22 this morning, and as I asked you after the
23 last break, I just want to give you the
24 opportunity if there's any additions or
25 corrections you want to make.

Page 93

1 Anything we talked about so far
2 today?
3 A. Not that I'm aware of.
4 Q. Okay. If anything comes up, just
5 let me know.
6 A. Thank you.
7 Q. I want to switch gears a little
8 bit, and I want to talk about your
9 declaration concerning the '046 Patent, which
10 is Exhibit 8. If you can open that up for
11 me.
12 A. Counsel, are you okay if I pull
13 down the '344?
14 Q. Yes. I don't anticipate going
15 backwards to those, but if we do, I'll -- we
16 can open it back up again.
17 A. Okay.
18 Q. And I suppose if you want to pull
19 them up at the same time, the corresponding
20 petition is Exhibit 3, and the patent is
21 Exhibit 13.
22 A. All right. I have all of those
23 '046 exhibits up, all three.
24 Q. Okay. Great. Can you turn to
25 Exhibit 8 for me then?

Perceptive Exhibit 2043
IPR2025-01573

Page 94

A. All right.
Q. Now, Exhibit 8 is your declaration concerning the '046 Patent, right?
A. Yes.
Q. And in your declaration here, you lay out your opinions concerning five different grounds of obviousness. Is that generally correct?
A. Give me a second. I'm shuffling things around my screen here.
Q. Sure.
A. Okay. Sorry. Five grounds, you asked?
Q. Yes.
A. Yes, that's true.
Q. Okay. And just to kind of orient ourselves here, I'm looking at the Table of Contents, PDF Page 2.
Do you see Ground 1 on that page?
A. Yes, sir.
Q. And Ground 1 concerns Claims 1 through 19 of the '046 Patent and the Cox reference, right?
A. Correct.
Q. And then on the next page,

Page 95

Ground 2 concerns those same claims but the Cox and Ross references, right?
A. Yes, sir.
Q. And then Ground 3 concerns Claims 5, 12, and 19, and the Cox and Ellen Bogen references, right? E-L-L-E-N, B-O-G-E-N?
A. Yes.
Q. And then Ground 4 concerns Claims 1 through 19 and the Cox and Munro references, M-U-N-R-O?
A. Correct.
Q. And lastly, Ground 5 also concerns those same Claims 1 through 19 and the Ellen Bogen and Munro references, right?
A. Yes, sir.
Q. Now, if you can turn to PDF Page 17 for me of Exhibit 8?
A. I'm there.
Q. And do you see the section entitled -- section heading with Legal Standards for Patentability there?
A. Yes, sir.
Q. And then beginning in Paragraph 27 and continuing on, you lay out a number

Page 96

of -- your understanding of certain legal standards for patentability, right?
A. Yes.
Q. And if you turn to PDF Page 18 in Paragraph 34?
A. Okay.
Q. And from there through the next page, Paragraph 42, you lay out the same obviousness standards that we discussed this morning, right?
A. Yes, sir.
Q. And did you apply those obviousness standards in rendering your opinions in this declaration?
A. Yes, sir.
MR. BARAZESH: Object to the form, to the extent it's asking for legal conclusions.
A. I applied my understanding of them, as I've articulated here.
BY MR. GINNINGS:
Q. Okay. Now, I want to turn to Ground 1 in Claim 1 in this declaration, so if you can turn to PDF Page 29 for me.
A. Okay.

Page 97

Q. And then on this page, the -- you see the heading for -- Heading A, Ground 1, Claims 1 through 19 are obvious over Cox?
A. Yes, sir.
Q. So in this section, you provide your opinions that Claims 1 through 19 of the '046 Patent are obvious over the Cox reference, right?
A. Correct.
Q. Now, -- and then the next page, PDF Page 30, you begin your discussion of Claim 1 there, right?
A. Yes, sir.
Q. And in Paragraph 69, on that page, you state: In my opinion, Cox renders obvious Claim 1, right?
A. Correct.
Q. Now, I will spare you the skipping around, but in the legal standards section, one of the factors that you listed that you're required to consider in an obviousness analysis is the differences between the prior art and the claims at issue.
Do you recall us talking about that factor this morning?

Perceptive Exhibit 2043
IPR2025-01573

Page 98

A. Yes.
MR. BARAZESH: Objection. Form. And objection to the extent calling for any legal conclusions.
A. I remember the discussion.
BY MR. GINNINGS:
Q. Okay. So did you consider -- strike that.
In providing your opinions here in Ground 1, and specifically with respect to Claim 1 of the '046 Patent, did you consider the differences between the Cox reference and Claim 1 of the '046 Patent?
MR. BARAZESH: Same objections.
A. I considered what I assumed someone that doesn't have the context that a person of ordinary skill would have could potentially look at that and say that there's a difference between the prior art and the claim terms.
BY MR. GINNINGS:
Q. Okay. In your opinion, what are the differences from the perspective of a person of ordinary skill in the art between Claim 1 of the '046 Patent and the Cox

Page 99

reference?
MR. BARAZESH: Objection. Form.
A. And are we looking at Claim 1 in general, or are we looking at an element of Claim 1?
BY MR. GINNINGS:
Q. That's a fair point, and maybe it's easier to go element by element. So why don't we start with the preamble. The discussion to that begins on Paragraph 70, right?
A. Yes.
Q. What are the differences between the Cox reference and the preamble of Claim 1 of the '046 Patent?
MR. BARAZESH: Objection. Form.
A. In Paragraph 71, I discuss that Cox describes, quote: A database of training objects where, quote, each of the training objects may include or consist essentially of a digital image including a subject person, equating that to storing a plurality of images, each image displaying one or more users.
One of the challenges I think with

Page 100

the patents at issue is terms like "users" and "road users" and "subjects" and -- anyway, you know especially when you kind of look at other invalidating prior art.
So just to clarify how the "one or more users" piece of that would have been understood by a person of ordinary skill, I go on to say: The training objects may be images of human faces. That is a person of ordinary skill would have understood at least found obvious that the people/faces in the images form one or more users as claimed. This is at least because the people/faces reflect people who are partaking in an activity or using an object, for example, as a road user within the context of driverless vehicles, or a manufacturing facility user within the context of machine vision for manufacturing, both of which discussed by Cox.
BY MR. GINNINGS:
Q. Okay. Now, the portion you were just reading from is from Paragraph 71, right?
A. Correct. I apologize if I didn't

Page 101

indicate that.
Q. No, that's fine.
Above Paragraph 71, do you see the section heading for Element 1[a] there?
A. Yes.
Q. So -- and we were -- apologize if it wasn't clear. And I was asking about the -- we'll start with the preamble. We'll get to 1[a] in just a minute.
So with respect to the preamble, I believe your opinion there is in Paragraph 70, and then there's an annotated figure after Paragraph 70.
A. Fair enough. I apologize. I flipped ahead.
Q. It's fine.
A. Right. The preamble, looking at the exact language because I neglected in a couple of these declarations to include the exact language at the heading, the preamble being: A computer-implemented method comprising. And the -- and that's what the preamble says in the '046 Patent, Claim 1.
And this maps, as I articulate in the paragraph, that the -- so the

Perceptive Exhibit 2043
IPR2025-01573

Page 102

1 instructions are executed by a computer to
2 implement Cox's techniques which map to the
3 preamble which is a computer-implemented
4 method.
5 So I don't really see differences
6 here other than maybe the terminology, but
7 the meaning is the same.
8 Q. And then I apologize for having to
9 repeat it, but for Element 1[a], what are the
10 differences between Element 1[a] of Claim 1
11 of the '046 Patent and the Cox reference?
12 MR. BARAZESH: Objection. Form.
13 A. I don't really see any
14 differences. I think it's very clear to a
15 person of ordinary skill that the
16 computer -- a computer that implements Cox's
17 techniques maps to the preamble which states
18 a computer-implemented method.
19 BY MR. GINNINGS:
20 Q. And I -- I apologize. Now I'm
21 asking about Element 1[a], and your opinion
22 for that appears in Paragraph 71. Okay?
23 A. All right. I apologize. All
24 right. So we are off preamble. We are on
25 1[a]?

Page 103

1 Q. Yes.
2 A. Okay. So I will repeat what I
3 mentioned before --
4 Q. I apologize for probably the only
5 time I would interrupt you, but I actually
6 want to ask the question first --
7 A. Go ahead.
8 Q. -- so that it's clear. So I will
9 go ahead and ask the question.
10 What are the differences between
11 Element 1[a] of Claim 1 of the '046 Patent
12 and the Cox reference?
13 MR. BARAZESH: Objection. Form.
14 A. As I mentioned before, the
15 differences, if you want to call it that, are
16 superficial. The Cox 1[a] says: Storing a
17 plurality of images, each image displaying
18 one or more users.
19 And Cox describes: A database of
20 training objects where each of the training
21 objects may include or consist essentially of
22 a digital image, including a subject person.
23 So the language may be slightly
24 different, but as I indicate at the bottom of
25 Paragraph 71 or in the middle of

Page 104

1 Paragraph 71, I should say, a person of
2 ordinary skill in the art would have
3 understood or at least found obvious that the
4 people/faces in the images form one or more
5 users as claimed.
6 And then I provide a rationale for
7 that, that: It's at least because the
8 people/faces reflect people who are partaking
9 in an activity or otherwise using an object,
10 for example, as a road user within the
11 context of a driverless vehicle or vehicles
12 plural or a manufacturing facility user
13 within the context of machine vision for
14 manufacturing. Then I cite to Paragraphs 7
15 through 10, 17 and 18, 29, 44, and 56 in Cox.
16 BY MR. GINNINGS:
17 Q. Now, the next element is
18 Element 1[b] which is -- your opinion there
19 starts at the bottom of PDF Page 22, right?
20 A. Correct, yes.
21 Q. And it continues on to PDF
22 Page 23, right?
23 A. Yes.
24 Q. What are the differences between
25 the Cox reference and Element 1[b] of

Page 105

1 Claim 1?
2 MR. BARAZESH: Objection. Form.
3 A. As before, it's just different
4 phrasing. I don't really consider there to
5 be a difference here.
6 BY MR. GINNINGS:
7 Q. What different phrasing are you
8 referring to?
9 A. Well, the patent in Claim
10 Element 1[b] says: Generating training data
11 from the plurality of images that generating
12 comprising for each image.
13 And in Cox, the purported novelty
14 of Cox is the crowd sourcing to generate
15 training data to, quote, dramatically improve
16 the quality, quantity, and depth of
17 annotation data available for learning.
18 Cox discloses that multiple
19 training images are presented to human
20 annotators who, in turn, annotated the
21 training images. So this is what, in my
22 opinion, is really not different from
23 generating training data from the plurality
24 of images, the generating comprising for each
25 image.

Perceptive Exhibit 2043
IPR2025-01573

Page 106

Q. The next element, Element 1[b-i], your opinions there begin in Paragraph 73, right?
A. And what are the differences between this element and the Cox reference.
MR. BARAZESH: Objection. Form.
A. Let me 1[b-i] says: Sending the image to a plurality of human observers. Each human observer presented with a request to answer a question about a state of mind of a user in the image.
The phrasing in Cox is not identical to that, but the meaning really is. Cox discloses a crowd source data acquisition workflow that involves sending and presenting training images for annotating -- for annotation to multiple human annotators (i.e., sending the image to a plurality of human observers) the multiple human annotators.
The images are presented to the human annotators on, quote, training devices 170, which I cite to Cox, Paragraphs 10 and 29.
I also go on to say, the other

Page 107

part of that: Each human observer presented with a request to answer a question about a state of mind of a user in the image as its written in the '046 Patent, but Cox discloses the same thing that when human annotators are presented with an image, they were asked a question about the image, for example, as to what emotion might correspond to a person shown in the image.
And I include in a parenthetical: A participant may be shown in Image 120 of all or a portion of a person's face and asked to select an emotion that corresponds to the image, for example, jealous, panicked, arrogant or hateful.
So I say in my opinion, when annotators are asked to select an emotion that corresponds, they are being asked, quoting the patent, to answer a question about the state of mind of the subject.
So the phraseology -- I'm sorry. The phrasing may be a little different, but the meaning is the same. And I go on to say: Thus the annotators (i.e., human observers) are presented with an image and asked to

Page 108

answer a question about an emotion of the user in the image (i.e., from the patent) each human observer presented with a request to answer a question about a state of mind of a user in the image.
In my opinion, this disclosure of emotion in Cox is consistent with the '046 Patent's description of state of mind.
So Cox uses emotion. The '046 Patent says "state of mind," and this further maps to intention, awareness, personality, state of consciousness, level of tiredness, aggressiveness, enthusiasm, thoughtfulness or another characteristic of the internal mental state of a user in image quoting the patent '046.
BY MR. GINNINGS:
Q. So is it your opinion, Dr. Janet, that any difference between this estimate and the Cox reference just come down to word selection?
MR. BARAZESH: Objection. Form. Misstates testimony.
A. I believe that there's context, but I cite everything that I feel is

Page 109

necessary to say that they mean the same thing.
BY MR. GINNINGS:
Q. The next Element 1[b-ii] on PDF Page 35, can you turn there for me.
A. I'm there.
Q. What -- sorry. Strike that.
What are the differences between Element 1[b-ii], Claim 1 of and the Cox reference?
MR. BARAZESH: Objection. Form.
A. I'm sorry. I'm getting a little lost in my own document here. Which element are we referring to?
BY MR. GINNINGS:
Q. Element 1[b-ii].
A. 1[b-ii]. Okay. Sorry.
Q. Which I don't know if it would be helpful for me to put it on the screen for you or not?
A. No. It's okay.
Q. Okay.
A. I just need to stay on the range.
Q. All right. So let me just go ahead and re-ask the question then.

Perceptive Exhibit 2043
IPR2025-01573

Page 110

What are the differences between Element 1[b-ii] of Claim 1 and the Cox reference?

MR. BARAZESH: Objection. Form.

A. As I mention in Paragraph 76: The training devices used by the annotators to input annotations on images, quote, transmitted classification data, end quote, reflecting the annotations, quote, to the central server 150, end quote, and the, quote, classification data is received from the human annotators maps to -- from the '046 Element 1[b-ii] receiving from each of the plurality of human observers a response representing a judgment by the human observer of the state of mind of the user in the image.

So I go on to say: In my opinion, the classification data represents a judgment by the human observer of the state of mind of the user in image because the annotations of the classification data are human judgments provided by the human annotators of an emotion of a person in the image.

Page 111

BY MR. GINNINGS:

Q. So you read me a good chunk of Paragraph 76, but I want to understand is what is the difference between this claim element and the Cox reference?

MR. BARAZESH: Objection. Form. Asked and answered.

A. To me, it boils down to phrasing, but phrasing two different ways the same thing.

BY MR. GINNINGS:

Q. Maybe I can short-circuit this a little bit.

Is it your opinion, Dr. Janet, that any differences between -- strike that.

Still going to try to short-circuit, but I'm going to ask a better question.

Is it your opinion, Dr. Janet, that any differences between Claim 1 of the '046 Patent and the Cox reference come down to phrasing?

MR. BARAZESH: Objection. Form.

A. Categorically with regards to Claim 1?

Page 112

BY MR. GINNINGS:

Q. Yeah.

A. Or just the elements that we have reviewed so far?

Q. Categorically with respect to Claim 1. If you need to go through it and delineate, by all means, but I'm going to try and short-circuit it a little bit here.

A. Okay.

MR. BARAZESH: Same objection.

A. I mention in Paragraph 77 regarding Claim 1[b-iii] that Cox discloses that psychometric data summarizes how human annotators annotate training images because it includes, quote, response times for classifying one or more features, accuracy of feature classification, relative to the label that was originally put on it, and/or the presentation time (i.e., the amount of time presented to each annotator) of one or more training objects.

Moreover, in my opinion, because these values are a collection of numerical measurements, a person of ordinary skill would have recognized that such values form

Page 113

statistics.

So on one hand, the term "numerical values" is used, and on the other hand, "statistics" is used, but there are outputs from the -- let's just say neural network and Cox describes -- is describing psychometric data, and what's explained there is the summary statistics to characterize the human observer responses.

So the summary statistics basically -- you know, interpretation mapped to Cox is given some examples where there are response curves, item response curves, or IRCs, across large populations of humans. These response curves present an analysis of collected numerical measurements, and we talked a little bit earlier about what constitutes summary statistics. And the IRCs or item response curves are your summary statistics.

So in that situation, it may less be -- I think that the phrasing is different and the meaning is the same, but I think there's a little bit more context with regards 1[b-iii].

Perceptive Exhibit 2043
IPR2025-01573

Page 114

And then continuing on, Cox, you know, again, regarding the psychometric analysis, discloses human-weighted loss function based at least in part on the classification data (i.e., human annotations and the psychometric data).

So these images are given labels. The labels -- I might not be using the exact term, but I think that is -- so the labels are basically your central tendency, for lack of a better word, established by -- that could be established a variety of ways. That could be established statistically, you know, just like through a consensus. It could be an expert. But that's your central tendency.

And then Cox is measuring the feedback, these annotations, to gauge the agreement with that label. And you can get standard deviation or variance. Variance applies to accuracy.

There are a variety of other things that would apply to the quote -- the term "difficulty." But the outcome there is that it's still generating summary statistics.

Page 115

You have a distribution of values. The output of that -- let's just say a simple neural network where the state vector machine, the kernel-based approach, and that distribution represents the set of possible human annotator judgments, for example, intent or state of mind. So a little bit more context than just different phrasing, but they map well.

I might have discussed other mappings in subsequent claim elements, but, you know, is there anything you have a question about so far?

Q. I don't have any questions about your answer, no.

A. Okay.

Q. Let's -- since we have been talking about the Cox reference here a little bit, I'm going to ask some questions about it. So I'm going to go ahead and mark it as an exhibit as well and put it here in chat in just a second?

All right, Dr. Janet. I put Exhibit 16 in the chat. If you can download that and open it and let me know when you

Page 116

have it open.

(Exhibit 16 was marked for identification.)

A. I have it open.

BY MR. GINNINGS:

Q. Have you seen Exhibit 16 before?

A. Yes.

Q. What is Exhibit 16?

A. Exhibit 16 is the, what we're generally calling the Cox reference.

Q. And just so the record is clear, Exhibit 16 is Tesla's Exhibit 1005 in the 1575 IPR concerning the '046 Patent. I believe it's also an exhibit in the other four IPRs, but this particular copy is that one.

Dr. Janet, did you review Exhibit 16 in preparation for your deposition today?

A. Yes.

Q. Now, we talked a little -- a few minutes ago about the Cox reference when we were talking about your opinions concerning Claim 1 and Ground 1 in this IPR concerning the '046 Patent, right?

Page 117

A. Yes, I believe so, if I understand your question properly.

Q. Now, Cox is generally directed to machine learning processes for detecting faces and images, right?

MR. BARAZESH: Objection. Form. Misstates the evidence.

A. Well, Cox describes multiple applications.

BY MR. GINNINGS:

Q. Is detecting faces one of those?

A. Detecting faces is certainly one or a part of them, yes.

Q. And what other applications has Cox described besides detecting faces?

A. To going backwards a little bit, Paragraph 67, the goal of Cox's machine learning techniques is to, quote, better mimic human performance, end quote. And then go on to say: Cox touts that techniques applied to, quote, driverless automobile applications, citing Paragraph 56.

Now, if you look at Paragraph 56, Cox talks about: Embodiments of the invention may be applied to face image, pair

Perceptive Exhibit 2043
IPR2025-01573

Page 118

matching, face verification, face identification, fingerprint verification which has nothing to do with faces, fingerprint verification, iris verification, iris identification, gait recognition, just to say how somebody walks; handwriting recognition, novel modality matching and multibiometric fusion.

Important application areas may also benefit from embodiments of the invention, including video surveillance, physical access and authentication, image and video forensics, photo tagging for social media, which is along the lines of presumably of the face recognition, but there are other things here, obviously, including computational photography, human computer interaction for ordinary users and the disabled, video entertainment games, robotics, which is to a large extent one of the things we're talking about here. Image analysis for biomedical applications, intelligent content archiving, driverless and/or semiautonomous automobiles and machine vision for manufacturing.

Page 119

Q. And just so I'm clear, you're reading from Paragraph 56 of Cox; is that correct?

A. Correct, that's right.

Q. Other than Paragraph 56, is there anything in Cox that describes any application other than detecting faces?

MR. BARAZESH: Objection. Form.

A. Well, this is the foundational utility of what else is taught in Cox. So the principles, you know, whether the examples may, for example, just focus on faces or occluded images or partial images of such faces. But the principles are the same, and I think this is very clear from Paragraph 56. Whether it's applied to just simple facial recognition to fingerprint analysis to document comparisons, robotics applications, which, again, is a very large bag, and driverless/semiautonomous automobiles, the principles are the same.

BY MR. GINNINGS:

Q. So other than Paragraph 56, is there anything in Cox that describes any application other than detecting faces?

Page 120

MR. BARAZESH: Objection. Form. Asked and answered.

A. I can go through Cox and see if there are any other places that allude or refer back to Paragraph 56. But Paragraph 56 is a bit of a gate you pass through to recognize that what is taught in Cox has these applications. The principles are described in a couple of examples, but the applications are, at a minimum, clear in Paragraph 56.

And just because they're not elaborated on somewhere else in the patent doesn't mean to me as a person of ordinary skill that Cox didn't really mean it. Paragraph 56 says that the applications include this list, and the principles of the approach are described subsequently but mostly on pictures of faces. You can only fit so much in a document.

BY MR. GINNINGS:

Q. Is it your opinion, Dr. Janet, that a person of ordinary skill in the art could take the disclosure of Cox and apply it to every single application listed here in

Page 121

Paragraph 56 without anything outside of the reference?

MR. BARAZESH: Objection. Form. Also objection to the extent it's calling for any speculation.

A. Yeah, I think that applying it to or analyzing how it can be applied to all of those applications is outside the scope of the work I performed in this effort.

I don't have a reason to doubt it, but I only analyzed it in the perspective of driverless vehicles and what those driverless vehicles would see which could include faces, to understand intent or behavior.

BY MR. GINNINGS:

Q. Just so I'm -- make sure I understand your answer correctly, is it your opinion, Dr. Janet, that a person of ordinary skill in the art could take the disclosure of Cox and apply it to the particular application of driverless vehicles without anything outside the reference?

MR. BARAZESH: Objection. Form.

A. Without anything outside of the reference?

Perceptive Exhibit 2043
IPR2025-01573

Page 122

BY MR. GINNINGS:
Q. Yes.
A. Well, we're referring to the '046 Patent right now, correct? And the grounds that I have include, for example, Cox by itself and Ground 1, and I would not have put Cox in by itself if I didn't believe that a person of ordinary skill would learn from Cox and be able to apply it to driverless vehicles, particularly in the context of the '046 Patent where intent is sought to understand the next steps basically for a vehicle.
Q. Can you turn to PDF Page 4 of Exhibit 16 for me, Dr. Janet?
A. Let me find it somewhere on my screen here. PDF Page 4? Is that what you said?
Q. Yes.
A. This is the Cox reference?
Q. Correct.
A. Okay.
Q. And you see Paragraph 6 that starts at the bottom of that page and continues on to the next page?

Page 123

A. Yes, I do.
Q. Okay. And Paragraph 6 begins: A variety of well-known techniques exist for measuring human performance, including reaction time, measurement (i.e., how quickly is the label generated) the generation of psychophysical curves under stimulus degradation (e.g., how does performance fall off as the image becomes less clear), item response curves across large populations of humans (e.g., how consistent are judgment across a population), and many other techniques falling under the umbrella of the field of psychophysics.
A. Yes, sir.
Q. One of the things that was in that sentence that we just -- that I just read there was the mention of item response curves, right?
A. Right.
Q. What is an item response curve?
A. Well, I just want to keep it consistent here.
Q. You're still looking in Paragraph 6 of the Cox reference, right?

Page 124

A. Well, you asked me for the definition of a term in Paragraph 6. I'm looking through Cox because I just want to make sure where it's defined -- okay. So in Paragraph 27, it says: The process of determining the accuracy curves per image so as to design more efficient tests is also referred to herein as item response testing.
And the -- let me do my best to provide you with the -- so I believe this is consistent, and of course I defer to Cox for if -- if the -- if it provides a variation of this definition. But basically, it's the probability that a subject like an annotator would correctly classify or respond to a particular item which would be, you know, the content of an image. And it can be a function of that subject's latent ability, but ultimately it's the probability that the annotator will correctly classify according to what's labeled there.
So, for example, if you look in Cox -- let me take a look at some of the figures. And I have to go back and remember which figure it is, but Paragraph 29 talks

Page 125

about a psychometric function 360 related to the accuracy of the annotation, like I just said, per the condition and/or an item response curve for each of the training objects.
And let me go back to the figure. That was Paragraph 29. So if you look in Figure 3, you can see that Item 360 is an example of an IRC.
Q. So Item 360 in Figure 3. Do I have that right?
A. Yeah, so Paragraph 29, a psychometric function of 360 related to accuracy of the annotation per condition and/or an item response curve 370 for each of the training objects. So 370 is the IRC and the accuracy, I guess kind of an overlayment, is shown on 360.
Q. So the -- just so I'm clear, so the item labeled 370 in Figure 3 is an example of an item response curve?
A. In Cox -- let me go back. Cox refers to Item 370 -- 360 as the psychometric function related to the accuracy. So it's -- you're seeing the accuracy, and

Perceptive Exhibit 2043
IPR2025-01573

Page 126

1 you're seeing the psychometric function.
2 And then you have the item
3 response curve, which is 370 for, you know, a
4 training object.
5 Q. Okay. And if I'm looking at this
6 right, the item response curve 370 in
7 Figure 3 has two axes, right?
8 A. Correct.
9 Q. And one of those is ability,
10 right?
11 A. Right, or latent ability, but yes.
12 Q. And is that the ability of the
13 annotator?
14 A. It -- in the context of Cox, I
15 would have to double-check, but I would say
16 that in principle, in general, that would be
17 ability or latent ability, yes, the
18 annotator, by the way, if -- was that your
19 question?
20 Q. Yes.
21 A. Was this the annotator's latent
22 ability? Yes.
23 Q. Yes. Sorry. Okay. And the other
24 axis is accuracy, right?
25 A. Correct.

Page 127

1 Q. And that's the accuracy of the --
2 strike that.
3 What is accuracy in that -- on
4 that axis?
5 A. Well, accuracy would typically be
6 related to variance. So what's the average
7 squared difference between the annotator's
8 labels and the correct label.
9 Q. Can you go back to Paragraph 29
10 for me?
11 A. In Cox? What PDF page is that?
12 Q. It starts on PDF Page 16.
13 A. Okay.
14 Q. And continues on to Page 17. The
15 last sentence of Paragraph 29, which I
16 believe you read a little earlier, says: The
17 psychometric data may be displayed to
18 analyze, (e.g., response time per annotator
19 in a graph 350). The psychometric function
20 360 related to the accuracy of the annotation
21 per condition and/or an item response curve
22 370 for each of the training objects (i.e.,
23 the presented images).
24 Right?
25 A. Right.

Page 128

1 Q. So Paragraph 29 talks about
2 displaying psychometric data to analyze,
3 among other things, an item response curve,
4 right?
5 MR. BARAZESH: Objection. Form.
6 A. It just says it may be displayed
7 to analyze, for example, a response time.
8 You know, the display itself can be used for
9 analysis.
10 BY MR. GINNINGS:
11 Q. Okay. Other than that displaying,
12 what does Cox describe doing with an item
13 response curve?
14 MR. BARAZESH: Objection. Form.
15 A. Is there something in particular
16 that you're referring to in my declaration
17 about this?
18 BY MR. GINNINGS:
19 Q. I'm just -- I just want to get
20 your understanding based on your study of
21 Cox, what Cox describes the use of item
22 response curves in its disclosure being.
23 MR. BARAZESH: Objection. Form.
24 Objection. Scope.
25 A. I'm happy to discuss anything

Page 129

1 that's in my declaration, which essentially
2 defines the scope of what I looked at with
3 regards to Cox.
4 I did mention that accuracy and
5 some of these other variables, like latency
6 and stuff like that, could play a role in how
7 the data is characterized, for example, the
8 difficulty.
9 If I have a large variance, then I
10 have a potentially low accuracy or, you know,
11 however they're related, depending on
12 somebody -- how somebody is looking at it.
13 But let's just assume that.
14 That might dictate for that
15 particular type of image that it's
16 challenging for humans to identify what's
17 important -- to identify what's -- the label
18 for that, for lack of a better word.
19 So I end up with a human-weighted
20 loss function wherein if something is more
21 difficult for the annotators to extract and
22 identify properly the content of that image,
23 or if not the content, then the state of mind
24 or whatever metric is being used, that the
25 neural network or state vector -- support

Perceptive Exhibit 2043
IPR2025-01573

Page 130

vector machine or SVM, or whatever means is used, but let's just pick a simple neural network, that the error for that particular image wherein annotators had difficulty, again, identifying what it is or the state of it, the neural network spins more energy or effort to learn that because it makes it difficult -- it would have otherwise made it difficult for it to see somewhere down the road.

You end up with these phenomenon called overfitting, and usually that's -- overcoming that is a term called, I think, "regularization." And Cox might even mention that.

But in order to do that, you would apply a human-weighted loss function in this situation so that an error at the output of that neural network during training, its portion that's propagated back might get amplified versus a different image where there wasn't much difficulty, a smaller portion might get propagated back and change the weights less.

Page 131

BY MR. GINNINGS:

Q. I appreciate that answer, but it doesn't answer my question. So I want to be clear about what I'm asking here.

A. Uh-huh.

Q. What does Cox describe the use of item response curves being in its disclosure?

MR. BARAZESH: Objection. Form. Asked and answered.

A. Yeah, and I'm happy to focus on a particular aspect of my declaration, which I think is what ultimately defines a scope of what I looked into.

I gave you a general answer as to how Cox uses the information that could be represented by an IRC or an IRT. But in general, I don't think I recall off the top of my head -- at least I'm happy to look through my declaration. If you want to, I can go back to that as far as every possible way that an IRC is used by Cox.

MR. BARAZESH: I don't want to interrupt the line of questioning, but we have been going, you know, an hour and -- just over an hour and ten

Page 132

minutes. I'm not sure if this would be a good time to have a break or --

MR. GINNINGS: I've got a couple of more questions about the IRCs, and then I think once I'm done with that, maybe we can take a break. It shouldn't take more than a few minutes, but thanks for the heads up.

BY MR. GINNINGS:

Q. Dr. Janet, does Cox discuss storing item response curves in a database?

MR. BARAZESH: Objection. Form.

A. I'm going to also ask, are you referring to a particular section of my declaration?

BY MR. GINNINGS:

Q. I'm asking about the Cox reference, Exhibit 16, which you said you reviewed in preparation for your deposition today.

And my question is: Does anything in Cox describe storing an item response curve in a database?

MR. BARAZESH: Objection. Form. Scope.

Page 133

A. I reviewed it. I did not memorize it. But you know what? I'm happy to look through Cox to answer your question.

Paragraph 9, for example, describes a database includes or consists essentially of a storage medium populated with stored computer records specifying for each of a plurality of training objects. One, classification data comprising annotations received from a plurality of human annotators; and two, psychometric data characterizing the annotation of the training object by the plurality of human annotators.

So I would say there's one example of -- with the psychometric data which would or could include the IRC being stored.

BY MR. GINNINGS:

Q. Just so I'm clear, is it your testimony, Dr. Janet, that Paragraph 9 of Cox teaches storing IRCs in a database?

MR. BARAZESH: Objection. Scope.

A. I will also point out that Claim 11 says that a system for data classification and identification in the

Perceptive Exhibit 2043
IPR2025-01573

Page 134

1 system comprising a database of training
2 objects, the database comprising a storage
3 medium populated with stored computer records
4 specifying for each of a plurality of
5 training objects.
6 One, classification data,
7 comprising annotations received from a
8 plurality of human annotators; and two,
9 psychometric data characterizing the
10 annotation of the training object by the
11 plurality of human annotators.
12 I mentioned before that an item
13 response curve -- I don't remember the exact
14 language, but we can look at the
15 transcript -- plots the probability that a
16 subject or an annotator would correctly
17 classify the -- you know, a particular image
18 which is described in the psychometric data
19 characterizing the annotation of the training
20 objects by the plurality of human annotators.
21 Does Cox actually say I'm storing
22 the IRCs? I don't know, unless I mention it
23 in my report. But just a cursory look here
24 says that Cox is at least storing these
25 probabilities of -- that the annotators

Page 135

1 correctly classify these images per the
2 labels that are provided them.
3 BY MR. GINNINGS:
4 Q. So you don't know if Cox actually
5 says storing IRCs in a database?
6 MR. BARAZESH: Objection. Form.
7 Objection. Misstates testimony. And
8 scope.
9 A. So there's a -- there's a general
10 equivalence between the item response curve,
11 as I mentioned before, and the probability
12 that a subject annotator -- I mean, a subject
13 or an annotator would correctly identify, per
14 the label that's given that. And, again,
15 this is mentioned at least twice in Cox that
16 that probability information that is used
17 to -- you know, it is basically the IRC is in
18 fact stored.
19 By the way, there are several
20 other references as I'm looking through Cox
21 to the use of storage. It's pretty heavily
22 embedded, the term "storage" and "databases."
23 But at least those two address the core of
24 what would be an IRC.
25

Page 136

1 BY MR. GINNINGS:
2 Q. Okay. Now, when we looked a few
3 minutes ago at the Figure 3 that was an
4 example of an IRC, do you recall one of the
5 axes being the ability of the annotator?
6 A. Yeah, that would be the latent
7 ability typically, but, yeah, it's just
8 called ability here.
9 Q. Okay. Now, in the language you
10 just mentioned a few minutes ago in
11 Paragraph 9 of Cox, is there any mention
12 about the annotator's ability being stored in
13 that database?
14 MR. BARAZESH: Objection. Form.
15 Scope.
16 A. I would have to, again, look
17 through Cox just to be able to attempt to
18 answer your question. The scope of my
19 research was documented in my declaration,
20 and I think you're asking me to do something
21 that, you know, would require a bit of time.
22 If you want to, I can take that time.
23 BY MR. GINNINGS:
24 Q. My question was specific to
25 Paragraph 9 to the sentence that you read a

Page 137

1 few minutes ago about the database that's
2 described in Paragraph 9. Can you turn to
3 that for me?
4 A. What PDF is Paragraph 9, PDF page?
5 Q. Page 6.
6 And do you see the sentence that
7 begins: The database includes or consists
8 essentially of?
9 A. Yes.
10 Q. Do you recall discussing that
11 sentence a few minutes ago?
12 A. Yes.
13 Q. Is there anything in that sentence
14 that talks about storing the annotator's
15 ability in that database?
16 MR. BARAZESH: Objection. Form.
17 Scope.
18 A. The -- there are two items
19 mentioned regarding the records that are
20 stored for each of a plurality of training
21 objects, these images. One of them is
22 classification data comprising annotations
23 received from a plurality of human
24 annotators. So that's -- you know, it's
25 pretty simple numbers.

Perceptive Exhibit 2043
IPR2025-01573

Page 138

The second one is psychometric data. And psychometric data, of course I defer to Cox's definition here, but, you know, this is -- this would include, you know, annotator reaction times, difficulty, and a slew of other perceptual metrics. And that difficulty I think is -- or basically the blanket term "psychometric" includes what you're asking about.

BY MR. GINNINGS:

Q. So it's your -- it's your understanding, then, Dr. Janet, that Cox's psychometric data includes the annotator's latent ability?

MR. BARAZESH: Objection. Form. And objection. Misstating testimony.

A. The latent ability term is not mentioned here. I acknowledge that, that it's not explicitly stated here. However, the term "psychometric data," which it covers all sorts of perceptual metrics, may include ability. It may be related to ability, at least. I should say that the fact that it's displayed on the plot on -- I think it was -- was it Figure 3 -- shows there's some

Page 139

sort of recordkeeping of ability. You're putting that on the axis and the accuracy on the ordinate. If I don't store that, I'm not really sure how I map what's on the ordinate to what's on the axis.

MR. GINNINGS: Why don't we go ahead and take another short break and go off the record.

(A brief recess was held from 2:34 p.m. to 2:41 p.m.)

BY MR. GINNINGS:

Q. Welcome back, again, Dr. Janet.

A. Thank you.

Q. As I've asked you after each of the prior breaks, is there any additions or corrections you want to make about anything we've talked about so far today?

A. No, not so far as I know.

Q. Do you still have the Cox reference open?

A. Yes.

Q. Can you turn to PDF Page 5 of Cox for me?

A. Yes.

Q. And do you see Paragraph 7 there

Page 140

in the middle of the page?

A. I do.

Q. Okay. I want to walk through this and I want to get an understanding of some of the terminology that's used here and in other parts of the Cox reference. So I will just start reading here from Paragraph 7. At the beginning it says: In an aspect, embodiments of the invention feature a computer-implemented method for data classification and identification. Data corresponding to a plurality of training objects is provided over a computer network to a plurality of training devices each associated with one of a plurality of human annotators.

Right?

A. Yeah.

Q. Each of the training objects includes or consists essentially of features for a classification.

Right?

A. Correct.

Q. And the training objects are displayed on a display of each of the

Page 141

training devices. Classification data is received via communication interfaces of at least some of the training devices.

Right?

A. Yes.

Q. So what is classification data in Cox?

MR. BARAZESH: Objection. Form. Scope.

A. So if you look at Paragraph 7, it mentions that classification data is received via communication interfaces of at least some of the training devices. And the -- that the classification data includes or consists essentially of at least some of the training objects annotated via annotated interfaces by at least some of the annotators with a classification for features thereof.

If I'm remembering correctly, and I defer to my declaration, which we really haven't referred to here, the classification data is basically the actual labels and annotations. So each image is given a label, and that label basically represents, for lack of a better word, like the central tendency.

Perceptive Exhibit 2043
IPR2025-01573

Page 142

1 And you have the annotations, so you have
2 that data.
3 And then the psychometric data,
4 which I mentioned before -- excuse me -- is
5 the -- kind of the statistics from
6 these -- you know, how the stimulus -- or
7 stimuli if they're plural -- relate to
8 psychological sensations. So I understand
9 they're kind of mentioned here as two
10 different things.
11 You have got the -- you know,
12 there's the numerical answers I suppose or
13 the quantitative answers, and then you have
14 got -- I should say the actual label and
15 annotations on, let's say, the ordinal
16 scales. But you also have the psychometric
17 data, which is -- you know, we talked about
18 it. I mean, there's -- you know, it
19 includes, among other things, basically
20 the -- you know, how the stimuli affect
21 basically somebody's psychological
22 sensations.
23 BY MR. GINNINGS:
24 Q. A few lines down from where we
25 were just reading, I guess it's Line 14, do

Page 143

1 you see the -- still on the same page, PDF
2 Page 5, do you see the sentence that begins:
3 A human-weighted loss function?
4 A. Yes.
5 Q. What is a human-weighted loss
6 function in Cox?
7 MR. BARAZESH: Objection. Form.
8 Scope.
9 A. I defer to how I define it in my
10 declaration. I can offer to answer your
11 question here, just a general aspect, but
12 I've actually talked about this before. In
13 Cox, the human-weighted loss function is a
14 weight, for example, or maybe a scaler value
15 that is a function of the difficulty that the
16 annotators had in properly identifying the
17 image or what's in the image. And that
18 human-weighted loss function is used as a
19 means of, let's say, amplifying the error,
20 for example, that's propagated back during
21 training, the error being the difference
22 between the predicted output and the label,
23 which would be the correct output of that
24 neural network.
25 So it's analogous to learning

Page 144

1 rates. It's analogous to other functions
2 that are used for reducing or amplifying the
3 portion of error that causes a change in the
4 synoptic weights or other internal values
5 that are multiples of how the -- those
6 weights change.
7 BY MR. GINNINGS:
8 Q. Can you turn to the next page of
9 Cox, Exhibit 16? I want to come back to the
10 Paragraph 9 that we talked about a little bit
11 earlier.
12 A. Paragraph 9?
13 Q. Yes.
14 A. Okay.
15 Q. And starting on Line 16, there's a
16 sentence we discussed a little earlier that
17 begins with: The database includes.
18 A. Yes.
19 Q. And does anything here in
20 Paragraph 9 describe storing a human-weighted
21 loss function in the database?
22 MR. BARAZESH: Objection. Form.
23 Scope.
24 A. Just a sentence down, it talks
25 about: The penalization module is executable

Page 145

1 by the computer processor and is configured
2 to derive a human-weighted loss function
3 based at in part, probably based at least in
4 part on the classification data in the
5 database and the psychometric data of at
6 least some of the training objects in the
7 database.
8 So the human-weighted loss
9 function, if not stored as a function, is at
10 a minimum derived from the information that's
11 stored, including that psychometric data and
12 the classification data.
13 So if you look at Paragraph 36,
14 this explains how -- I think at least partly
15 explains how the human rate of loss function
16 is derived from the psychometric and
17 classification data. Weighting function
18 conditioned on a psychometric model for a
19 recognition task, the weights are determined
20 by the classification data collected from the
21 annotators, including individual and combined
22 statistics of accuracy response time,
23 presentation time over a sample of images
24 across the varying degrees of difficulty.
25 Human-weighted loss is thus defined as...

Perceptive Exhibit 2043
IPR2025-01573

Page 146

1 And the equation is put just above
2 Paragraph 37.
3 So as I mentioned, the -- while
4 you're training a neural network and I give
5 an image, and I want to feed the
6 classification and psychometric data to that
7 neural network, the input data is stored, the
8 basis of that human-weighted loss function is
9 stored.
10 It really doesn't mean anything
11 else, except just to be run through the very
12 simple equation of the maximum between zero
13 and if there's a -- if there's an
14 even-weighted loss multiple or value that
15 needs to be employed at the output to
16 propagate the error back.
17 BY MR. GINNINGS:
18 Q. Does anything here in Paragraph 36
19 describe storing the human-weighted loss
20 function in a database?
21 MR. BARAZESH: Objection to
22 form. Scope.
23 A. Yeah, I feel like this has been
24 asked and answered several times also, with
25 all due respect.

Page 147

1 The classification data and the
2 psychometric data have been stored. And
3 that -- that information constitutes or
4 comprises the human-weighted loss function.
5 BY MR. GINNINGS:
6 Q. With all due respect, Dr. Janet, I
7 asked you about Paragraph 9 before. Then you
8 brought up Paragraph 36, and now I'm asking
9 about Paragraph 36. So it's a different
10 question.
11 A. Uh-huh. So if you look at this
12 equation in Paragraph 36, you will notice
13 that Wt as a function of Z is a value. So
14 that means that the weight is stored.
15 And if I'm looking at -- let me
16 just make sure I've got my -- so for task, T,
17 that means that -- that suggests to me -- and
18 I'm going off the cuff here. I really wish
19 you would kind of stick to my declaration --
20 but that suggests to me, just in a cursory
21 review, that that weight information is in
22 fact stored because it can be brought up, you
23 know, as a function of, like, a lookup table.
24 And I'm looking at a particular task, T.
25 MR. GINNINGS: Well, I haven't

Page 148

1 actually asked a question. So I will
2 move to strike that as nonresponsive.
3 And I will ask you a different
4 question.
5 A. You asked me if it's stored,
6 right? If the human-weighted loss function
7 is stored? That was your question?
8 BY MR. GINNINGS:
9 Q. Yeah. I asked that question.
10 A. And I answered it by showing that
11 you have got this weight, w sub t, in some
12 sort of a lookup table, which means it's
13 stored.
14 And it means if I can pull this
15 out and look at task, T, and know what the
16 weight is, then that suggests to me as a
17 person of ordinary skill that it is in fact
18 stored.
19 MR. GINNINGS: Again, I'm going
20 to move to strike as nonresponsive.
21 Let me ask you a question.
22 MR. BARAZESH: Let's just kind
23 of lower the temperature here a little
24 bit. I think Dr. Janet is asking the
25 questions -- you know, these questions

Page 149

1 are outside of the direct testimony
2 that's in his declaration anyway, and
3 we have been objecting to that
4 throughout. So I think -- if there's
5 a way to keep this within what his
6 direct testimony is, that would be
7 great.
8 Dr. Janet, let's just wait for
9 the question and answer the question
10 as it's asked.
11 BY MR. GINNINGS:
12 Q. Dr. Janet, can you go to PDF
13 Page 7 of Cox for me?
14 A. All right.
15 Q. And I want to talk about
16 Paragraph 10 of Cox for a minute. I guess
17 the first line of Paragraph 10 actually
18 starts on the prior page. I apologize for
19 that. The portion I want to ask you about,
20 on PDF Page 7 -- can you see the line numbers
21 for Cox on the left-hand side there?
22 A. Yes.
23 Q. Okay. Do you see the Line 6,
24 there's a sentence that begins: The
25 psychometric data may include?

Perceptive Exhibit 2043
IPR2025-01573

Page 150

A. Yes.
Q. Okay. So I'm going to take this sentence in increments and talk about each piece of it here. I'm reading from that sentence that I just identified here in Cox.
It says: The psychometric data may include or consist essentially of one response time for a classifying one or more features.
Right?
A. Yes. That's what it says, yes.
Q. And I just want to pause there. So response time for classifying one or more features, that's the time it takes an annotator to classify one or more features in the image, right?
MR. BARAZESH: Objection.
Misstates evidence. And scope.
BY MR. GINNINGS:
Q. Is there something about my question that you're struggling with, or are you looking for something in Cox?
A. I'm actually going back to my declaration.
Q. Okay.

Page 151

So you're not able to tell me, Dr. Janet, what Cox was referring to by "response time" without looking at your declaration?
MR. BARAZESH: Objection.
Scope.
A. I'm going back to my declaration because that's my direct testimony, and I'm looking for where I refer to response time in the broader sense.
MR. BARAZESH: I also just want to note this isn't a memory test. So if Dr. Janet needs more time to answer a question, he should get that time.
MR. GINNINGS: Counsel, I've given you a lot of leeway today on the speaking objections, but that's probably one of the most egregious ones you've made so far, and I really need you to stop.
MR. BARAZESH: Well, I mean, I think he said he's looking for an answer, and you asked a question. So it's --
(Simultaneous unreportable crosstalk

Page 152

occurs among parties.)
MR. GINNINGS: I'm not interested in going back-and-forth with you. I made a request. Please stop.
MR. BARAZESH: I would just say look at the real time.
BY MR. GINNINGS:
Q. So, Dr. Janet, are you able to answer my question?
A. I'm currently looking at my declaration to see where I describe response times versus going off the range here with the cited invaliding prior art.
So if you look to Paragraph 26, it says --
Q. Of?
A. Of Cox. It says that psychometric data -- I'm sorry. Psychometric testing is organized around two primary measures: accuracy and response time.
Each of these measures may be used on an individual image pooled for all subjects or pooled for particular subjects. Thus accuracy -- and in this case it uses the

Page 153

term "reaction time" to mean "response time" -- may be measured on a per-image, per-subject or per-condition level.
So within Cox, just looking at this from a person of ordinary skill perspective, the response time in Cox is the measured time each annotator takes to classify or label a given image --
Q. All right. Thanks.
A. -- specific to Cox. I don't think that's like a categorical definition, but for Cox, that's what I believe it is.
Q. Okay. Can you turn back to Paragraph 10 again for me, PDF Page 7?
A. Yes.
Q. So pick back up. The next item is after what I read before, is number (ii), accuracy of feature classification, right?
A. Uh-huh.
Q. What is accuracy of feature classification?
MR. BARAZESH: Objection. Form.
Scope.
A. So, again, jumping to Paragraph 26 -- actually, 26 through 28, but

Perceptive Exhibit 2043
IPR2025-01573

Page 154

1 starting on 26: Mean accuracy provides a
2 measure of how difficult a given trial is
3 over the subject population.
4 BY MR. GINNINGS:
5 Q. I'm sorry, where in 26 are you?
6 A. Line 5. That's when it's measured
7 on a per-image level.
8 Q. I see. Got it. Thank you.
9 A. Well, I'm not done.
10 Q. Okay.
11 A. 28 talks about when measured on a
12 per subject, mean accuracy is compared to a
13 nonzero chance accuracy. So it's got to be
14 one of, let's just say, two values.
15 It goes on to say: When measured
16 on a per-stimulus level, mean accuracy
17 provides a measure of how difficult a given
18 trial is over the subject population.
19 And I believe that constitutes my
20 answer.
21 Q. Now, going back one more time to
22 Paragraph 10 on PDF Page 7, let me know when
23 you're there.
24 A. Okay.
25 Q. Okay. And picking up after -- so

Page 155

1 after accuracy of feature classification,
2 that one, Line 8 --
3 A. I'm sorry, hold on a second.
4 Q. Sure.
5 A. PDF 7, you said?
6 Q. Yes.
7 A. Okay.
8 Q. And I'm on Line 8.
9 A. Uh-huh.
10 Q. So we just talked about accuracy
11 of feature classification, right?
12 A. Yes.
13 Q. Okay. And then continuing on
14 after that, it says: And/or three
15 presentation time of one or more training
16 objects.
17 Right?
18 A. Right.
19 Q. Presentation time is the -- is
20 what?
21 MR. BARAZESH: Objection.
22 Sorry. Are you done with the
23 question?
24 MR. GINNINGS: Yeah.
25 MR. BARAZESH: Okay. Objection.

Page 156

1 Form. Scope.
2 A. Paragraph 18, which I cite in my
3 declaration, Paragraph 77, Cox describes
4 presentation time as: The amount of time
5 presented to each annotator of one or more
6 training objects.
7 BY MR. GINNINGS:
8 Q. So other than those three things
9 that we just talked about in Paragraph 10,
10 does Cox describe any other kind of
11 psychometric data?
12 MR. BARAZESH: Objection. Form.
13 Scope. Foundation.
14 A. Well, I'm happy to look through
15 Cox if you want to spend the time doing that
16 to list out all of the forms of psychometric
17 data. I'm also happy to talk about what I
18 actually wrote in my declaration.
19 BY MR. GINNINGS:
20 Q. Is it your testimony, Dr. Janet,
21 that Cox does disclose other types of
22 psychometric data besides these three things?
23 MR. BARAZESH: Objection. Form.
24 Misstates testimony.
25 A. The scope of my work in this

Page 157

1 effort is described in my declaration. I do
2 not recall being tasked with or taking on the
3 task of listing out all of the possible
4 descriptions that Cox has of psychometric
5 data. And so I don't really have an answer
6 for you. My guess is that it's possible.
7 Psychometric data is described in some
8 places, at least in Cox very generically, and
9 so in a major way, I would say that it does
10 describe or it does disclose that there are
11 other forms of psychometric data.
12 BY MR. GINNINGS:
13 Q. Can you name any of those other
14 forms of psychometric data that Cox
15 discloses?
16 MR. BARAZESH: Objection. Form.
17 Scope. Foundation.
18 A. Forms other than these three that
19 you described on PDF Page 7?
20 BY MR. GINNINGS:
21 Q. Yes.
22 A. Response time, accuracy of feature
23 classification, and presentation time?
24 Q. Uh-huh, yes.
25 A. So one might be the difficulty

Perceptive Exhibit 2043
IPR2025-01573

Page 158

with ranking described in Paragraph 50. Paragraph 61, describes item response slope, item response offset, mouse path, pairwise ranking, Likert-scale judgment, continuous scale judgment, continuous color report, and mouse deviation from target location.

Let's see. Search for a couple of terms.

Consistency is mentioned in Paragraph 37. Again, I'm going off the cuff here. But that would be something that you would find included in psychometric data.

Well, anyway, so this just shows that there are more than I'm able to find with just a couple of terms -- searching for a couple of terms that are in my head. I don't doubt that there are others.

Q. Okay. Can you turn to -- still in Cox Exhibit 16, but turn to PDF Page 24 for me.

A. 24?

Q. Uh-huh.

A. Okay.

Q. We'll talk about Paragraph 48 once you're there.

Page 159

A. I'm there.

Q. Okay. Do you see -- it's the second sentence of that paragraph that begins with: Faces such as that?

A. Yes.

Q. So I'm just going to read here for a minute to get to what I want to ask you about. But reading here from Paragraph 48: Faces such as that in image 800 are easily recognized by human subjects in a massive range of poses because of the invariant nature of object recognition in the brain. To address this, embodiments of the invention deploy a test using uncontrolled natural images 810 where annotators are brought off ceiling by using very brief (e.g., approximately 50 milliseconds) presentation times and masking with amplitude-matched, phase-scrambled noise as shown in Figure 8.

For example, annotators may be asked to press a specific key if they observe a face in an image 810 or another key if they do not observe a face in the image. At the end of a series of such queries, end-of-test statistics 820 may be displayed to the

Page 160

annotators 160 via display module 167.

Did I read that correctly?

A. I believe so.

Q. What are end-of-test statistics in Cox?

MR. BARAZESH: Objection. Form. Scope.

A. So the PDFs that we have Figure 8A, A20, which is what's flagged as representative in Cox is a little blurry, but the -- I would say referring to declaration Paragraph 79, Paragraph 48, this Figure 8A is that the end-of-test statistics are basically the final aggregated psychometric summary statistics computed once the annotation process for a given image or the entire test is completed.

BY MR. GINNINGS:

Q. What's included in those end-of-test statistics?

MR. BARAZESH: Objection. Form. Scope. I just want an aside here. When referring to declarations, could we be clear as to which declaration we are referring to just so the record is

Page 161

clear for everyone?

THE WITNESS: My apologies. Yes, I'm referring to my '046 declaration.

MR. BARAZESH: Okay.

BY MR. GINNINGS:

Q. Which I believe is Exhibit 8.

A. Exhibit 8, yeah.

Q. So let me just -- since we talked a little bit, let me just re-ask the question.

A. Yep.

Q. What's included in Cox's end-of-test statistics?

MR. BARAZESH: Objection. Form. Scope.

A. Well, I thought I just answered that, but it's basically the consolidated metrics derived from the complete set of responses for that image for the entire test.

BY MR. GINNINGS:

Q. When you say "the consolidated metrics," what does that mean?

MR. BARAZESH: Objection. Form. Scope.

Perceptive Exhibit 2043
IPR2025-01573

Page 162

A. That would include just in the -- within the psychometric data for each of these images like a final mean accuracy, the IRCs we were talking about, item response curve, like what's mentioned in Paragraph 78 of I believe Exhibit -- Exhibit 8. The difficulty ranking. I think I mentioned consistency. You know, any other patterns of error, if there's -- I talked about, like, how the mouse may be off a little bit or the response times. Anyway, I'm sure that's not a comprehensive list, but that gives you an idea.

BY MR. GINNINGS:

Q. And you mentioned Figure 8A a minute ago. Can we turn to that? It's on PDF Page 44 of Cox.

A. I'm there.

Q. Okay. And the portion of Figure 8A shows the end-of-test statistics?

MR. BARAZESH: Objection. Form. Scope.

A. Well, you have that 820 to the right, and, you know, some sort of a distribution that's described in a plot up

Page 163

above. There's some human figures with different color coding associated with them. There's some text that is not very clear to me. And, of course, we have the benefit of the paragraph. I think it was 48 that was describing it as end-of-test statistics.

BY MR. GINNINGS:

Q. I agree with you. The text -- I can't -- I can't read either or I can't --

A. No, but the graphics really get the point across.

Q. Okay. And you mentioned that there's a plot or graph or something in what's labeled as 820 in Figure 8A?

A. Yeah there's what appears to be a -- maybe a histogram, which, again, is a summary statistic.

Q. Are you able to tell me what information is conveyed in that?

A. I can't see the numbers on the axis or ordinate or the title above that box. But a person of ordinary skill would look at that and know that that is a -- like a bar chart, and a bar chart is like a histogram

Page 164

basically where you've got how often certain things occurred for a particular scenario or a particular value. Or it could be agreement.

MR. BARAZESH: I'm just going to lodge an objection on form and scope to that prior question.

But just let me get in the objection there, Dr. Janet. Thank you.

THE WITNESS: My apologies.

MR. BARAZESH: It's all good.

MR. GINNINGS: We have been at it for an hour. I know a couple of times I've gone over an hour, but this is a good time for a break. So why don't we go ahead and take another short break.

(A brief recess was held from 3:42 p.m. to 3:56 p.m.)

BY MR. GINNINGS:

Q. Welcome back, again, Dr. Janet.

A. Thank you.

Q. As I asked, after the last few breaks, is there any additions or corrections

Page 165

you want to make to anything we discussed so far today?

A. Not as far as I'm aware at present.

Q. I want to switch gears and talk a little bit about -- still related to the Cox reference, but I want to talk about some things in your declaration for the '046 Patent, IPR Exhibit 8.

A. Okay.

Q. Can you turn to -- do you have Exhibit 8 open?

A. Yes.

Q. Can you turn to -- let's start at PDF Page 29.

A. Okay.

Q. And this is a -- I just want to orient you to where we are. So on this page is the beginning of your discussion of Ground 1, right?

A. Correct.

Q. And if you go to the next page, PDF Page 30 for me.

A. Okay.

Q. Beginning at Paragraph 69, that's

Perceptive Exhibit 2043
IPR2025-01573

Page 166

the beginning of your discussion of Claim 1 for Ground 1, right?
A. Correct.
Q. And we discussed this before, but I believe in Paragraph 69, you state that in your opinion, Cox renders obvious Claim 1 of the '046 Patent, right?
A. Correct.
Q. So we went through some of these claim elements earlier. I want to go to one that I don't think we got to earlier, which is Element 1[c]. And your discussion of that starts on PDF Page 41.
A. Okay.
Q. And do you see the bottom of the page, the heading 1[c] and the Paragraph 81 after that?
A. I do, yes.
Q. Now, to avoid needing to flip around here, I will share my screen for a second here just to go to the last little bit of orientation. I have what I will represent is -- this is Page 3 of the petition for the '046 Patent, Exhibit 3. It has the -- what I have here is the language of Claim 1, right,

Page 167

at least through Element 1[c]?
A. Yes.
Q. Okay. And then just so we're all on the same page, Element 1[c] here that I've highlighted is: Training a model using the training data. The model configured to receive an input image showing a user and predict summary statistics describing a state of mind of the user in the input image.
Right?
A. Yes.
Q. So I want to talk about -- for a few minutes about this phrase "summary statistics."
A. Okay.
Q. So first of all, you haven't offered any construction of the phrase in your declaration; is that correct?
MR. BARAZESH: Objection.
Scope.
A. I just have treated it as the plain and ordinary meaning.
BY MR. GINNINGS:
Q. Okay. And in your -- what to you is the plain and ordinary meaning of the

Page 168

phrase "summary statistics" in Claim 1 to a person of ordinary skill in the art?
MR. BARAZESH: Objection. Form.
Scope.
BY MR. GINNINGS:
Q. I'm not trying to be difficult, Dr. Janet, but it's been five minutes. Do you have an answer for me?
A. I'm working on it.
Okay. So just to be clear I'm following, your question was plain and ordinary meaning of "summary statistics"; is that correct?
Q. Yes.
A. Okay. And I have offered many times what I consider to be a plain and ordinary meaning of "summary statistics" to include a distribution or set of -- or even a singleton value that summarizes basically the statistics -- the statistical aspects of a dataset.
But if you look on Column 6, Line, I think, 15: The statistics may characterize the aggregate responses of multiple human observers to a particular derived stimulus.

Page 169

Q. And just so I'm clear, Column 6, Line 15 of the '046 Patent?
A. '046 Patent, correct. Yes.
Then it goes, a little further down: The summary statistics can characterize the human observer responses in terms of certain parameters associated with the statistics such as content of a response time associated with entering a response, a position of an eye of a human observer associated with the response.
And I have also offered basically that it's -- you know, any reduction -- any reduced representation of -- well, a reduced representation might be something like mean or, you know, a likelihood, any other calibrated type of probability. It just has to characterize the distribution of human responses in -- that result from the stimuli, or in the vernacular of the '046 Patent, the derived stimuli, stimuli all the same.
It can include a histogram. It can include, you know, first order statistical characterization. It can include second order characterizations. But it's a

Perceptive Exhibit 2043
IPR2025-01573

Page 170

way, I think, of describing, using this term, summary statistics, what that characterization is of the distribution of human or user responses to stimuli.

And, again, for '046, you know, about the user's state of mind, which is to say sometimes what's referred to as a road user.

Q. Okay. So I want to make sure I understand. So in your opinion, for something to be a summary statistic, it has to characterize the distribution of human responses that result from the stimuli?

MR. BARAZESH: Objection. Form. Misstates testimony.

A. I don't know if it has to, but I think that that's a decent definition of summary statistics or statistical summary. And it's, I believe, a plain and ordinary meaning.

BY MR. GINNINGS:

Q. Now in -- strike that.

Do you still have your declaration for the '046 Patent, Exhibit 8, in front of you?

Page 171

A. Yes.

Q. Okay. And are you still on Paragraph 81?

A. No. I moved around a little bit. Do you want me to go there?

Q. Yeah, PDF Page 41.

A. Okay. I'm there.

Q. And Paragraph 81 relates to Element 1[c], right?

A. Correct.

Q. And Paragraph 81 here, you state: In my opinion, Cox teaches Element 1[c]. Cox discloses that its model is trained by: (1), receiving annotated training images showing emotional states; (2), predicting classifications for the training images using the model; and (3), optimizing the model such that differences between the predictive classifications and annotated training images are minimized (training a model using the training data, the model configured to receive an input image showing a user and predict summary statistics describing a state of mind of the user in the image).

Is that right?

Page 172

A. Yes.

Q. Okay. And the italicized part in the parentheses there is the language of Element 1[c], right?

A. Yes.

Q. So what, in your opinion, Dr. Janet, in Cox teaches predicting summary statistics?

MR. BARAZESH: Objection. Form.

A. Well, I mention in Paragraph 81, a little further down: Indeed, Cox closes that statistical information may be collected and applied to the training of computer vision systems in accordance with embodiments of the invention. The classification systems for any visual category may be trained with deeply annotated images by following the learning procedures with the human-weighted loss.

The disclosure in Cox is consistent with the '046 Patent which states that the trained means -- that "trained" means that the difference between the summary statistics output by the neural network and the summary statistics calculated from the

Page 173

responses of the human observers in Step 506 is minimized.

This is just like Cox's training approach as described in Figure 4B, which is just above Paragraph 82 in my declaration '046.

In Cox, annotation responses and psychometric data from the human annotators are utilized to form, quote, a human-weighted loss function that includes penalties for misclassification of later presented query objects as graphically illustrated.

Go on to say: The magnitude of those penalties notably increases with increasing deviation from the classification data received from the human annotators.

So you have got -- you know, you have got variance, among other things, or accuracy.

These penalties ensure that the trained model is, quote, more consistent with the decisions of the human annotators. The human annotators are characterized by the psychometric data and may have summary statistics associated with that or that

Perceptive Exhibit 2043
IPR2025-01573

Page 174

1 summarize that performance.
2 Cox further teaches that the
3 penalties for misclassification may be
4 assigned based at least in part on the
5 psychometric data.
6 Again, the statistics that
7 represent the user response or the annotator
8 response is to the derived stimuli.
9 So accordingly, Paragraph 83: Cox
10 discloses that its model is trained by
11 predicting classifications of some of the
12 received training objects shown -- showing
13 emotional states and optimizing the model
14 such that the difference between a predicted
15 to classifications and the training data is
16 minimized.
17 Thus, meeting the limitation of
18 the training, the model using the training
19 data, the model configured to receive an
20 input image showing a user and predict
21 summary statistics describing the state of
22 mind of the user in the input image.
23 BY MR. GINNINGS:
24 Q. So what, in your opinion,
25 constitutes predicting summary statistics in

Page 175

1 Cox?
2 MR. BARAZESH: Objection. Form.
3 Asked and answered.
4 A. So I mentioned that Cox discloses
5 that statistical information may be collected
6 and applied to the training of computer
7 vision systems in accordance with embodiments
8 of the invention.
9 The classification systems for any
10 visual category may be trained with deeply
11 annotated images by following the learning
12 procedure with human-weighted loss.
13 Cox mentions, among other things,
14 that these can be trained on -- I think the
15 term was a "simple neural network." And with
16 that disclosure, it's consistent in that
17 "trained" means that the difference between
18 the summary statistics output by the neural
19 network and summary statistics calculated
20 from the responses of the human observers is
21 minimized and which is from the patent, by
22 the way, the '046 Patent.
23 But, basically, this is just like
24 Cox's training approach and which I mention,
25 again, at the bottom of Paragraph 81, and I

Page 176

1 refer to Figure 4B. So the psychometric
2 data, classification data are what is trained
3 on per Cox, and that's what is predicting the
4 summary statistics.
5 Q. Let's go back to the beginning of
6 Paragraph 81.
7 A. Okay.
8 Q. And first -- I know we didn't
9 necessarily -- I'll go through it one more
10 time. First, you say: In my opinion, Cox
11 teaches Element 1[c], right?
12 A. Correct.
13 Q. Then you say: Cox discloses that
14 its model is trained by, then there's three
15 things, right, (1), (2), (3)?
16 A. Yes.
17 Q. And Number 2 is: Predicting
18 classifications for the training images using
19 the model, right?
20 A. Give me a second. I want to go to
21 the figure also.
22 Okay. (1), (2), (3), the first
23 one: Receiving annotated training images
24 showing emotional states, right.
25 Q. And (2) is: Predicting

Page 177

1 classifications for the training images using
2 the model, right?
3 A. Correct.
4 Q. Is it your opinion that predicting
5 classifications amounts to predicting summary
6 statistics in Element 1[c]?
7 MR. BARAZESH: Objection. Form.
8 A. The predicting classifications for
9 the training images, you have the annotators
10 that are classifying the data, and the
11 central tendency, for lack of a better word,
12 would be the label. And that data is
13 basically part of your psychometric and
14 classification dataset.
15 BY MR. GINNINGS:
16 Q. So, Dr. Janet, is it your opinion
17 that predicting classifications for the
18 training images using the model meets the
19 requirement in Element 1[c] of predicting
20 summary statistics?
21 A. Yes.
22 MR. BARAZESH: Objection. Form.
23 Asked and answered.
24 A. Sorry, Counsel.
25 Yes.

Perceptive Exhibit 2043
IPR2025-01573

Page 178

BY MR. GINNINGS:
Q. Now, when you refer to "predicting classifications," what is a classification?
A. Well, I believe that we covered this, but the classification in Cox would be the actual labels applied either by the expert or whatever defined the central tendency and then the annotators, one or both.
I might add that that central tendency I'm referring to, that initial label from the -- from the expert on the images can and most often is a result of a statistical process also; surveys, that sort of thing. But then there's like a survey on the survey. Just -- in practical terms.
Q. And when you say "the expert," what's the expert that you're referring to?
A. Well, these images have a label to begin with, and that label is what is -- I should say that label isn't really supplied to the annotators necessarily. The image is, and the annotators will express their emotional response or something -- some other response to the drive stimuli or the

Page 179

stimuli. And the data that's compiled is what are the -- what's the -- what are the statistics that represent the agreement basically between the annotators and the original label.
So you have different layers of statistics and summaries thereof. You can train purely on the original classification data and still end up with the -- which is to say that central tendency and still end up with a statistical summary or summary statistics. You can train on the central tendency or that original label and the distribution of responses from the annotators and still end up with summary statistics.
Bear in mind that these statistics -- you know, the image is going into the neural network. The summary statistics are basically what's compared to the output of the neural network. And as I mentioned before, the difference between those two is run through some sort of a loss function like mean squared error with a learning rate and this human-weighted component, and that explains how much of that

Page 180

error is pushed back to the weight so that they are adjusted to tune the performance so that the output ultimately represents, performs like the group of annotators, including the original ones, though, that put the label on it, the original label, would have responded to that stimuli.
Instead of crunching those numbers every single time you run into a situation like what would be represented by an image or something, you know, close to it, you don't have to crunch all those numbers. You can just hike that image through the neural network and get the salient responses that would have -- that are the same at the output as the crowd of annotators would have described their responses to that stimuli or that stimulus. But now I can do it in a much more computationally compact, smaller data requirement, smaller footprint function. And I can interpolate and I can extrapolate. That's the beauty of neural networks.
Q. What are the classifications that Cox predicts for the training images?
A. Generally speaking, just looking

Page 181

to Cox, various paragraphs like 32, 27, I think 44, but basically -- and I believe we covered this before, but you would get the same kind of summary statistics that are described in the '046 Patent. So you would have the aggregated statistical descriptors like what I described.
You would have -- as part of that, you would have the central tendency which could be the mean, could be the mode, could be the median. You would have the IRT parameters that we had talked about. These difficulty values, response times. I talked about consistency. Let me find a place for that.
Potentially Paragraph 37, but consistency is a measure as well. But that's how Cox -- those are the summary statistics that are predicted.
Q. So I'm looking at Paragraph 37 that you just mentioned of Cox?
A. Uh-huh.
Q. And you mentioned consistency, right?
A. I did. Let me look at that just

Perceptive Exhibit 2043
IPR2025-01573

Page 182

to be sure.
Oh, that's actually more consistency with a human model, but consistency is a measure oftentimes. It's a psychometric measure.
Q. Is it your opinion that Cox teaches predicting consistency?
MR. BARAZESH: Objection. Form scope.
A. Cox teaches collecting psychometric data, and included in psychometric data would be things like mean accuracy, difficulty, consistency, other factors, response times, reaction times, that sort of thing.
BY MR. GINNINGS:
Q. So let's take the -- you mentioned response times as an example there. Does Cox teach predicting response times?
MR. BARAZESH: Objection. Form. Scope.
A. Just a simple search, Paragraph 36, talks about the statistics of accuracy, response time, and preservation -- I'm sorry -- presentation

Page 183

time over a sampling of images. Response time is in here quite a bit.
BY MR. GINNINGS:
Q. Does --
(Simultaneous unreportable crosstalk occurs among parties.)
BY MR. GINNINGS:
Q. Sorry. Go ahead.
A. Well, I'm just going to reiterate that the generic use of Cox with respect to psychometric data includes metrics like response time.
Q. Does Cox teach predicting any psychometric data?
MR. BARAZESH: Objection. Form. Scope.
A. Well, Cox teaches predicting the summary statistics describing the state of mind of the user. So the summary statistics are of the classification and the psychometric data as annotated and/or previously labeled.
BY MR. GINNINGS:
Q. So it's your testimony here that Cox teaches predicting psychometric data?

Page 184

MR. BARAZESH: Objection. Form.
A. As I mentioned, the psychometric data are data points describing the annotations and labels. And so is the classification dataset. Those are -- they can be taught or they can be used just to form a human-weighted loss function. But by virtue of utilizing the human-weighted loss function, it is learning to a certain extent -- to a reasonable extent, it is learning the psychometric data because the neural network is forced to focus on certain inputs to make sure that it doesn't miss important details.
BY MR. GINNINGS:
Q. And we talked a few minutes ago about how it's your opinion that Cox is teaching a predicting classifications for the training images is what meets the requirement in 1[c] of Claim 1 of predicting summary statistics, right?
MR. BARAZESH: Objection. Objection. Form. That's misstating testimony.
A. Are you referring to Paragraph 81?

Page 185

BY MR. GINNINGS:
Q. Or --
A. Pardon me?
Q. Yes.
A. And what was your question again?
Q. It's your opinion, am I right, that Cox's predicting classifications for the training images using the model meets Element 1[c]'s requirement of predicting summary statistics; is that correct?
MR. BARAZESH: Same objections.
A. Well, I think it's described at the beginning of Paragraph 81. In my opinion Cox teaches Element 1[c], and that it discloses that its model is trained by, first, receiving annotated training images showing emotional states; second, predicting classifications for the training images using the model; and third, optimizing the model such that the differences between the predicted classifications and annotated training images are minimized.
BY MR. GINNINGS:
Q. Correct. And so it's your opinion that the Element 1[c]'s requirement of

Perceptive Exhibit 2043
IPR2025-01573

Page 186

1 predicting summary statistics is met by Cox
2 disclosing predicting classifications for the
3 training images, right?
4 MR. BARAZESH: Objection. Form.
5 And mischaracterizes testimony.
6 A. So I listed three things, not just
7 one. It's the receiving annotated training
8 images showing the emotional states,
9 predicting the classifications for the
10 training images using the model, and
11 optimizing the model such that the
12 differences between the predicted
13 classifications and annotated training images
14 are minimized, basically minimizing the
15 error.
16 BY MR. GINNINGS:
17 Q. So all three of those things are
18 what constitutes predicting summary
19 statistics. Is it your opinion?
20 A. I'm saying that what Cox is doing
21 in those three things constitutes -- it meets
22 the limitation of the training model using
23 the training data. The model configured to
24 receive an input image, showing a user and
25 predict summary statistics, describing a

Page 187

1 state of mind of the user in the input image.
2 Q. What part of that meets the phrase
3 "predict summary statistics"?
4 A. Well, it is learning on the
5 classification and psychometric data and
6 the -- there are a variety of ways of setting
7 up a neural network, but you got to remember,
8 I mean, Cox is trying to characterize the
9 state of mind basically or -- it can
10 identify, you know -- it can classify, it can
11 identify, and then predict the state of mind
12 of a subject in an image.
13 And this is the case with '046 as
14 well. The '046 is describing the state of
15 mind of the user in the input image. I don't
16 think Cox is pulling any punches here or
17 doing a bait and switch.
18 I think it's very clear that it's
19 trying to classify, maybe identify, but also
20 determine the state of mind. And it's doing
21 so, as we have discussed here, by, again,
22 receiving these annotated training images and
23 predicting the classifications for the
24 training images with, for example, the
25 learning model or the neural network and then

Page 188

1 optimizing the model to minimize the error.
2 Q. Okay. Now, of those three things
3 that you just mentioned in that sentence in
4 Paragraph 81 of your declaration, the only
5 thing you identified, you would agree with
6 me, as any kind of predicting is predicting
7 classifications for the training images; is
8 that correct?
9 MR. BARAZESH: Objection. Form.
10 A. No. I also think I answered this
11 question before. The -- it sounds to me like
12 you're trying to exclude the impact of
13 psychometric data from that second step, and
14 Cox is very clear about the use of
15 psychometric data in a variety of ways.
16 One, it describes the mean
17 accuracy. It describes a couple of other
18 aspects of what would constitute difficulty
19 or agreement. So the classification is in
20 and of itself a statistic.
21 The difficulty, the mean accuracy,
22 the variance, those sort of things overlap,
23 but they are -- they also fit neatly under
24 the umbrella of psychometric data. That's
25 one thing.

Page 189

1 The other thing is the
2 psychometric data produces a human-weighted
3 loss function that drives the learning rates
4 or the magnitude of error that is propagated
5 back to adjust weights within the model, and
6 so it is -- it is also forced, basically, to
7 predict the psychometric data in parallel
8 with the classification or, you know, in part
9 with the classification data.
10 Q. Where in Paragraph 81 do you
11 explain that Cox predicts psychometric data?
12 A. It receives the annotated training
13 images showing the emotional states, the
14 predicted classifications for the training
15 images using the model, and then it
16 optimizes.
17 So by its optimization, you're
18 optimizing on the basis of a human-weighted
19 loss function. That is inherently part of
20 the -- or representative of the psychometric
21 data.
22 Q. So which of these three things in
23 this sentence here in Paragraph 81 involves
24 predicting psychometric data, (1), (2), or
25 (3)?

Perceptive Exhibit 2043
IPR2025-01573

Page 190

MR. BARAZESH: Objection. Form. Asked and answered.

A. Let me start out by saying that (1), (2), and (3) -- (1), (2), or (3) do not exclude psychometric data. The psychometric data, as explained by Cox, is in conjunction with the classification process, all the annotators relative to the central tendency (i.e., the initial label).

The psychometric data also drives the optimization function which is described in (3). So at a minimum, (2) and (3) still include psychometric prediction, I should say, of the psychometric effects.

So it's predicting classification, but it's predicting classification as a result of the psychometric data being factored in at least two ways.

Q. So Cox factors the psychometric data into the classification prediction, but it does not in fact predict psychometric data; is that correct?

MR. BARAZESH: Objection. Form.

A. The neural network is learning, and it's learning anything that is influenced

Page 191

by, among other things, the psychometric data as well. And it's learning it, at least, two different ways.

One of them is how psychometric data plays a role in the classification, which is to say what's this person's, you know, state of mind. And then it does it in another way in that the human-weighted loss function is part of the optimization.

BY MR. GINNINGS:

Q. Does Cox predict psychometric data, yes or no, Dr. Janet?

MR. BARAZESH: Objection. Form. Asked and answered.

A. Yeah, I have -- I've answered this a good half a dozen times.

BY MR. GINNINGS:

Q. Okay. Then give me a yes-or-no answer, please.

A. The simple answer, which I've told you, is that yes, it predicts it because it's part of the classification data, and it's part of the optimization function. The optimization function forces the neural network to behave in a particular way, not to

Page 192

overfit. It forces it to regularize. So it is predicting what is expected of it as a result of the psychometric data, which is described in the human-weighted loss function.

MR. GINNINGS: Why don't we go ahead and take another short break here, and let me take a look over my notes. I believe we may be -- I'm either finished or close to it. We'll just take a short break here.

We can go off the record.

(A brief recess was held from 4:56 p.m. to 5:08 p.m.)

BY MR. GINNINGS:

Q. Welcome back, again, Dr. Janet.

A. Thank you.

Q. Same question as after each break, do you have any additions or corrections to make to your testimony so far today?

A. No.

MR. GINNINGS: Dr. Janet, thank you very much for your time today. Subject to anything that Tesla's counsel may have for you, I don't have

Page 193

any further questions. I just wanted to thank you for your time that you put in today and in your preparation, and I will say you're certainly more versed in this technology that I am, and if any of my questions or lack of understanding or anything today stemmed from something that I wasn't following that may have been obvious, pun intended, to you, then I apologize for that.

But it's -- I do feel like I learn more every time I -- I learn something from every expert deposition I take, I think. And so thank you for that.

THE WITNESS: Well, I appreciate your compliment and I appreciate your gratitude. I also appreciate the professional way in which you handled this.

MR. GINNINGS: Likewise. Likewise. And with that, subject to anything that Tesla's counsel may have for you, I pass the witness.

Perceptive Exhibit 2043
IPR2025-01573

Page 194

MR. BARAZESH: Thank you. So we can go off the record. I think we'll just need like another five minutes just to have a little more discussion on what we are going to do, and then we should be back. Could we do like 4:15? Would that work?

MR. GINNINGS: Yeah, sure.

(A brief recess was held from 5:09 p.m. to 5:13 p.m.)

CROSS-EXAMINATION

BY MR. BARAZESH:

Q. So, Dr. Janet, just a couple of quick questions. So counsel for Perceptive asked you questions on the plain meaning of the term "summary statistics."

Do you recall that?

A. Yes.

Q. You're not offering a specific definition of the term "summary statistics," right?

MR. GINNINGS: Objection to form.

BY MR. BARAZESH:

Q. I can ask it in a different way.

Page 195

Are you offering a specific definition of the term "summary statistics"?

A. No, I don't believe I am. I'm just saying that I'm using the plain and ordinary meaning.

MR. BARAZESH: No further questions.

MR. GINNINGS: I don't have anything further. Thank you, again, Dr. Janet.

THE WITNESS: Thank you.

(Thereupon, the proceedings concluded at 5:14 p.m.)

Page 196

CERTIFICATE OF REPORTER

UNITED STATES PATENT AND TRADEMARK OFFICE)
PATENT TRIAL AND APPEAL BOARD)

I, ERICA FIELD, RDR, CRR, certify that I was authorized to and did stenographically report the deposition of JASON JANET, PH.D., pages 1 through 196; that a review of the transcript was requested; and that the transcript is a true and complete record of my stenographic notes.

I further certify that I am not a relative, employee, attorney, or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 7th day of June, 2026.

Erica Field

Erica Field, RDR, CRR

Page 197

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IN RE: Tesla v. Perceptive Automata
CASE NO. IPR2025-01573
WITNESS: JASON JANET, PH.D.
TAKEN: 06/04/2026

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Under penalties of perjury, I declare that I have read the foregoing document and that the facts stated in it are true.

Date Jason Janet, Ph.D.

Perceptive Exhibit 2043
IPR2025-01573

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(1) 171:14 176:15,22 189:24 190:4

(2) 171:15 176:15,22,25 189:24 190:4,12

(3) 171:17 176:15,22 189:25 190:4,12

0

046 29:21,23 30:2 93:9,23 94:3,22 97:7 98:11,13,25 99:15 101:23 102:11 103:11 107:4 108:8,9,16 110:12 111:21 116:13,25 122:4,11 161:3 165:9 166:7,24 169:2,3,20 170:5,24 172:21 173:6 175:22 181:5 187:13,14

1

1 11:13,17,22,24 12:1,2,3 14:9 16:1 17:6 18:1 19:8 20:21 27:13 33:9 35:9 36:10,14 37:10,12,13,17,18 38:13,19 39:2,24 40:10 52:18,22,25 53:4,9,22, 25 54:8 59:21 60:18 61:25 63:19 64:13,22 67:8 68:15 69:5,20 70:2 73:7,16,24 74:4,8,9,17,25 75:2,12,19 80:9 83:4 94:19,21 95:10,14 96:23 97:2,3,6,12,16 98:10,11,13,25 99:3,5, 14 101:23 102:10 103:11 105:1 109:9 110:2 111:20,25 112:6 116:24 122:6 165:20 166:1,2,6,25 168:1 184:20

10 25:14,17,21,23,24 26:2,7,13,15 33:4,10 104:15 106:23 149:16,17 153:14 154:22 156:9

10,614,344 12:4 18:20 19:5 27:7

1005 116:12

102 20:17 47:24

103 37:14,19,22 38:14

103(a) 47:14

104 26:7

10:05 6:2

11 26:22,24 27:3,5,6,12,22 28:1 33:11 35:9 36:10,14 133:24

11,126,889 14:10 21:21 28:17

11,467,579 17:7 24:17 30:19

11,520,346 18:2 26:1 32:15

11,753,046 15:19 16:2 22:23 29:19 31:22

11:29 63:5

11:37 63:5

12 28:4,7,11,13,14,21,25 29:4 95:5

120 107:11

12:32 92:17

13 29:7,9,13,15,16,24 39:2,24 93:21

14 30:6,8,12,14,15,24 31:7 142:25

15 31:10,13,17,19,20,25 32:8,9,21,24 33:2,6,11 80:11 168:23 169:2

150 110:10

1575 116:13

16 39:2,25 115:24 116:2,6,8,9,12,18 122:15 127:12 132:18 144:9,15 158:19

160 160:1

161 40:6,9 74:7

167 160:1

17 95:18 104:15 127:14

170 106:23

172 77:3,6 80:4 82:21 88:1

173 54:20 59:12,24 60:15,17 61:16, 23 64:4,12 68:2 85:25 88:19

174 55:25 59:18 64:8,12 67:3,18 68:2 69:3,25 70:6 89:14

175 56:12,21 68:2 85:19 86:2 89:23

177 59:21 65:21 72:3,16

18 41:17 96:4 104:15 156:2

19 16:1 43:22 94:22 95:5,10,14 97:3,6

1:07 92:17

1[a 101:4,9 102:9,10,21,25 103:11,16

1[b 61:17,25 64:13,19,24 65:4,19 66:20 67:19 68:7 69:13 72:15 73:12, 25 76:24 79:25 80:1 104:18,25 105:10

1[b-i 106:1,7

1[b-ii 109:4,9,16,17 110:2,13

1[b-iii 112:12 113:25

1[c 166:12,16 167:1,4 171:9,12 172:4 176:11 177:6,19 184:20 185:14

1[c]'s 185:9,25

2

2 13:22 14:1,5,7,8,12,20 21:24 28:23 35:20 37:5,6 38:9,12,18 94:18 95:1 176:17

20 14:9 17:6 60:2

22 12:3 37:13,18 38:13,19 39:3,25 104:19

23 18:1 104:22

24 158:19,21

26 152:15 153:25 154:1,5

27 42:1,2,12 95:24 124:5 181:1

28 153:25 154:11

29 96:24 104:15 106:24 124:25 125:7, 12 127:9,15 128:1 165:15

2:34 139:10

2:41 139:10

3

3 15:14,17,22,24,25 16:3,13 23:1 29:25 38:24 39:1,11,18,20,23 52:7,13 53:23 63:14 93:20 95:4 125:8,10,20 126:7 136:3 138:25 166:23,24

30 97:11 165:23

32 181:1

33 43:24 44:2,23

34 45:14,19 46:23 80:11 96:5

344 12:17,21 27:9,11,22 33:19 35:24 36:19,24 37:18 38:20 39:25 49:5 52:15 54:9 60:18 62:1 66:23 68:8 69:13 73:8 74:5,17 75:12 76:3 77:7 93:13

346 32:1,19,23 33:2 34:21 35:5,23 36:3,7

35 37:14,19 38:14 39:3 47:10,13 109:5

350 127:19

36 47:17,21 48:9,15 145:13 146:18 147:8,9,12 182:23

360 125:1,8,10,13,18,23 127:20

37 48:25 146:2 158:10 181:16,20

370 125:15,16,20,23 126:3,6 127:22

38 49:11 50:17

Perceptive Exhibit 2043
IPR2025-01573

39 49:24 51:5,24

3:42 164:20

3:56 164:20

4

4 16:20,23 17:2,4,5,8,12 24:20 31:1 38:5 95:9 122:14,17

40 50:3

41 50:7 166:13 171:6

42 50:11,17 51:5,24 96:8

44 104:15 162:17 181:2

48 158:24 159:8 160:12 163:5

4:56 192:14

4B 173:4 176:1

5

5 17:15,18,22,24,25 18:3,7 26:4 32:25 33:10 39:2,24 95:5,13 139:22 143:2 154:6

50 158:1 159:17

506 173:1

56 104:15 117:22,23 119:2,5,16,23 120:5,11,16 121:1

579 30:21,23 31:3

5:08 192:14

6

6 18:16,21,25 19:2,3,11 20:17,19,23 21:2 27:16,19,21 33:10,20,23 34:7,9 35:9,13 36:10,14,22 40:3 41:18 46:4, 24 63:15 76:25 80:16 122:23 123:2, 25 124:2 137:5 149:23 168:22 169:1

61 158:2

67 117:17

69 97:14 165:25 166:5

7

7 21:8,12,16,18,19,22 22:2,9 23:25 29:2 39:2,24 41:24 104:14 139:25 140:7 141:10 149:13,20 153:14 154:22 155:5 157:19

70 99:10 101:12,13

71 99:17 100:23 101:3 102:22 103:25 104:1

72 39:13

73 106:2

76 110:5 111:3

77 112:11 156:3

78 39:14 52:9,10 162:5

79 40:3 52:22 53:1 160:12

8

8 22:11,14,18,20,21,24 23:18,20 30:4 93:10,25 94:2 95:18 155:2,8 159:19 161:7,8 162:6 165:9,12 170:24

800 159:9

81 166:16 171:3,8,11 172:10 175:25 176:6 184:25 185:13 188:4 189:10,23

810 159:15,22

82 61:19 173:5

820 159:25 162:23 163:15

83 174:9

86 77:1

87 67:3

889 28:19,21,25

8A 160:9,12 162:15,20 163:15

9

9 23:13 24:5,8,12,14,15,18 25:1,7,10 31:5 133:4,19 136:11,25 137:2,4 144:10,12,20 147:7

93 53:3

95 22:2

99 23:4 25:1

A

a.m. 6:2 63:5

A20 160:9

ability 124:18 126:9,11,12,17,22 136:5,7,8,12 137:15 138:14,17,22 139:1

access 118:12

accordance 172:14 175:7

accuracy 84:6 112:16 114:20 124:6 125:2,14,17,24,25 126:24 127:1,3,5, 20 129:4,10 139:2 145:22 152:21,25 153:18,20 154:1,12,13,16 155:1,10 157:22 162:3 173:19 182:13,24 188:17,21

acknowledge 44:21 78:11 138:18

acquisition 106:14

actions 57:15

activity 100:15 104:9

actual 57:1 83:13 141:22 142:14 178:6

add 178:10

added 59:5

additions 21:3 22:8 23:9 25:6 26:12 63:10 92:24 139:15 164:25 192:19

address 135:23 159:13

adjust 189:5

adjusted 180:2

adjustment 58:1,9 66:6 71:12

Adobe 19:13 20:7 34:2,12,19 35:3 36:11

affect 142:20

affirmed 6:5

aggregate 168:24

aggregated 160:14 181:6

aggressiveness 108:13

agree 68:23 69:9 163:8 188:5

agreed 79:9

agreement 114:18 164:4 179:3 188:19

ahead 11:7 26:21 46:9 62:22 72:12 92:13,15 101:15 103:7,9 109:25 115:20 139:7 164:17 183:8 192:7

allege 36:22

allowing 57:25 58:9

allude 120:4

amount 112:19 156:4

amounts 177:5

amplified 130:21

amplifying 143:19 144:2

amplitude-matched 159:18

Perceptive Exhibit 2043
IPR2025-01573

analogous 143:25 144:1

analyses 92:1

analysis 43:14 82:25 83:24 91:16 97:22 113:15 114:3 118:22 119:18 128:9

analyze 127:18 128:2,7

analyzed 121:11

analyzing 121:7

and/or 112:18 118:24 125:3,15 127:21 155:14 183:21

annotate 112:14

annotated 101:12 105:20 141:16 171:14,19 172:17 175:11 176:23 183:21 185:16,21 186:7,13 187:22 189:12

annotating 106:16

annotation 105:17 106:17 125:2,14 127:20 133:12 134:10,19 160:15 173:7

annotations 78:21 91:4 110:7,9,21 114:5,17 133:10 134:7 137:22 141:23 142:1,15 184:4

annotator 112:20 115:6 124:14,20 126:13,18 127:18 134:16 135:12,13 136:5 138:5 150:15 153:7 156:5 174:7

annotator's 126:21 127:7 136:12 137:14 138:13

annotators 105:20 106:17,20,22 107:5,17,24 110:6,12,23 112:14 129:21 130:4 133:11,13 134:8,11,20, 25 137:24 140:16 141:17 143:16 145:21 159:15,20 160:1 173:8,16,22, 23 177:9 178:8,22,23 179:4,14 180:4, 16 190:8

answers 66:18 142:12,13

anticipate 44:10 93:14

anticipated 80:24

anticipates 75:2

anticipation 40:18,24 41:3,9 44:15, 19 74:20 76:12,18

anyone's 10:4

apologies 161:2 164:11

apologize 9:15 23:16 32:1 34:16 36:12 46:6 59:21 73:22 100:25 101:6, 14 102:8,20,23 103:4 149:18

app 9:2

appears 102:22 163:16

application 7:21 118:9 119:7,25 120:25 121:21

applications 7:22 117:9,14,22 118:22 119:19 120:8,10,16 121:8

applied 47:5,7 48:21 49:3 50:24 51:8,10 52:2 54:4 81:2 83:15,24 91:16,25 96:19 117:21,25 119:16 121:7 172:13 175:6 178:6

applies 82:12 114:20

apply 43:14 46:1,24 48:14 50:18 82:10,23 96:12 114:22 120:24 121:20 122:9 130:17

applying 121:6

appreciating 79:15

approach 76:14 115:4 120:18 173:4 175:24

approached 74:21

approximately 159:17

archiving 118:23

areas 118:9

arrogant 107:15

art 41:13 44:4,9,24 45:1 48:1,4 49:14, 25 50:4,9 51:16 53:17 60:23 75:14 78:15 81:4,8,11,24 97:23 98:19,24 100:4 104:2 120:23 121:19 152:14 168:2

art's 73:12

articulate 101:24

articulated 41:4 43:9 96:20

aspect 83:6 131:11 140:8 143:11

aspects 168:20 188:18

assigned 174:4

associate 57:6,7,8 71:2

assume 12:14 129:13

assumed 98:15

assuming 8:1

attempt 136:17

attorney 47:8 51:15

authentication 118:12

Automata 10:18

automobile 117:21

automobiles 118:24 119:21

autonomous 28:16 30:18 32:10 55:14

average 127:6

avoid 166:19

aware 23:12 25:8 26:14 44:20 93:3 165:3

awareness 108:11

axes 126:7 136:5

axis 126:24 127:4 139:2,5 163:22

B

B-O-G-E-N 95:7

back 9:1,5 34:13 53:14 59:11,16 61:18,20 63:7 67:22 76:23 83:17 87:25 89:16 92:19 93:16 120:5 124:24 125:6,22 127:9 130:20,23 131:20 139:12 143:20 144:9 146:16 150:23 151:7 153:13,16 154:21 164:22 176:5 180:1 189:5 192:16

back-and-forth 152:3

backtrack 23:24

backtracking 23:16 24:4

backwards 93:15 117:16

bag 119:20

bait 187:17

bar 163:24,25

BARAZESH 13:10 14:22 15:11 16:16 35:21 36:5 37:24 40:19 41:1,10 42:6,14,21 43:4,16 46:5 47:2 48:18 50:21 51:6,13,25 54:1,10 59:25 60:11,19 61:9 62:2,25 67:20 69:6 70:3 71:19 72:17 73:9,17 74:6 75:3, 24 78:7 80:20 81:15 82:3 83:25 86:16 87:7,16 89:22 90:23 91:17 92:5 96:16 98:2,14 99:2,16 102:12 103:13 105:2 106:6 108:22 109:11 110:4 111:6,23 112:10 117:6 119:8 120:1 121:3,23 128:5,14,23 131:8,22 132:12,24 133:21 135:6 136:14 137:16 138:15 141:8 143:7 144:22 146:21 148:22 150:17 151:5,11,21 152:6 153:22 155:21,25 156:12,23 157:16 160:6,21 161:5,15,24 162:21 164:5,12 167:19 168:3 170:14 172:9 175:2 177:7,22 182:8,20 183:15 184:1,22 185:11 186:4 188:9 190:1,23 191:13

barring 56:5

Perceptive Exhibit 2043
IPR2025-01573

based 28:15 32:10 41:2,6,9,11,14 44:17 48:19 51:17 74:17,21 76:19 87:19 114:4 128:20 145:3 174:4

basically 113:11 114:10 122:12 124:13 135:17 138:7 141:22,24 142:19,21 160:13 161:18 164:1 168:19 169:12 175:23 177:13 179:4, 19 181:2 186:14 187:9 189:6

basics 7:2

basis 13:11 14:24 87:20 146:8 189:18

Bear 179:16

beauty 180:22

began 6:2,20

begin 52:8,22 53:1 97:11 106:2 178:20

beginning 41:24 42:2 65:1 82:20 95:24 140:8 165:19,25 166:1 176:5 185:13

begins 42:11,12 80:5 99:10 123:2 137:7 143:2 144:17 149:24 159:3

behalf 16:8

behave 191:25

behavior 55:2 56:13,23 57:1,9,14 70:19 71:3 86:9 121:14

behaviors 56:15 70:20

benefit 118:10 163:4

biomedical 118:22

bit 11:9 20:11 54:18 62:8 76:15 82:16 83:6 90:18 93:8 111:13 112:8 113:17, 24 115:7,19 117:16 120:6 136:21 144:10 148:24 161:10 162:10 165:6 166:21 171:4 183:2

blanket 73:18 138:8

blurry 160:10

Bogen 95:6,15

boils 78:12 111:8

bottom 38:24 103:24 104:19 122:24 166:15 175:25

box 163:22

brain 159:12

break 60:4 62:23 63:13 64:3 79:13 92:13,23 132:2,6 139:7 164:16,18 192:7,11,18

breaks 139:15 164:25

bridge 79:1

bring 34:20

bringing 62:14,15

broader 151:10

brought 10:17 147:8,22 159:15

bucket 76:12

C

calculated 83:14 172:25 175:19

calendar 8:11

calibrated 169:17

call 82:15 103:15

called 130:12,13 136:8

calling 37:25 40:20 42:22 43:5 48:20 50:22 54:2 64:1 98:3 116:10 121:5

camera 9:14,19

campus 7:9,10

capabilities 10:4

Carolina 7:8

case 46:3 50:14 61:6 152:25 187:13

cases 67:23

categorical 153:11

Categorically 111:24 112:5

category 63:21 76:17 172:16 175:10

caught 62:6

cautions 14:20 16:11

caveat 47:5

ceiling 159:16

central 110:10 114:10,15 141:25 177:11 178:7,10 179:10,12 181:9 190:8

challenge 55:18

challenges 99:25

challenging 129:16

chance 154:13

change 130:23 144:3,6

characteristic 108:14

characterization 169:24 170:3

characterizations 169:25

characterize 89:20 113:8 168:23 169:6,18 170:12 187:8

characterized 129:7 173:23

characterizes 88:10 89:10 91:8

characterizing 56:4 65:11 66:10 70:10 77:9 84:12 88:4 90:4,20 92:3 133:12 134:9,19

chart 163:25

chat 8:8 11:14 13:23 15:14 16:21 17:15 18:17 21:9 22:12 24:6 25:14 26:22 28:5 29:7 30:6 31:11 115:21,24

chokes 34:2

choose 79:4

chunk 111:2

circle 35:3

citations 56:16

cite 104:14 106:23 108:25 156:2

cited 152:14

citing 117:22

claim 40:10 44:5,10,25 49:2,12 52:17,18,22,25 53:4,9,22,25 54:8,17 55:19 56:6 60:18 61:17,25 63:19 64:13,24 65:20 66:21 67:8 68:15 69:5,20 70:2 73:7,12,16,24 74:4,8,9, 17,25 75:2,12,19 76:2 79:12 80:9,17, 18 82:5 83:4 87:25 88:4 89:1 90:3,16 91:13,25 92:2 96:23 97:12,16 98:11, 13,20,25 99:3,5,14 101:23 102:10 103:11 105:1,9 109:9 110:2 111:4,20, 25 112:6,12 115:11 116:24 133:24 166:1,6,10,25 168:1 184:20

claimed 45:15,20 49:13 56:10 85:23 100:12 104:5

claims 12:3 14:9 16:1 17:6 18:1 37:13,18 38:13,19 39:2,24 49:4 50:5 52:15 53:17 94:21 95:1,5,10,14 97:3, 6,23

clarify 35:22 51:15 58:16,20 71:18 100:5

clarity 7:4 59:5

classification 110:8,11,19,22 112:17 114:5 133:9,25 134:6 137:22 140:11,21 141:1,6,11,14,18,21 145:4, 12,17,20 146:6 147:1 153:18,21 155:1,11 157:23 172:15 173:15 175:9 176:2 177:14 178:3,5 179:8 183:20 184:5 187:5 188:19 189:8,9 190:7,15, 16,20 191:5,22

Perceptive Exhibit 2043
IPR2025-01573

classifications 171:16,19 174:11, 15 176:18 177:1,5,8,17 178:3 180:23 184:18 185:7,18,21 186:2,9,13 187:23 188:7 189:14

classify 124:15,20 134:17 135:1 150:15 153:8 187:10,19

classifying 112:16 150:8,13 177:10

clean 9:23

clear 13:1 19:7 35:8 36:9,13 39:9 46:14 53:2 61:14,22 63:23 64:11,15 68:11 69:15 75:10,16 80:3 101:7 102:14 103:8 116:11 119:1,15 120:10 123:9 125:19 131:4 133:18 160:24 161:1 163:3 168:10 169:1 187:18 188:14

clicked 32:2

client 10:18

close 8:3,10 15:1 33:22 180:11 192:10

closely 57:1

closes 172:11

coding 163:2

collected 113:16 145:20 172:12 175:5

collecting 182:10

collection 55:21 78:19 79:8 85:12 112:23

collectively 79:10

color 158:5 163:2

Column 80:11 168:22 169:1

combined 145:21

communication 15:2 141:2,12

communications 13:17 42:23 43:2 75:8

compact 180:19

compared 83:13 154:12 179:19

comparisons 119:18

compiled 179:1

complete 161:19

completed 160:17

component 179:25

comprehensive 162:12

comprises 147:4

comprising 101:22 105:12,24 133:9 134:1,2,7 137:22

computational 118:17

computationally 180:19

computed 160:15

computer 7:23 102:1,16 118:17 133:7 134:3 140:13 145:1 172:13 175:6

computer-implemented 101:21 102:3,18 140:10

concept 40:18,22

concern 64:13

concerns 12:7 39:20,23,24 61:16 94:21 95:1,4,9,13

concluded 79:3

conclusion 38:1 40:20 48:20 50:23 54:3 75:5 76:13,20

conclusions 43:6 47:4 96:18 98:4

condition 125:3,14 127:21

conditional 84:5

conditioned 145:18

confidence 54:23,25 55:4,7 56:3 65:24 70:8 85:5,6,20 86:4,7,23 87:10, 13,15 88:10,20,25 89:10,25 91:2

confidences 55:9

confident 86:10

configured 65:8 77:14 78:2 81:12, 19,25 145:1 167:6 171:21 174:19 186:23

confirm 72:8

confirms 65:22

conjunction 190:6

connection 10:21

consciousness 108:12

consensus 114:14

consideration 49:16

considered 49:5 98:15

consist 99:20 103:21 150:7

consistency 158:9 162:8 181:14,17, 23 182:3,4,7,13

consistent 108:7 123:11,23 124:11 172:21 173:21 175:16

consists 133:5 137:7 140:20 141:14

consolidated 161:18,22

constitute 188:18

constitutes 113:18 147:3 154:19 174:25 186:18,21

construction 80:17 167:17

construed 67:13

content 13:16 15:1 43:1 49:25 82:6 118:23 124:17 129:22,23 169:8

contents 35:19 37:2,10 94:18

context 30:17 66:15 98:16 100:16,18 104:11,13 108:24 113:24 115:8 122:10 126:14

continue 49:10 53:1 63:9

continues 47:17 104:21 122:25 127:14

continuing 42:3 44:22 95:25 114:1 155:13

continuous 158:4,5

conveyed 163:20

copy 7:16 116:15

core 135:23

correct 6:13,16 10:23 11:2 12:11 18:10 27:24 31:5 35:11,13,17 36:24 39:22 40:13 42:16 45:7 49:22 50:9 52:20 57:18,23 58:7 59:13,19 66:4 71:9 72:4 74:19 77:21 83:17 88:7,23 89:3 94:8,24 95:12 97:9,17 100:25 104:20 119:3,4 122:4,21 126:8,25 127:8 140:23 143:23 165:21 166:3,8 167:18 168:13 169:3 171:10 176:12 177:3 185:10,24 188:8 190:22

corrected 83:12

corrections 21:4 22:9 23:10 25:7 26:13 63:10 92:25 139:16 164:25 192:19

correctly 61:16 81:6 121:17 124:15, 20 134:16 135:1,13 141:19 160:2

correlated 57:1

correspond 54:25 86:7 107:8

corresponds 107:13,18

counsel 13:4,18 15:2 33:25 34:18 42:20 43:2,7 46:7 51:19 61:10 75:9 93:12 151:15 177:24 192:25

couple 7:6 101:19 120:9 132:3 158:7,15,16 164:14 188:17

cover 12:14

Perceptive Exhibit 2043
IPR2025-01573

covered 44:13 178:4 181:3

covers 138:20

COVID 6:20

Cox 37:14,20 38:14,21 94:22 95:2,5, 10 97:3,7,15 98:12,25 99:14,18 100:20 102:11 103:12,16,19 104:15, 25 105:13,14,18 106:5,12,14,23 107:4 108:7,9,20 109:9 110:2 111:5, 21 112:12 113:6,12 114:1,16 115:18 116:10,22 117:3,8,15,20,24 119:2,6, 10,24 120:3,7,15,24 121:20 122:5,7, 9,20 123:25 124:3,11,23 125:22 126:14 127:11 128:12,21 129:3 130:14 131:6,15,21 132:10,17,22 133:3,19 134:21,24 135:4,15,20 136:11,17 139:19,22 140:6 141:7 143:6,13 144:9 149:13,16,21 150:5, 22 151:2 152:18 153:4,6,10,12 156:3, 10,15,21 157:4,8,14 158:19 160:5,10 162:17 165:6 166:6 171:12 172:7,11, 20 173:7 174:2,9 175:1,4,13 176:3, 10,13 178:5 180:24 181:1,18,21 182:6,10,18 183:10,13,17,25 184:17 185:14 186:1,20 187:8,16 188:14 189:11 190:6,19 191:11

Cox's 102:2,16 117:17 138:3,12 161:13 173:3 175:24 185:7

crosstalk 88:14 151:25 183:5

crowd 105:14 106:14 180:16

crunch 180:12

crunching 180:8

cuff 147:18 158:10

cursory 134:23 147:20

curve 123:21 125:4,15,21 126:3,6 127:21 128:3,13 132:23 134:13 135:10 162:5

curves 113:13,15,19 123:7,10,19 124:6 128:22 131:7 132:11

cut 61:10

D

data 55:8 56:8,12,13,23 57:5,11,14 65:2,6,9,14 66:12 70:12,18,19 71:1,5 77:11 78:25 79:1 86:6 89:14 90:8,9, 10,11 105:10,15,17,23 106:14 110:8, 11,19,22 112:13 113:7 114:5,6 127:17 128:2 129:7 133:9,11,15,24 134:6,9,18 137:22 138:2,13,20 140:10,11 141:1,6,11,14,22 142:2,3, 17 145:4,5,11,12,17,20 146:6,7 147:1,2 149:25 150:6 152:19 156:11, 17,22 157:5,7,11,14 158:12 162:2 167:6 171:21 173:8,16,24 174:5,15, 19 176:2 177:10,12 179:1,9 180:19 182:11,12 183:11,14,21,25 184:3,11 186:23 187:5 188:13,15,24 189:2,7,9, 11,21,24 190:5,6,10,17,20,22 191:1, 5,12,22 192:3

database 99:18 103:19 132:11,23 133:5,20 134:1,2 135:5 136:13 137:1, 7,15 144:17,21 145:5,7 146:20

databases 135:22

dataset 168:21 177:14 184:5

date 49:6

decent 170:17

decisions 173:22

declaration 18:12,19 19:3 21:4,19 22:21 23:10 24:15 25:24 26:3 27:16, 18,21 29:2 30:4 31:5 33:4,19 35:6,13, 17 36:18,21 40:15 41:5,9 43:15 44:15 45:5 46:3,23 47:1 48:17 50:20 51:3, 22 52:7 63:14 67:22 68:20 74:11 80:16 93:9 94:2,5 96:14,23 128:16 129:1 131:11,19 132:15 136:19 141:20 143:10 147:19 149:2 150:24 151:4,7 152:12 156:3,18 157:1 160:11,24 161:4 165:8 167:18 170:23 173:5 188:4

declarations 33:11 101:19 160:23

dedicate 82:5

deeply 172:17 175:10

defer 124:11 138:3 141:20 143:9

define 143:9

defined 47:13 124:4 145:25 178:7

defines 129:2 131:12

definition 124:2,13 138:3 153:11 170:17

degradation 123:8

degrees 145:24

delineate 112:7

density 84:17

depending 129:11

deploy 159:14

deposed 6:14

deposition 7:1 10:16 12:7 13:5,8 14:13,21 16:5,13 17:10,13 18:5,8 20:24 23:14,21 24:1 25:10 26:16 28:1 29:5 31:8 33:7 56:18 116:18 132:19

depositions 6:20

depth 105:16

derive 145:2

derived 145:10,16 161:19 168:25 169:21 174:8

describe 71:20 128:12 131:6 132:22 144:20 146:19 152:12 156:10 157:10

describes 56:10 99:18 103:19 113:6 117:8 119:6,24 128:21 133:5 156:3 158:2 188:16,17

describing 113:6 163:6 167:8 170:1 171:23 174:21 183:18 184:3 186:25 187:14

description 108:8

descriptions 157:4

descriptors 181:6

design 124:7

desired 57:24 58:8 66:5 71:11

details 184:14

detecting 117:4,11,12,15 119:7,25

determination 49:2

determine 187:20

determined 145:19

determining 124:6

deviation 114:19 158:6 173:15

devices 106:22 110:6 140:14 141:1, 3,13

dictate 129:14

difference 61:2,24 62:6,17 63:25 67:16,17 69:3 72:13 73:13 98:19 105:5 108:19 111:4 127:7 143:21 172:23 174:14 175:17 179:21

differences 47:25 50:4 53:16,24 54:7,12 58:11,13,16,17,20,21,24 59:3 60:17,23 62:12 63:18,21 64:2 67:8,13 68:14,24 69:1,9,20,23 73:6 74:3,13, 24 75:15,22,23 76:7 97:22 98:12,23 99:13 102:5,10,14 103:10,15 104:24 106:4 109:8 110:1 111:15,20 171:18 185:20 186:12

differently 19:24

difficult 129:21 130:8,9 154:2,17 168:6

difficulty 114:23 129:8 130:4,22

Perceptive Exhibit 2043
IPR2025-01573

138:5,7 143:15 145:24 157:25 162:7 181:13 182:13 188:18,21

digital 99:21 103:22

direct 6:7 19:25 149:1,6 151:8

directed 117:3

direction 57:9 71:4

disabled 118:19

disclaimer 13:12

disclose 13:16 43:1 156:21 157:10

disclosed 47:23

discloses 68:7 105:18 106:14 107:4 112:12 114:3 157:15 171:13 174:10 175:4 176:13 185:15

disclosing 186:2

disclosure 76:4 108:6 120:24 121:19 128:22 131:7 172:20 175:16

discuss 27:16 99:17 128:25 132:10

discussed 13:4 52:12 53:12 64:11 66:15 74:15 96:9 100:19 115:10 144:16 165:1 166:4 187:21

discussing 53:18 64:1 137:10

discussion 97:11 98:5 99:10 165:19 166:1,12

display 128:8 140:25 160:1

displayed 127:17 128:6 138:24 140:25 159:25

displaying 65:9 99:23 103:17 128:2, 11

distribution 55:11 56:5 65:12 66:10 70:10 77:9 84:11,14,22 85:10 88:5,11 89:11,20 90:1,4,20 91:6,8 92:3,8 115:1,5 162:25 168:18 169:18 170:3, 12 179:14

document 8:21 9:3 13:8 19:15 20:2, 9 23:4 31:24 109:13 119:18 120:20

documented 136:19

documents 7:17 8:2 9:13 12:25 36:1

double-check 24:22 61:20 87:22 126:15

doubt 121:10 158:17

download 8:9,21 11:14 13:23 15:15 16:21 17:16 18:17 21:10 24:6 25:15 115:24

dozen 191:16

dramatically 105:15

drawn 76:13

drive 178:25

driver 57:14

driverless 100:16 104:11 117:21 118:23 121:12,21 122:9

driverless/semiautonomous 119:20

drivers 57:3,15

drives 189:3 190:10

driving 56:15 57:13 70:20

due 146:25 147:6

duly 6:5

E

E-L-L-E-N 95:6

e-mail 7:24 8:11

e.g 123:8,11 127:18 159:16

earlier 52:13 64:7,11 67:7 68:13 69:19 72:3 74:15 113:17 127:16 144:11,16 166:10,11

easier 20:4,13 33:23 99:8

easily 159:9

effects 190:14

efficient 124:7

effort 121:9 130:7 157:1

egregious 151:18

elaborated 120:13

element 61:17,25 64:13,19 65:4,19 66:20 67:19 68:7 72:15 73:12,25 76:24 78:5 79:12 80:18 82:6,16 90:3 99:4,8 101:4 102:9,10,21 103:11 104:17,18,25 105:10 106:1,5 109:4,9, 13,16 110:2,13 111:5 166:12 167:1,4 171:9,12 172:4 176:11 177:6,19 185:9,14,25

elements 64:24 73:16 74:9 75:11,18 112:3 115:11 166:10

Ellen 95:5,15

embedded 135:22

embodiments 117:24 118:10 140:8 159:13 172:14 175:7

emotion 107:8,13,17 108:1,7,9 110:24

emotional 171:15 174:13 176:24 178:24 185:17 186:8 189:13

employed 146:15

end 56:14 57:16 86:10 110:8,10 117:19 129:19 130:11 159:24 179:9, 10,15

end-of-test 159:24 160:4,13,20 161:14 162:20 163:6

energy 130:6

ensure 173:20

enter 20:4

entering 169:9

entertainment 118:19

enthusiasm 108:13

entire 160:16 161:20

entirety 65:5

Entities 30:17 32:11

entitled 12:2 14:8 15:25 17:5,25 19:3 22:21 24:15 25:24 28:14 29:17 30:15 31:20 32:9 95:21

environment 55:13

environments 57:3

equating 99:22

equation 146:1,12 147:12

equivalence 135:10

error 57:23 58:1,6,10 66:4,7 71:8,13 83:14 130:3,18 143:19,21 144:3 146:16 162:9 179:23 180:1 186:15 188:1 189:4

essentially 54:14 74:13 76:8,10 78:16 99:20 103:21 129:1 133:6 137:8 140:20 141:15 150:7

established 114:11,12,13

estimate 20:10 108:19

evaluation 49:4

even-weighted 146:14

evidence 117:7 150:18

exact 67:10 91:5 101:18,20 114:8 134:13

EXAMINATION 6:7

examine 57:18

examined 6:6

Perceptive Exhibit 2043
IPR2025-01573

examples 113:12 119:12 120:9

exclude 188:12 190:5

excuse 142:4

executable 144:25

executed 54:22 86:2 102:1

exhibit 11:13,17,22,24 12:1,2 13:22 14:1,5,7,8,12,20 15:14,17,22,24,25 16:3,13,20,23 17:2,4,5,8,12,15,18,22, 24,25 18:3,7,16,21,25 19:2,3,8,11 20:17,19,21,23 21:2,8,12,16,18,19, 22,24 22:2,9,11,14,18,20,21,24 23:1, 13,18,20,25 24:5,8,12,14,15,18,20 25:1,7,10,14,17,21,23,24 26:2,4,7,13, 15,22,24 27:3,5,6,12,13,16,19,21,22 28:1,4,7,11,13,14,21,23,25 29:2,4,7, 9,13,15,16,24,25 30:4,6,8,12,14,15, 24 31:1,5,7,10,13,17,19,20,25 32:8,9, 21,24,25 33:2,4,6,20,23 34:7,9 35:13 36:22 40:3 41:18 46:4,24 56:17 63:15 64:22 76:25 80:16 93:10,20,21,25 94:2 95:18 115:21,24 116:2,6,8,9,12, 14,18 122:15 132:18 144:9 158:19 161:7,8 162:6 165:9,12 166:24 170:24

exhibits 8:7 11:7 20:1 26:19 33:9 34:20 35:4,9 36:3,10,14 93:23

exist 123:3

expected 56:6 65:12 66:11 70:11 77:10 90:10 192:2

expert 114:15 178:7,12,17,18

explain 58:3 71:22 81:16 189:11

explained 51:18 62:18 68:25 69:10, 22 82:8 113:7 190:6

explaining 69:4 73:1

explains 56:20 145:14,15 179:25

explanation 54:18 76:15

explicitly 138:19

express 178:23

extent 13:15 15:1,3 37:25 40:20 42:22,25 43:5 47:3 48:19 50:22 54:2 75:4 96:17 98:3 118:20 121:4 184:10

extract 129:21

extrapolate 180:21

eye 9:19 169:10

F

face 59:2 61:1 107:12 117:25 118:1, 15 159:22,23

faces 100:9 117:5,11,12,15 118:3 119:7,13,14,25 120:19 121:13 159:4, 9

facial 119:17

facility 100:17 104:12

fact 135:18 138:23 147:22 148:17 190:21

factor 97:25

factored 190:18

factors 49:16,22 50:12 51:4,23 52:3 53:12 62:14,15 97:20 182:14 190:19

faculties 10:4

fair 99:7 101:14

fall 76:11 123:8

falling 123:13

familiar 6:24 8:13 12:15 40:17,21

fear 71:23

feature 112:17 140:9 153:18,20 155:1,11 157:22

features 112:16 140:20 141:18 150:9,14,15

fed 78:25

feed 146:5

feedback 114:17

feeds 44:19

feel 10:14 75:25 108:25 146:23

field 45:22 123:14

figure 11:19 101:13 124:25 125:6,8, 10,20 126:7 136:3 138:25 159:19 160:9,12 162:15,20 163:15 173:4 176:1,21

figures 124:24 163:1

final 160:14 162:3

find 49:12 122:16 158:12,14 181:14

findings 49:13

fine 6:13 10:2 33:22 34:17 101:2,16

fingerprint 118:2,4 119:17

finished 192:10

fit 85:9 120:20 188:23

fits 76:18,19

flagged 160:9

flip 9:4 64:18 166:19

flipped 101:15

focus 34:6 45:5 82:14,16 119:12 131:10 184:12

focusing 35:12

footprint 180:20

forced 184:12 189:6

forces 191:24 192:1

foregoing 65:22

forensics 118:13

form 42:7,14 43:8 47:2 48:18 50:21 54:1,10 55:23 60:19 61:9 67:20 69:6 70:3 71:19 72:17 73:9 74:6 75:4,24 78:7 80:20 81:15 82:3 83:25 86:17 87:7,16 89:22 91:17 96:17 98:2 99:2, 16 100:12 102:12 103:13 104:4 105:2 106:6 108:22 109:11 110:4 111:6,23 112:25 117:6 119:8 120:1 121:3,23 128:5,14,23 131:8 132:12,24 135:6 136:14 137:16 138:15 141:8 143:7 144:22 146:22 153:22 156:1,12,23 157:16 160:6,21 161:15,24 162:21 164:6 168:3 170:14 172:9 173:9 175:2 177:7,22 182:8,20 183:15 184:1,7,23 186:4 188:9 190:1,23 191:13

formed 91:4

forms 156:16 157:11,14,18

forward 10:10 57:4

found 100:11 104:3

Foundation 87:8 156:13 157:17

foundational 119:9

frame 9:18

free 10:14

front 7:18 9:9 170:24

function 57:17 79:24 83:15,16 84:17 114:4 124:18 125:1,13,24 126:1 127:19 129:20 130:17 143:3,6,13,15, 18 144:21 145:2,9,15,17 146:8,20 147:4,13,23 148:6 173:10 179:23 180:20 184:7,9 189:3,19 190:11 191:9,23,24 192:5

functionality 58:3 68:1,3 72:5 77:14 78:2 81:12,18,25

functions 57:22 58:5 66:3 71:7 144:1

fundamental 76:5

Perceptive Exhibit 2043
IPR2025-01573

fusion 118:8

G

gait 118:5

games 118:19

gaps 79:1

gate 120:6

gauge 114:17

gave 131:14

gears 93:7 165:5

general 99:4 126:16 131:14,17 135:9 143:11

generally 7:3 38:2 53:20 94:8 116:10 117:3 180:25

generate 54:22 86:2 105:14

generated 65:25 123:6

generating 105:10,11,23,24 114:24

generation 123:6

generic 78:20 183:10

generically 157:8

GINNINGS 6:8 11:21 13:21 14:4 15:7,13,21 16:18 17:1,21 18:24 21:15 22:17 24:11 25:20 27:2 28:10 29:12 30:11 31:16 36:2,8 38:4 40:23 41:7, 15 42:9,15 43:11,20 46:8,19 47:9 48:23 51:1,9,20 52:5 54:6 60:5,14 61:4,13 62:20 63:6 68:9 69:14 71:14 72:1 73:4,14,21 74:14 75:20 76:22 80:23 81:21 82:13 84:21 86:20 87:11, 24 88:16 90:14 91:10,23 92:10,18 96:21 98:6,21 99:6 100:21 102:19 104:16 105:6 108:17 109:3,15 111:1, 11 112:1 116:5 117:10 119:22 120:21 121:15 122:1 128:10,18 131:1 132:3, 9,16 133:17 135:3 136:1,23 138:10 139:6,11 142:23 144:7 146:17 147:5, 25 148:8,19 149:11 150:19 151:15 152:2,8 154:4 155:24 156:7,19 157:12,20 160:18 161:6,21 162:14 163:7 164:13,21 167:23 168:5 170:21 174:23 177:15 178:1 182:16 183:3,7, 23 184:15 185:1,23 186:16 191:10,17 192:6,15,22

give 20:8 34:23 84:25 92:23 94:9 146:4 176:20 191:18

giving 43:8

glad 6:23

goal 117:17

good 6:9,10 60:10 62:25 63:1 92:12 111:2 132:2 164:12,16 191:16

govern 49:1

graph 127:19 163:14

graphically 173:12

graphics 163:11

great 93:24 149:7

ground 37:10,12,17 38:9,12,18,24 39:1,11,18,20,23 52:7,13,19,22 53:23 63:14 94:19,21 95:1,4,9,13 96:23 97:2 98:10 116:24 122:6 165:20 166:2

grounds 35:15 36:23 40:14 41:5,8, 14 44:16 94:7,12 122:5

group 180:4

guess 15:3 67:23 125:17 142:25 149:16 157:6

H

half 191:16

hand 113:2,4

handwriting 118:6

happy 51:14 128:25 131:10,18 133:2 156:14,17

hard 7:16

hateful 107:15

head 21:6 131:18 158:16

heading 37:9,12 38:8,12,23 39:1,8, 16 41:20,24 42:11 95:21 97:2 101:4, 20 166:16

heads 132:8

hear 6:23

heavily 135:21

held 63:4 92:16 139:9 164:19 192:13

helpful 109:19

helps 35:18

Hidden 30:17

higher 84:18

highlighted 167:5

hike 180:13

histogram 84:5,15 163:17,25 169:22

hold 24:21 155:3

hop 60:8

hour 60:2 92:14 131:24,25 164:14,15

human 28:15 29:18 31:21 56:13,14, 22 57:3,6,7,14,24 58:7 66:4 70:19,20 71:2,9,10 89:15 90:2,6 91:5,7 92:9 100:9 105:19 106:8,9,17,19,22 107:1, 5,24 108:3 110:12,14,15,20,22,23 112:13 113:9 114:5 115:6 117:19 118:17 123:4 133:11,13 134:8,11,20 137:23 140:15 145:15 159:10 163:1 168:24 169:6,10,18 170:4,12 173:1,8, 16,22,23 175:20 182:3

human-based 78:21

human-weighted 114:3 129:19 130:17 143:3,5,13,18 144:20 145:2,8, 25 146:8,19 147:4 148:6 172:18 173:9 175:12 179:24 184:7,8 189:2, 18 191:8 192:4

humans 113:14 123:11 129:16

hurts 7:4

I

i.e 56:3 70:9 89:25 90:2 91:7 106:18 107:24 108:2 112:19 114:5 123:5 127:22 190:9

idea 162:13

identical 54:14 106:13

identically 47:23

identification 11:18 14:2 15:18 16:24 17:19 18:22 21:13 22:15 24:9 25:18 26:25 28:8 29:10 30:9 31:14 116:3 118:2,5 133:25 140:11

identified 62:22 67:7,18 68:19,22 69:21 72:3 90:7 150:5 188:5

identify 72:15 129:16,17,22 135:13 187:10,11,19

identifying 130:5 143:16

ii 153:17

illustrated 173:12

image 54:24 55:8 86:6 90:8 99:21,23 103:17,22 105:12,25 106:8,11,18 107:3,6,7,9,11,14,25 108:2,5,15 110:17,21,24 117:25 118:12,21 123:9 124:6,17 129:15,22 130:4,21 134:17 141:23 143:17 146:5 150:16 152:23 153:8 159:9,22,23 160:16 161:20 167:7,9 171:22,24 174:20,22 178:23

Perceptive Exhibit 2043
IPR2025-01573

179:17 180:10,13 186:24 187:1,12,15

images 57:5,24 58:8 66:5 71:1,9 89:15 99:23 100:9,12 103:17 104:4 105:11,19,21,24 106:16,21 110:7 112:14 114:7 117:5 119:13 127:23 135:1 137:21 145:23 159:15 162:3 171:14,16,19 172:17 175:11 176:18, 23 177:1,9,18 178:12,19 180:24 183:1 184:19 185:8,16,18,22 186:3,8, 10,13 187:22,24 188:7 189:13,15

impact 188:12

implement 102:2

implements 102:16

important 118:9 129:17 184:14

improve 105:15

include 84:6 99:20 101:19 103:21 107:10 120:17 121:13 122:5 133:16 138:4,21 149:25 150:7 162:1 168:18 169:22,23,24 190:13

included 158:12 160:19 161:13 182:11

includes 57:5,13 71:1 89:15 112:15 133:5 137:7 138:8,13 140:20 141:14 142:19 144:17 173:10 183:11

including 54:19 85:18 99:21 103:22 118:11,16 123:4 145:11,21 180:5

inclusive 84:19

increases 173:14

increasing 173:15

increments 150:3

indicating 50:12 90:5

individual 85:2,11 145:21 152:23

influenced 190:25

information 43:8 57:9 71:4 72:23 131:15 135:16 145:10 147:3,21 163:20 172:12 175:5

inherently 189:19

initial 178:11 190:9

input 65:6,9 87:20 110:7 146:7 167:7,9 171:22 174:20,22 186:24 187:1,15

inputs 184:13

insights 62:11

insignificant 75:15,22

instance 57:10 71:4

instructions 102:1

integrated 72:25

intelligent 118:23

intent 115:7 121:14 122:11

intention 108:11

Inter 12:3 14:9 16:1 17:6 18:1

interaction 29:18 31:21 118:18

Interactions 28:16

interchangeably 84:7

interested 152:3

interfaces 141:2,12,16

internal 108:14 144:4

interpolate 180:21

interpret 79:4

interpretation 113:11

interpretations 91:20

interpreted 72:23 77:13 78:1,6,11 79:9 81:18

interrupt 60:1 103:5 131:23

invalidating 78:14 100:4

invaliding 152:14

invalidity 36:23

invariant 159:11

invention 45:15,20,23 47:19,22 48:3,11 49:14 117:25 118:11 140:9 159:13 172:15 175:8

involves 106:15 189:23

IPR 10:16,22 11:4 12:6,11 14:13,16 16:4,8 17:9 18:4,11 19:8 20:20 21:23 22:25 24:19 26:3,21 27:13 28:23 29:25 30:25 32:25 116:13,24 165:9

IPRS 11:9 116:15

IRC 125:9,16 131:16,21 133:16 135:17,24 136:4

IRCS 113:14,18 132:4 133:20 134:22 135:5 162:4

iris 118:4,5

IRT 131:16 181:11

issue 15:7 36:11 50:5 53:17 63:18 67:17 76:23 78:14 97:23 100:1

issues 8:6

italicized 80:4,10,18 81:3,17,24 82:20 88:2 172:2

item 113:13,19 123:9,18,21 124:8,16 125:3,8,10,15,20,21,23 126:2,6 127:21 128:3,12,21 131:7 132:11,22 134:12 135:10 153:16 158:2,3 162:4

items 137:18

J

Janet 6:4,9 13:14 18:19 19:4,21 21:20 22:22 24:16 25:25 35:22 36:9 40:25 42:16,24 47:11 53:11 60:12 63:2,7 73:5 74:2,25 85:15 89:18 92:19 108:18 111:14,19 115:23 116:17 120:22 121:18 122:15 132:10 133:19 138:12 139:12 147:6 148:24 149:8,12 151:2,13 152:9 156:20 164:9,22 168:7 172:7 177:16 191:12 192:16,22

Jason 6:4 18:19 19:4 21:20 22:22 24:16 25:25

jealous 107:14

jot 9:24

judgment 110:15,19 123:11 158:4,5

judgments 110:22 115:6

jump 33:16

jumping 89:13 153:24

K

kernel-based 115:4

key 159:21,22

kind 6:25 7:1 8:12,13 12:15 35:14 85:10 89:13 90:17,18 94:16 100:4 125:17 142:5,9 147:19 148:22 156:10 181:4 188:6

knowledge 50:8 74:11

L

label 57:7,8 71:3 112:17 114:18 123:6 127:8 129:17 135:14 141:23,24 142:14 143:22 153:8 177:12 178:11, 19,20,21 179:5,13 180:6 190:9

labeled 57:5,12 61:17 71:1 89:15 124:21 125:20 163:15 183:22

labeler 90:2 91:7 92:9

labelers 57:6 71:2,11 89:16 90:7 91:5,6

Perceptive Exhibit 2043
IPR2025-01573

labeling 90:9

labels 57:8,24 58:7 66:5 71:9,10 78:21 114:7,8,9 127:8 135:2 141:22 178:6 184:4

lack 114:10 129:18 141:24 177:11

laid 42:12,17

language 54:17 55:20 56:5 76:3 80:9,10 88:2 90:17 91:13 101:18,20 103:23 134:14 136:9 166:25 172:3

laptop 8:15,17,20 9:9,14

large 113:14 118:20 119:19 123:10 129:9

lastly 95:13

latency 129:5

latent 124:18 126:11,17,21 136:6 138:14,17

lawyer 41:12

lay 94:6 95:25 96:8

layers 179:6

lays 64:23

learn 122:8 130:7

learning 28:15 57:22 58:6 66:3 71:8 78:25 105:17 117:4,18 143:25 172:18 175:11 179:24 184:9,11 187:4,25 189:3 190:24,25 191:2

learning-based 65:7,8 79:18,19

leeway 151:16

left-hand 149:21

legal 37:25 40:20 41:4,12,16,21,25 42:13,18,19 43:5,12 45:9 46:1,24 47:4 48:14,20 50:16,18,23 53:13 54:3 75:5 76:13,20 95:21 96:1,18 97:19 98:4

lens 62:9,16,17 63:22 75:13

level 85:5,12 108:12 153:3 154:7,16

levels 54:24,25 55:5,7 56:3 65:24 70:8 85:21 86:4,7,10,23 87:10,13,15 88:10,21 89:1,10,25 91:2

likelihood 55:1 86:7 169:16

Likert-scale 158:4

limitation 69:13 77:8,20 78:1 174:17 186:22

limitations 75:18 79:25 80:1

lines 39:17 118:14 142:24

links 16:5

list 41:24 49:21 120:17 156:16 162:12

listed 43:13 46:22 51:4,23 97:20 120:25 186:6

listing 157:3

literally 9:17

litigation 40:25

located 7:7

location 158:6

lodge 164:6

lodging 15:5

long 8:5 19:15

longer 79:6

looked 18:12 129:2 131:13 136:2

lookup 147:23 148:12

loss 57:17,22 58:5 66:2 71:7 114:3 129:20 130:17 143:3,5,13,18 144:21 145:2,8,15,25 146:8,14,19 147:4 148:6 172:19 173:10 175:12 179:22 184:7,8 189:3,19 191:8 192:4

lost 109:13

lot 32:4 151:16

low 129:10

lower 148:23

lower-level 90:18

lunch 92:13,16

M

M-U-N-R-O 95:11

machine 28:14 57:22 58:6 66:3 71:7 100:18 104:13 115:4 117:4,17 118:24 130:1

made 44:24 45:23 48:3,11 130:8 151:19 152:4

magnitude 173:13 189:4

major 68:4 72:19 157:9

majority 6:19

make 8:23 9:4 14:23 21:4 22:9 23:10 25:7 26:13 32:6 34:14 35:14 36:6 46:16 49:13 59:8,16 60:3 61:15 63:10 68:10 92:25 121:16 124:4 139:16 147:16 165:1 170:9 184:13 192:20

makes 44:18 130:7

manner 48:10

manufacturing 100:17,19 104:12, 14 118:25

map 102:2 115:9 139:4

mapped 113:11

mappings 115:11

maps 101:24 102:17 108:11 110:12

mark 11:13 115:20

marked 11:17 14:1 15:17 16:23 17:18 18:21 21:12 22:14 24:8 25:17 26:24 28:7 29:9 30:8 31:13 116:2

masking 159:18

massive 159:10

matching 118:1,7

matter 47:25 48:2,5

maximum 146:12

meaning 80:22 81:3,7,10,23 82:24 83:3,23 87:18 91:15,20,25 92:7 102:7 106:13 107:23 113:23 167:22,25 168:12,17 170:20

means 10:13 84:5 112:7 130:1 143:19 147:14,17 148:12,14 172:22, 23 175:17

meant 35:24 85:1

measurable 84:11,23

measure 84:3 85:3 154:2,17 181:17 182:4,5

measured 153:2,7 154:6,11,15

measurement 123:5

measurements 55:22 112:24 113:16

measures 152:20,22

measuring 114:16 123:4

media 118:14

median 181:11

medium 133:6 134:3

meet 79:25 80:1

meeting 76:5 174:17

meets 69:12 75:17 89:1 90:16 91:13 177:18 184:19 185:8 186:21 187:2

memorize 133:1

Perceptive Exhibit 2043
IPR2025-01573

memory 151:12

mental 108:14

mention 70:15,25 85:17 110:5 112:11 123:18 129:4 130:15 134:22 136:11 172:10 175:24

mentioned 35:22 36:4 37:1 41:16 51:14 60:20 62:4 63:21 64:7 65:21 89:12 103:3,14 134:12 135:11,15 136:10 137:19 138:18 142:4,9 146:3 158:9 162:5,7,15 163:13 175:4 179:21 181:21,23 182:17 184:2 188:3

mentions 70:6 141:11 175:13

met 186:1

method 29:17 31:21 101:21 102:4,18 140:10

metric 129:24

metrics 138:6,21 161:19,23 183:11

middle 38:9 39:8 40:7 43:25 103:25 140:1

midway 70:24

milliseconds 159:17

mimic 117:19

mind 106:10 107:3,20 108:4,8,10 110:16,20 115:7 129:23 167:9 170:6 171:24 174:22 179:16 183:19 187:1, 9,11,15,20 191:7

minimize 24:3 64:17 188:1

minimized 171:20 173:2 174:16 175:21 185:22 186:14

minimizing 24:4 186:14

minimum 84:13 120:10 145:10 190:12

minus 85:6

minute 34:13 53:19 101:9 149:16 159:7 162:16

minutes 60:2,8 63:1 76:24 88:18 116:22 132:1,8 136:3,10 137:1,11 167:13 168:7 184:16

mischaracterizes 186:5

misclassification 173:11 174:3

misinterpreted 71:24

misread 45:18 47:20

missing 39:4,7

misspoke 36:12

Misstates 62:3 108:23 117:7 135:7 150:18 156:24 170:15

misstating 138:16 184:23

misunderstanding 44:18 73:23

modality 118:7

mode 79:6,7,14 82:7 83:8,12,19,20 181:10

model 32:11 57:25 58:1,2,8,9 65:7,8 66:5,7 67:25 68:3 71:11,12 72:5,25 77:14 78:2 79:23,24 81:12,19,25 145:18 167:5,6 171:13,17,20,21 173:21 174:10,13,18,19 176:14,19 177:2,18 182:3 185:8,15,19 186:10, 11,22,23 187:25 188:1 189:5,15

models 79:18,19

modes 72:10 73:3 78:16 79:11

Modulation 32:10

module 54:22 56:12,21,25 86:2 144:25 160:1

moment 35:12 67:15

monitor 8:15,22 9:13

monitors 8:18 9:10

morning 6:9,10 92:22 96:10 97:25

mouse 158:3,6 162:10

move 8:22 92:11 148:2,20

moved 171:4

multibiometric 118:8

multidimensional 83:16

Multimodal 84:16

multiple 62:15 85:7 87:21 91:4 105:18 106:17,19 117:8 146:14 168:24

multiples 144:5

Munro 95:10,15

N

natural 159:14

nature 159:12

Navigating 32:9

neatly 188:23

necessarily 49:17 54:12 68:23 78:9 176:9 178:22

needing 166:19

negatived 48:10

neglected 101:18

network 30:16 54:21 56:11 68:5 70:16 78:24 83:7 84:2 85:8 86:1 113:6 115:3 129:25 130:3,6,19 140:13 143:24 146:4,7 172:24 175:15,19 179:18,20 180:14 184:12 187:7,25 190:24 191:25

networks 78:12 180:22

neural 30:16 54:21 56:11 68:5 70:16 78:12,24 83:7 84:2 85:8 86:1 113:5 115:3 129:25 130:2,6,19 143:24 146:4,7 172:24 175:15,18 179:18,20 180:13,22 184:12 187:7,25 190:24 191:24

neurons 85:13

node 85:11

nodes 85:12

noise 159:19

non-difference 67:17 69:4 70:1 71:17 72:14

non-posita 59:2 61:1,8 62:5 72:20

nonobviousness 50:13

nonresponsive 148:2,20

nonzero 154:13

North 7:8,12

notably 173:14

note 9:22 151:12

noted 66:1

notes 7:17 192:9

notice 67:23 147:12

novelty 105:13

number 12:13,17 14:10 16:2 17:7 18:2 19:5,6,7 20:1,2,3,5,9,10 21:21 22:23 24:17 26:1 27:7 28:17 29:19 30:19 31:22 32:12,15 39:7 41:25 42:13 56:17 95:25 153:17 176:17

numbered 40:5

numbers 12:16 137:25 149:20 163:21 180:8,12

numerical 55:21 112:23 113:3,16 142:12

Numerous 85:17

Perceptive Exhibit 2043
IPR2025-01573

O

O-G-A-L-E 38:15

object 13:11 54:24 55:1,8,12 56:10 65:10,16 66:14 70:14 77:13 86:4,6,8 90:6,7,13 96:16 100:15 104:9 126:4 133:13 134:10 159:12

objecting 149:3

objection 14:23 15:6 16:16 37:24 40:19 41:1,10 42:6,14,21 43:4 46:5, 16 47:2,3 48:18 50:21 51:6 54:1,10 60:19 61:9 62:2 67:20 69:6 70:3 71:19 72:17 73:9,17 74:6 75:3,4,6,24 78:7,8 80:20 81:15 82:3 83:25 86:16 87:7,8,16 89:22 90:23 91:17,18 98:2, 3 99:2,16 102:12 103:13 105:2 106:6 108:22 109:11 110:4 111:6,23 112:10 117:6 119:8 120:1 121:3,4,23 128:5, 14,23,24 131:8 132:12,24 133:21 135:6,7 136:14 137:16 138:15,16 141:8 143:7 144:22 146:21 150:17 151:5 153:22 155:21,25 156:12,23 157:16 160:6,21 161:15,24 162:21 164:6,9 167:19 168:3 170:14 172:9 175:2 177:7,22 182:8,20 183:15 184:1,22,23 186:4 188:9 190:1,23 191:13

objections 43:17 51:7,13,25 92:5 98:14 151:17 185:11

objective 50:12

objects 56:24 99:19,20 100:8 103:20,21 112:21 125:5,16 127:22 133:8 134:2,5,20 137:21 140:13,19, 24 141:16 145:6 155:16 156:6 173:12 174:12

observe 159:21,23

observer 106:9 107:1 108:3 110:15, 20 113:9 169:6,10

observers 106:8,19 107:24 110:14 168:25 173:1 175:20

obtained 47:18,22

obvious 38:21 40:10 44:25 45:21 48:3 49:3,6,12 74:8 97:3,7,16 100:11 104:3 166:6

obviousness 37:22 40:15 41:3,6,14 44:17 45:5,10 46:2 47:12 48:16 49:15 50:13,19 51:3,22 52:14 74:18,22 76:17 94:7 96:9,13 97:21

occluded 119:13

occurred 164:2

occurs 88:15 152:1 183:6

offer 10:21 29:1 30:3 33:3 36:22 52:17 54:19 58:15 143:10

offered 12:9 14:15 16:7 31:4 38:19 40:24 44:14 80:16 91:19 167:17 168:15 169:12

offering 51:17 61:5 81:1

office 7:10,11

offset 158:3

oftentimes 84:7 182:4

Ogale 38:15,21

Omnipresence 9:20

open 8:9 9:3 11:15,16,22 13:24,25 15:15,16,20 16:21,22,25 17:16,17,20 18:17,18,23 21:10,11,14 22:13,16 23:18 24:7,10 25:15,16,19 26:23 27:1 28:6,9 29:8,11 30:7,10 31:12,15,25 32:5 33:21,23 34:9 93:10,16 115:25 116:1,4 139:20 165:12

operation 72:6 73:3

operational 65:25 66:16 68:1,4,7 69:12 77:15 78:3,17 79:7,23 81:13,20 82:1,7 83:8,20

opine 35:16 75:1

opined 40:14

opinion 40:10 55:22 56:1 57:20 60:16 61:23 65:18,22 66:1,19 70:6 73:5,10 74:2,8,23 77:7 83:2 85:14,22 88:8,24 89:5,8,18 90:16 91:12 97:15 98:22 101:11 102:21 104:18 105:22 107:16 108:6,18 110:18 111:14,19 112:22 120:22 121:18 166:6 170:10 171:12 172:6 174:24 176:10 177:4,16 182:6 184:17 185:6,13,24 186:19

opinions 10:21 12:9 14:15 16:7 18:13 20:20 21:23 22:25 24:19 29:1 30:3 31:4 33:3,18 37:17 38:19 40:25 44:14 46:3,25 48:16 50:19 51:3,22 52:8,13,18,21,25 53:9,22 61:6 74:16 80:17 81:1 94:6 96:14 97:6 98:9 106:2 116:23

opportunity 92:24

opted 79:3

optimization 189:17 190:11 191:9, 23,24

optimizes 189:16

optimizing 171:17 174:13 185:19 186:11 188:1 189:18

order 49:18 84:18,19 130:16 169:23, 25

ordinal 142:15

ordinary 41:13 44:25 45:22 48:4 50:8 51:16 54:13 55:18 57:21 58:4 59:6 60:22 62:10 63:23 69:11 73:11 74:12 75:13,17 76:7,16 79:16 80:21 81:2,4,7,8,9,10,22,23 82:9,11,24 83:3,22 84:10 90:21 91:15,20,24 92:7 98:17,24 100:7,10 102:15 104:2 112:24 118:18 120:14,23 121:18 122:8 148:17 153:5 163:23 167:22,25 168:2,12,17 170:19

ordinate 139:3,4 163:22

organization 55:11

organized 152:20

orient 37:2 94:16 165:18

orientation 166:22

orienting 61:15

original 179:5,8,13 180:5,6

originally 112:18

outcome 114:23

outlier 6:23

output 55:5 56:3 57:25 58:8 65:10 66:6,9 70:9 71:11 77:8 79:7 80:5 82:18 83:3,9,13,21,23 84:1,2 85:11, 12,15,23 86:5,11,23 88:3,21 89:2,19, 25 91:3 115:2 130:18 143:22,23 146:15 172:24 175:18 179:20 180:3, 15

outputs 84:11,23 85:7,11 113:5

outputted 87:21

overcoming 130:13

overfit 192:1

overfitting 130:12

overlap 188:22

overlayment 125:17

overwhelm 10:4

P

p.m. 92:17 139:10 164:20 192:14

pages 20:16,17 42:3 53:2

pair 117:25

pairwise 158:3

Perceptive Exhibit 2043
IPR2025-01573

panicked 107:14

papers 7:17

paragraph 40:6,9 41:24 42:1,2,12 43:24 44:2,23 45:14,19 46:23 47:10, 11,17,21 48:9,15,24,25 49:11,24 50:3,7 51:24 54:20 55:25 59:12,18, 21,24 60:7,15,17 61:16,23 62:19,21 64:4,6,8 65:21 67:3,6,18 69:3,25 70:15,25 72:2,3,7,16 74:7 77:3,6 80:4 81:17 82:21 85:19,25 88:1,19 89:14, 23 95:24 96:5,8 97:14 99:10,17 100:23 101:3,12,13,25 102:22 103:25 104:1 106:2 110:5 111:3 112:11 117:17,22,23 119:2,5,16,23 120:5,11, 16 121:1 122:23 123:2,25 124:2,5,25 125:7,12 127:9,15 128:1 133:4,19 136:11,25 137:2,4 139:25 140:7 141:10 144:10,12,20 145:13 146:2,18 147:7,8,9,12 149:16,17 152:15 153:14,25 154:22 156:2,3,9 158:1,2, 10,24 159:3,8 160:12 162:5 163:5 165:25 166:5,16 171:3,8,11 172:10 173:5 174:9 175:25 176:6 181:16,20 182:23 184:25 185:13 188:4 189:10, 23

paragraphs 49:21 50:17 51:5 64:12 68:2,20,22,24 69:21,23 85:18 104:14 106:23 181:1

parallel 189:7

parameters 169:7 181:12

Pardon 185:3

parentheses 172:3

parenthetical 107:10

part 10:16 12:10 18:10 48:8 67:25 87:3 88:3 107:1 114:4 117:13 145:3,4 172:2 174:4 177:13 181:8 187:2 189:8,19 191:9,22,23

partaking 100:14 104:8

Partes 12:3 14:9 16:1 17:6 18:1

partial 119:13

participant 107:11

parties 88:15 152:1 183:6

partly 145:14

parts 140:6

pass 120:6

past 11:4

patent 12:4,13,17,21 14:10 16:2 17:7 18:2,20 19:4,6,7 21:21 22:22 24:16 25:25 27:6,9,11,12,15,20,22 28:17, 19,21,22,25 29:1,16,19,21,23,24 30:2,15,18,21,23,24 31:3,4,22 32:12, 15,19,23,24 33:2,3,19 35:5,6 36:18, 19,24 37:18 38:20 39:25 44:5 47:13, 18,21 49:2,5,7,12 52:15 54:9 60:18 62:1 66:23 68:8 69:13 73:8 74:5,17 75:12 76:3 77:7 80:12,14 93:9,20 94:3,22 97:7 98:11,13,25 99:15 101:23 102:11 103:11 105:9 107:4,19 108:2,10,16 111:21 116:13,25 120:13 122:4,11 165:9 166:7,24 169:2,3,20 170:24 172:21 175:21,22 181:5

Patent's 108:8

patentability 41:21 48:9 95:22 96:2

patentable 45:21

patented 48:1

patents 26:20 33:12 78:14 100:1

path 158:3

patterns 162:8

pause 150:12

PDF 20:1,3,10,13,16,17 22:2 23:4 25:1 26:7 35:19 37:5,6 38:5 39:13 40:3 41:17 43:21 52:8,9,22 53:1,3 61:18 67:3 76:25 94:18 95:17 96:4,24 97:11 104:19,21 109:4 122:14,17 127:11,12 137:4 139:22 143:1 149:12,20 153:14 154:22 155:5 157:19 158:19 162:17 165:15,23 166:13 171:6

PDFS 32:4 160:8

penalization 144:25

penalties 173:10,14,20 174:3

people 19:23 100:14 104:8

people/faces 100:11,13 104:4,8

per-condition 153:3

per-image 153:2 154:7

per-stimulus 154:16

per-subject 153:3

Perceptive 10:18

perceptual 138:6,21

perform 55:1 77:15 78:2 81:13,19 82:1

performance 117:19 123:4,8 174:1 180:2

performed 57:16 86:8 121:9

performs 180:4

periodically 34:2

permission 34:18

person 41:13 44:25 45:22 48:4 50:8 51:16 54:13 55:17 57:20 58:4 59:6 60:22 62:9 63:23 69:10 73:11 74:12 75:13,16 76:6,16 79:15 81:3,8,10,23 82:8,11 84:9 90:21 98:17,24 99:21 100:7,9 102:15 103:22 104:1 107:8 110:24 112:24 120:14,23 121:18 122:8 148:17 153:5 163:23 168:2

person's 107:12 191:6

personality 108:11

perspective 59:6 60:21,22 61:7,11 81:7 84:9 98:23 121:11 153:6

pertains 48:5

pertinent 50:9

petition 12:2,10 14:8,17 15:25 16:9 17:5,25 19:8 20:20 21:23 22:25 24:19 26:3 27:13 28:23 29:25 30:25 32:25 35:5 36:18 64:23 93:20 166:23

petitions 12:6 14:12 15:5 16:4 17:9 18:4,11,14 33:10

phase 56:22

phase-scrambled 159:19

phenomenon 130:11

photo 118:13

Photograph 50:11

photography 118:17

phrase 81:3,11,24 82:19,24 83:23 88:1 90:19 91:15,25 92:2 167:13,17 168:1 187:2

phraseology 107:21

phrasing 67:11 105:4,7 106:12 107:22 111:8,9,22 113:22 115:8

physical 118:12

pick 130:2 153:16

picking 154:25

pictures 120:19

piece 100:6 150:4

pieces 82:17

place 181:14

places 120:4 157:8

plain 80:21 81:2,6,9,22 82:23 83:3,22 91:15,19,24 92:7 167:22,25 168:11, 16 170:19

Perceptive Exhibit 2043
IPR2025-01573

platform 6:18

play 129:6

plays 191:5

plot 138:24 162:25 163:14

plots 134:15

plural 57:8 71:2 87:18,19 104:12 142:7

plurality 56:8 65:14 66:12 70:12 71:10 72:22,24 77:11 79:2 89:17 90:12 99:22 103:17 105:11,23 106:8, 18 110:14 133:8,10,13 134:4,8,11,20 137:20,23 140:12,14,15

point 10:3 68:4 99:7 133:23 163:12

pointed 59:10

pointing 70:1

points 13:5 70:21 184:3

pooled 152:23,24

populated 133:6 134:3

population 123:12 154:3,18

populations 113:14 123:10

portion 80:4 82:20 100:22 107:12 130:20,23 144:3 149:19 162:19

portions 59:10

poses 159:11

POSITA 55:22 58:15,19 61:8,12 62:11,18 66:2 71:6,16

position 44:19 169:10

possibility 44:21

potential 64:2 72:19

potentially 98:18 129:10 181:16

practical 178:16

practice 12:15

preamble 99:9,14 101:8,10,17,20,23 102:3,17,24

predict 167:8 171:23 174:20 186:25 187:3,11 189:7 190:21 191:11

predicted 54:23 55:2,4,6,12 56:2,23 65:23 70:8 85:20 86:3,8,9,13,14,22 87:3,5,6,9,13,14 88:9,20,25 89:9,24 91:1 143:22 174:14 181:19 185:21 186:12 189:14

predicting 29:17 30:16 31:21 65:10 66:9 77:8 80:5 82:18 83:9 88:2 171:15 172:7 174:11,25 176:3,17,25 177:4,5,8,17,19 178:2 182:7,19 183:13,17,25 184:18,20 185:7,9,17 186:1,2,9,18 187:23 188:6 189:24 190:15,16 192:2

prediction 28:15 54:21 55:10,15 56:11,21,25 70:17 83:12,21 86:2 190:13,20

predictive 171:18

predicts 180:24 189:11 191:21

preferable 8:4

preferred 76:14

preparation 13:4,8 14:21 16:13 17:13 18:8 20:24 23:14,21 24:1 25:10 26:16 28:1 29:5 31:8 33:7 116:18 132:19

prepared 21:1

present 50:13 113:15 165:4

presentation 112:19 145:23 155:15, 19 156:4 157:23 159:17 182:25

presented 90:9 105:19 106:9,21 107:1,6,25 108:3 112:20 127:23 156:5 173:11

presenting 56:7 65:13 66:12 70:12 77:11 90:11 106:15

presently 26:14 44:20

preservation 182:25

press 159:21

pretty 135:21 137:25

previously 183:22

primary 152:20

principle 126:16

principles 119:11,14,21 120:8,17

prior 44:4,9,24 48:1 49:14,25 50:4 53:17 78:14 97:22 98:19 100:4 139:15 149:18 152:14 164:7

priority 49:6

privilege 13:11 14:24 75:6

privileged 13:17 42:22 75:8

Probabilistic 30:16

probabilities 134:25

probability 84:17 85:4 124:14,19 134:15 135:11,16 169:17

procedure 175:12

procedures 172:18

proceeding 14:16

proceedings 6:2 10:16,22 11:4 26:21

process 6:24 10:7 124:5 160:16 178:14 190:7

processes 117:4

processor 145:1

produced 56:24

produces 189:2

products 75:7

projected 89:6

propagate 146:16

propagated 83:17 130:20,23 143:20 189:4

properly 43:19 117:2 129:22 143:16

provide 54:18 56:16 76:21 97:5 104:6 124:10

provided 18:12 42:20 44:16 110:23 135:2 140:13

providing 51:2,21 53:21 65:2,5 83:20 98:9

proximate 57:16

psychological 142:8,21

psychometric 112:13 113:7 114:2,6 125:1,13,23 126:1 127:17,19 128:2 133:11,15 134:9,18 138:1,2,8,13,20 142:3,16 145:5,11,16,18 146:6 147:2 149:25 150:6 152:18,19 156:11,16,22 157:4,7,11,14 158:12 160:14 162:2 173:8,24 174:5 176:1 177:13 182:5, 11,12 183:11,14,21,25 184:2,11 187:5 188:13,15,24 189:2,7,11,20,24 190:5,10,13,14,17,19,21 191:1,4,11 192:3

psychophysical 123:7

psychophysics 123:14

pull 93:12,18 148:14

pulled 36:1

pulling 187:16

punches 187:16

purely 179:8

purported 105:13

pushed 180:1

put 8:7 15:14 17:15 22:11 24:5 26:22 28:4 63:20 109:19 112:18 115:21,23

Perceptive Exhibit 2043
IPR2025-01573

122:7 146:1 180:5

putting 13:13 16:20 18:16 21:9 25:14 139:2

Q

quality 105:16

quantify 57:23 58:6 66:4 71:8

quantitative 142:13

quantity 105:16

queries 159:24

query 173:11

question 12:23 13:1,15 14:19,25 15:4 39:11 42:8,25 43:19 46:15,21 49:15 53:11 66:18 68:11,18 73:18,24 74:1 76:1 80:25 81:6 83:5 89:16 90:19 103:6,9 106:10 107:2,7,19 108:1,4 109:25 111:18 115:13 117:2 126:19 131:3 132:21 133:3 136:18,24 143:11 147:10 148:1,4,7,9,21 149:9 150:21 151:14,23 152:10 155:23 161:11 164:7 168:11 185:5 188:11 192:18

questioning 131:23

questions 9:24 10:6,11 13:2 69:17 115:14,19 132:4 148:25

quickly 123:5

quote 54:22,25 56:1,2,13,14 57:6,14, 16,17 65:23 70:7,18,19 71:2 86:3,9, 10 88:19 89:24 99:18,19 105:15 106:22 110:7,8,9,10,11 112:15 114:22 117:18,19,21 173:9,21

quoting 107:19 108:15

R

raised 76:24

Raleigh 7:8,12

range 109:23 152:13 159:11

ranking 158:1,4 162:7

rate 145:15 179:24

rates 144:1 189:3

rationale 104:6

re-ask 74:1 109:25 161:10

react 57:15

reaction 123:5 138:5 153:1 182:14

read 12:13 38:16 53:14 61:1 65:5 70:22 86:21 111:2 123:17 127:16 136:25 153:17 159:6 160:2 163:9

reading 72:20 91:12 100:23 119:2 140:7 142:25 150:4 159:8

reads 44:7 48:7

real 152:7

real-world 56:13,22 57:2 70:18

realize 9:25 82:9

reason 35:2 121:10

reasonable 184:10

reasons 66:15

recall 22:10 97:24 131:17 136:4 137:10 157:2

receive 65:8 167:7 171:22 174:19 186:24

received 56:7 65:13 66:11 70:11 77:10 90:10 110:11 133:10 134:7 137:23 141:2,11 173:16 174:12

receives 189:12

receiving 110:13 171:14 176:23 185:16 186:7 187:22

recess 63:4 92:16 139:9 164:19 192:13

recognition 118:5,7,15 119:17 145:19 159:12

recognize 60:24 62:10 79:11 120:7

recognized 55:23 112:25 159:10

record 13:13 46:17 62:24 70:23 92:15 116:11 139:8 160:25 192:12

recordkeeping 139:1

records 133:7 134:3 137:19

reduce 58:1,10 66:7 71:13

reduced 169:14

reducing 144:2

reduction 169:13

refer 12:16,20 27:8,18 28:18 29:20 30:20 32:18 61:18 77:13 78:1 81:11, 18,24 120:5 151:9 176:1 178:2

reference 39:21 52:14 53:10,23,25 54:8 61:7,25 63:15,19 65:19 66:20 67:9,19 68:15 69:5 70:2 72:14 73:7 74:4,16,25 75:1 76:4 94:23 97:8 98:12 99:1,14 102:11 103:12 104:25 106:5 108:20 109:10 110:3 111:5,21 115:18 116:10,22 121:2,22,25 122:20 123:25 132:18 139:20 140:6 165:7

references 95:2,6,11,15 135:20

referred 83:18 124:8 141:21 170:7

referring 75:23 86:18 105:8 109:14 122:3 128:16 132:14 151:2 160:11, 23,25 161:3 178:11,18 184:25

refers 85:19 125:23

reflect 100:14 104:8

reflecting 55:12 92:8 110:9

reflects 90:1 91:6

regularization 130:14

regularize 192:1

reiterate 183:9

relate 68:3 142:7

related 14:13 34:20 57:14 125:1,13, 24 127:6,20 129:11 138:22 165:6

relates 17:10 18:5 53:4 67:24,25 72:4,11 79:14,20 171:8

relating 33:18 52:14 53:9

relative 112:17 190:8

relied 43:7

remember 53:18 67:10 68:13,16,17, 21 98:5 124:24 134:13 187:7

remembering 46:15 141:19

render 44:5

rendering 46:2,25 48:15 50:18 92:1 96:13

renders 40:10 74:8 97:15 166:6

repeat 46:13 102:9 103:2

report 134:23 158:5

reporter 46:10

represent 64:22 72:22 78:24 79:2 85:3 166:22 174:7 179:3

representation 169:14,15

representative 160:10 189:20

represented 131:16 180:10

representing 32:11 110:15

represents 56:14 57:12 70:19 79:7 110:19 115:5 141:24 180:3

request 106:9 107:2 108:3 152:4

require 136:21

Perceptive Exhibit 2043
IPR2025-01573

required 78:23 97:21

requirement 89:1 177:19 180:20 184:19 185:9,25

requires 49:16 83:5

reread 46:18

research 136:19

respect 53:22 98:10 101:10 112:5 146:25 147:6 183:10

respond 124:15

responded 90:8 180:7

responding 34:12 35:3

response 56:9 65:15 66:13 70:13 90:12 110:14 112:15 113:13,15,19 123:10,18,21 124:8 125:4,15,21 126:3,6 127:18,21 128:3,7,13,22 131:7 132:11,22 134:13 135:10 145:22 150:8,13 151:3,9 152:12,21 153:1,6 157:22 158:2,3 162:4,11 169:8,9,11 174:7,8 178:24,25 181:13 182:14,18,19,24 183:1,12

responses 56:6 65:12 66:11 70:11 77:10,12 88:5,11 89:11,21 90:2,5,21 91:7,9 92:4,9 113:9 161:20 168:24 169:6,19 170:4,13 173:1,7 175:20 179:14 180:14,17

responsive 56:7 65:13 66:11 70:11 77:10 90:11

result 169:19 170:13 178:13 190:17 192:3

results 57:18

retained 10:20,25

review 12:3 13:7 14:9,20 15:12 16:1, 12,17 17:6,12 18:1,7 20:23 23:13,20, 25 25:9 26:15 27:25 29:4 31:7 33:6 61:6 116:17 147:21

reviewed 61:11 112:4 132:19 133:1

road 65:10 100:2,16 104:10 130:10 170:7

robotics 118:20 119:18

role 129:6 191:5

room 7:13

Ross 37:14,20 38:14,21 95:2

run 146:11 179:22 180:9

S

safe 6:23

salient 180:14

sample 145:23

sampling 183:1

scale 158:5

scaler 143:14

scales 142:16

scenario 164:2

scenarios 57:13

scope 49:25 78:8 90:24 91:18 121:8 128:24 129:2 131:12 132:25 133:22 135:8 136:15,18 137:17 141:9 143:8 144:23 146:22 150:18 151:6 153:23 156:1,13,25 157:17 160:7,22 161:16, 25 162:22 164:6 167:20 168:4 182:9, 21 183:16

screen 53:15 64:16,21,25 94:10 109:19 122:17 166:20

scroll 67:21

search 158:7 182:22

searching 20:12 158:15

section 37:14,19,22 38:9,14 39:4 41:5,20 42:10,11 43:10,13 47:14,24 53:13 79:22 81:17 95:20,21 97:5,19 101:4 132:14

select 107:13,17

selected 76:17

selection 108:21

semiautonomous 118:24

send 13:22

sending 11:13 106:7,15,18

sensations 142:8,22

sense 16:19 60:3 78:21 151:10

sensor 56:7 65:2,6,9,13 66:12 70:12 77:11 90:11

sentence 44:3,8,23 58:24 71:15 86:21 88:17 123:17 127:15 136:25 137:6,11,13 143:2 144:16,24 149:24 150:3,5 159:3 188:3 189:23

series 159:24

server 110:10

set 26:19 45:10 47:23 50:16 54:22 55:3,6 56:2 65:23 70:7 85:19 86:3,9, 12,13,22 87:3,5,9,12,22 88:9,20,24 89:5,9,24 91:1 115:5 161:19 168:18

setting 67:15 187:6

setup 8:13 9:8

share 64:16 166:20

short 13:20 60:4 62:23 67:1 139:7 164:18 192:7,11

short-circuit 111:12,17 112:8

show 53:14

showing 8:20 9:2 148:10 167:7 171:15,22 174:12,20 176:24 185:17 186:8,24 189:13

shown 44:9,24 107:9,11 125:18 159:19 174:12

shows 138:25 158:13 162:20

shuffling 94:9

shut 34:19

side 66:24 149:21

signature 19:20 22:5 23:6 25:3 26:9

signed 21:1

similar 9:8

simple 115:2 119:17 130:2 137:25 146:12 175:15 182:22 191:20

simply 20:4

simultaneous 88:14 151:25 183:5

single 120:25 180:9

singleton 168:19

sir 10:19 11:23 12:12,19 14:14,18 15:23 16:6,10,15,17 17:11,14 18:6,9, 15 19:9 20:18,22,25 21:7 22:7 24:13, 21 25:5,12 26:5,8,11,17 27:10 28:3, 12,20,24 29:3,6 31:9 37:16,21 38:17, 22 39:19 40:4,12,16 41:19,22 43:18 44:1,7,12 45:7,13,25 48:7,13 49:9,20, 23 50:2,6,10,15 52:4,16,24 61:21 63:12 65:17 77:18,22 94:20 95:3,16, 23 96:11,15 97:4,13 123:15

situation 77:20 79:21 113:21 130:18 180:9

skill 41:13 44:25 45:22 48:4 50:8 51:16 54:13 55:18 57:21 58:4 59:7 60:22 62:10 63:23 69:11 73:11 74:12 75:13,17 76:7,16 79:16 81:4,8,10,23 82:9,11 84:10 90:22 98:17,24 100:7, 10 102:15 104:2 112:24 120:15,23 121:19 122:8 148:17 153:5 163:23 168:2

skip 70:21

Perceptive Exhibit 2043
IPR2025-01573

skipping 97:18

slew 138:6

slightly 103:23

slog 11:10

slope 158:2

slow 19:14

slowing 34:8

small 9:22

smaller 82:17 130:22 180:19,20

snag 72:19

social 118:13

somebody's 142:21

sort 79:1,10 139:1 148:12 162:24 178:14 179:22 182:15 188:22

sorts 138:21

sought 47:25 122:11

sound 60:10

sounds 62:25 188:11

source 106:14

sourcing 105:14

spare 97:18

speaking 38:2 151:17 180:25

specific 62:7 73:19 76:1 78:25 136:24 153:10 159:21

specifically 49:14 91:21 98:10

spectrum 85:10

speculation 121:5

spend 156:15

spinning 35:3

spins 130:6

spoke 46:6

squared 127:7 179:23

stages 67:24

standard 41:12 45:9 46:2,22,24 47:12 48:15 50:16,18 53:13 114:19

standards 41:4,17,21,25 42:13,18, 20 43:12 49:1,3 51:18 95:22 96:2,9, 13 97:19

start 11:12 33:17 45:17 47:19 82:17 85:25 86:12 89:6 99:9 101:8 140:7 165:14 190:3

started 10:8

starting 37:5 67:2 144:15 154:1

starts 35:19 55:25 80:11 104:19 122:24 127:12 149:18 166:13

state 40:9 44:3 45:4,14 47:11 48:25 49:11 77:7,19 88:19 97:15 106:10 107:3,20 108:4,8,10,12,15 110:16,20 115:3,7 129:23,25 130:5 166:5 167:8 170:6 171:11,23 174:21 183:18 187:1,9,11,14,20 191:7

stated 138:19

states 47:21 102:17 171:15 172:21 174:13 176:24 185:17 186:8 189:13

statistic 163:18 170:11 188:20

statistical 55:5,11 56:4 65:11 66:9 70:9 77:8 80:5 82:18 83:4,9,21,23 84:1,3,8 85:3,16,23 86:11,24 88:3,21 89:2,19,25 91:3 168:20 169:24 170:18 172:12 175:5 178:14 179:11 181:6

statistically 114:13

statistics 55:24 78:22 84:19 113:1,4, 8,10,18,20 114:25 142:5 145:22 159:25 160:4,13,15,20 161:14 162:20 163:6 167:8,14 168:1,12,17,20,23 169:5,8 170:2,18 171:23 172:8,24,25 173:25 174:6,21,25 175:18,19 176:4 177:6,20 179:3,7,12,15,17,19 181:4, 18 182:23 183:18,19 184:21 185:10 186:1,19,25 187:3

statute 47:13

stay 109:23

STENOGRAPHER 46:12

step 173:1 188:13

steps 122:12

stick 147:19

stimuli 142:7,20 169:19,21 170:4,13 174:8 178:25 179:1 180:7,17

stimulus 123:7 142:6 168:25 180:18

stop 151:20 152:5

storage 133:6 134:2 135:21,22

store 139:3

stored 133:7,16 134:3 135:18 136:12 137:20 145:9,11 146:7,9 147:2,14,22 148:5,7,13,18

storing 99:22 103:16 132:11,22 133:20 134:21,24 135:5 137:14 144:20 146:19

straight 20:8

strictly 79:13 83:11

stride 10:11

strike 21:2 39:11 45:16 77:24 89:6 98:8 109:7 111:15 127:2 148:2,20 170:22

struggle 63:20

struggling 150:21

study 128:20

stuff 129:6

subject 9:8 26:20 27:12,21 28:22 29:24 30:25 32:24 47:25 48:2,5 99:21 103:22 107:20 124:14 134:16 135:12 154:3,12,18 187:12 192:24

subject's 124:18

subjects 100:2 152:24 159:10

subsequent 115:11

subsequently 120:18

subset 82:15

suggests 147:17,20 148:16

summaries 179:7

summarize 55:7 174:1

summarizes 112:13 168:19

summary 55:5 56:4 65:11 66:9 70:9 77:9 80:6 82:18 83:4,10,21,24 84:1,4, 9 85:16,24 86:11,24 88:3,21 89:2,20 90:1 91:3 113:8,10,18,19 114:24 160:14 163:18 167:8,13 168:1,12,17 169:5 170:2,11,18 171:23 172:7,23, 25 173:24 174:21,25 175:18,19 176:4 177:5,20 179:11,15,18 181:4,18 183:18,19 184:20 185:10 186:1,18,25 187:3

superficial 103:16

supervised 65:6,7 79:19

supplied 178:22

support 12:10 14:16 16:8 18:13 20:20 21:23 22:25 24:19 26:3 129:25

suppose 93:18 142:12

surrounding 78:22

surveillance 118:11

survey 178:15,16

surveys 178:14

Perceptive Exhibit 2043
IPR2025-01573

SVM 130:1

switch 9:1 93:7 165:5 187:17

sworn 6:5

synoptic 83:18 144:4

system 29:17 31:20 133:24 134:1

systems 172:14,15 175:7,9

T

tab 9:22

table 35:19 37:2,10 94:17 147:23 148:12

tagging 118:13

takes 150:14 153:7

taking 157:2

talk 52:7 53:8 54:20 59:23 79:22 93:8 149:15 150:3 156:17 158:24 165:5,7 167:12

talked 64:4 93:1 113:17 116:21 139:17 142:17 143:12 144:10 155:10 156:9 161:9 162:9 181:12,13 184:16

talking 63:14,17 64:19 67:11 88:18 97:24 115:18 116:23 118:21 162:4

talks 117:24 124:25 128:1 137:14 144:24 154:11 182:23

target 158:6

task 145:19 147:16,24 148:15 157:3

tasked 157:2

taught 119:10 120:7 184:6

teach 78:23 182:19 183:13

teaches 55:5 56:1 65:19 66:8,20 70:7 77:20 85:15,23 86:11,23 88:21 133:20 171:12 172:7 174:2 176:11 182:7,10 183:17,25 185:14

teaching 184:18

technical 8:6

techniques 102:2,17 117:18,20 123:3,13

telecon 6:21

temperature 148:23

ten 131:25

tendency 114:10,15 141:25 177:11 178:8,11 179:10,13 181:9 190:8

term 113:2 114:9,23 124:2 130:13 135:22 138:8,17,20 153:1 170:1 175:15

terminal 20:12

terminologies 76:2

terminology 90:3 102:6 140:5

terms 62:7 71:23 75:6 98:20 100:1 158:8,15,16 169:7 178:16

Tesla 10:17,21,25 11:3 16:8

Tesla's 13:4 116:12 192:24

test 151:12 159:14 160:16 161:20

testified 6:6

testimony 62:3 63:11 108:23 133:19 135:7 138:16 149:1,6 151:8 156:20, 24 170:15 183:24 184:24 186:5 192:20

testing 124:8 152:19

tests 124:7

text 163:3,9

thereof 141:18 179:7

thing 32:2,7 73:2 76:10 79:10 92:11 107:5 109:2 111:10 178:15 182:15 188:5,25 189:1

things 7:6 9:1,13 54:19 60:24 61:15 70:21 76:16 84:4,15,20 91:21 94:10 114:22 118:16,21 123:16 128:3 142:10,19 156:8,22 164:2 165:8 173:18 175:13 176:15 182:12 186:6, 17,21 188:2,22 189:22 191:1

thought 34:24 161:17

thoughtfulness 108:13

time 8:24 10:25 13:5 23:24 45:23 48:3 92:12,21 93:19 103:5 112:19 123:5 127:18 128:7 132:2 136:21,22 145:22,23 150:8,13,14 151:3,9,13,14 152:7,21 153:1,2,6,7 154:21 155:15, 19 156:4,15 157:22,23 164:16 169:9 176:10 180:9 182:24 183:1,2,12 192:23

times 6:14 8:24 76:1 85:17 112:15 138:5 146:24 152:13 159:18 162:11 164:15 168:16 181:13 182:14,18,19 191:16

tiredness 108:12

title 47:24 163:22

today 6:11,18,25 7:7,14 8:16 10:7 12:21 13:2,9 14:13,21 16:5,14 17:10, 13 18:5,8 20:1,24 21:5 22:9 23:11,14, 21 24:1 25:7,11 26:13,16 27:9 28:2, 19 29:5,21 30:21 31:8 32:19 33:7 63:11 93:2 116:19 132:20 139:17 151:16 165:2 192:20,23

told 20:13 191:20

top 21:6 32:13 34:12 39:17 70:5 77:4 131:17

touch 60:9

touts 117:20

Traffic 30:17 32:11

train 179:8,12

trained 56:12,21 70:17 171:13 172:16,22 173:21 174:10 175:10,14, 17 176:2,14 185:15

training 56:12,22 57:4,11,12,19,24 58:3,7 66:1,5,14 67:25 68:6 70:18,25 71:5,9 72:6,25 73:3 77:16 78:4,16,18, 19 79:6 80:2 81:14,20 82:2,7 83:8,11, 19 89:14 99:18,19 100:8 103:20 105:10,15,19,21,23 106:16,22 110:6 112:14,21 125:4,16 126:4 127:22 130:19 133:8,12 134:1,5,10,19 137:20 140:12,14,19,24 141:1,3,13, 15 143:21 145:6 146:4 155:15 156:6 167:5,6 171:14,16,19,20,21 172:13 173:3 174:12,15,18 175:6,24 176:18, 23 177:1,9,18 180:24 184:19 185:8, 16,18,22 186:3,7,10,13,22,23 187:22, 24 188:7 189:12,14

trajectories 54:23 55:4,6,8 56:2,24 57:2 65:23 70:8 85:20 86:3,10,13,14, 15,22 87:4,5,6,10,13,14 88:9,20,25 89:9,24 91:2

trajectory 54:21 56:11,20,25 70:17 86:1

trajectory/behaviors 90:6

transcript 134:15

transmitted 110:8

travel 55:13

treated 167:21

trial 154:2,18

trouble 46:17

true 94:15

tune 180:2

turn 19:10 26:6 37:6 38:5 41:17 43:21 62:20 93:24 95:17 96:4,22,24 105:20 109:5 122:14 137:2 139:22

Perceptive Exhibit 2043
IPR2025-01573

144:8 153:13 158:18,19 162:16 165:11,14

type 129:15 169:17

types 156:21

typically 57:15 127:5 136:7

typo 39:4

U

U.S. 12:4 14:10 16:2 17:7 18:2,19 19:4 21:21 22:22 24:16 25:25 27:6 28:16 29:16,19 30:15,18 31:22 32:15

U.S.C. 37:14,19 38:14 39:3 47:13

Uh-huh 131:5 147:11 153:19 155:9 157:24 158:22 181:22

ultimately 124:19 131:12 180:3

umbrella 123:13 188:24

uncertainty 85:6

uncontrolled 159:14

understand 10:15 12:5 14:11 16:3 17:8 18:3 43:18 44:3 45:15,20 47:12 48:22,25 49:11,15 60:16 62:13 69:11, 24 76:9 77:23 81:5 89:4 90:15 91:11 111:3 117:1 121:14,17 122:12 142:8 170:10

understanding 12:8 13:6,12 38:3 41:2,11 42:18 43:9 44:17 45:9,12 47:6 50:24 51:17 52:3 54:4 69:16 73:12 74:22 79:17 96:1,19 128:20 138:12 140:4

understood 43:3 51:8,11 57:21 58:5 66:2 71:6,17 100:7,10 104:3

unforeseen 8:6

unpacking 83:6

unpatentable 37:13,19 38:13,20 39:3 44:5 45:16

unreportable 88:14 151:25 183:5

user 56:6,8 65:12,14 66:10,13 70:10, 13 77:9,12 88:5,11 89:11,21 90:4,12, 20 91:8 92:4 100:16,17 104:10,12 106:11 107:3 108:2,5,15 110:16,21 167:7,9 170:4,8 171:22,24 174:7,20, 22 183:19 186:24 187:1,15

user's 170:6

users 56:8 65:14 66:13 70:13 72:22, 24 79:2,8 89:17 90:12 99:24 100:1,2, 6,12 103:18 104:5 118:18

usual 12:15

utility 119:10

utilized 173:9

utilizing 78:15 184:8

V

validity 35:16 40:14

values 55:21,23 84:2 85:9 112:23,25 113:3 115:1 144:4 154:14 181:13

variables 129:5

variance 85:4 114:19 127:6 129:9 173:18 188:22

variances 84:6

variation 124:12

variety 84:15 114:12,21 123:3 187:6 188:15

varying 145:24

vast 6:19

vector 115:3 129:25 130:1

vehicle 55:14 57:10 71:5 104:11 122:13

vehicles 28:16 29:18 30:18 31:22 32:10 56:24 57:2,16 100:17 104:11 121:12,13,21 122:10

verbatim 55:19 59:4,5 60:25

verification 118:1,2,4

vernacular 58:13 169:20

versus 130:21 152:13

video 8:20 9:18 118:11,13,19

view 62:18 69:25 73:11 74:9,12 76:6

virtue 184:8

vision 100:18 104:13 118:25 172:13 175:7

visual 172:16 175:10

W

wait 149:8

waiting 34:15

walk 140:3

walks 118:6

wanted 8:23 33:15

ways 44:4 78:5,10 84:12 111:9 114:12 187:6 188:15 190:18 191:3

weight 143:14 147:14,21 148:11,16 180:1

weighted 74:11

weighting 83:15,16 145:17

weights 83:17,18 130:24 144:4,6 145:19 189:5

well-known 123:3

whatnot 10:5

word 54:16 108:20 114:11 129:18 141:25 177:11

work 7:1 11:3 75:7 121:9 156:25

workflow 106:15

working 168:9

works 60:13

World 32:11

wrap 72:9

written 18:12 71:21 107:4

wrong 32:2

wrote 156:18

Wt 147:13

Y

yes-or-no 191:18

Z

Z-H-A-N-G 39:21

Zhang 39:5,20 40:10 52:14 53:23,24 54:8 56:1,10,19 60:18 61:7,24 63:15, 18 65:19 66:8,20 67:9,19 68:6,15 69:5,20 70:2,6 72:14 73:7 74:4,8,16, 24 75:1,14,17 76:4 77:20 85:15,19,23 87:22 89:1 90:16 91:12

Zhang's 54:20 55:3,13 57:4 65:23 70:25 86:1,9,22 88:9,19 89:9,14

Zoom 6:17 7:21 8:8 9:2 11:14 13:23 16:20 17:15 18:16 21:9 22:11 24:6 25:14 26:22 28:4 29:7 30:6 31:11

Perceptive Exhibit 2043
IPR2025-01573