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

TESLA, INC.,
Petitioner,
Vs.
AUTONOMOUS DEVICES, LLC,
Patent Owner.

Case: IPR2024-00745

U.S. PATENT NO. 11,663,474

DEPOSITION OF ELI SABER, Ph.D.
(Taken Virtually by Petitioner)
Friday, June 27th, 2025
9:09 a.m. EDT

Reported by: Amy A. Brauser, RPR, RMR, CRR

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1 DEPOSITION OF ELI SABER, Ph.D., a witness
2 called on behalf of Petitioner, before Amy A. Brauser,
3 RPR RMR CRR, Certified Stenographic Court Reporter and
4 Notary Public, in and for the State of South Carolina,
5 on Friday, the 27th day of June, 2025, commencing at
6 9:09 a.m.

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1	INDEX OF EXAMINATIONS		
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4	INDEX OF EXHIBITS		
5	NUMBER	DESCRIPTION	MARKED/IDENTIFIED
6	Exhibit 2006	Supplemental Declaration of	6
7		Dr. Eli Saber, Ph.D.	
8	Exhibit 1008	United States Patent	10
9		Number 9,604,359	
10	Exhibit 1023	United States Patent	53
		Number 9,221,396	
11	Exhibit 1001	United States Patent	80
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1 P R O C E E D I N G S

2 ELI SABER, Ph.D.,

3 after having been first duly sworn by the certified
4 stenographer, was examined and testified as follows:

5 EXAMINATION

6 BY MR. STEPHENS:

7 Q. Good morning, Dr. Saber. It is good to
8 see you again.

9 A. Good morning. How are you?

10 Q. Good. Thank you.

11 As you know, I'm Nick. I will be
12 asking questions today on behalf of the Petitioner,
13 Tesla. You understand?

14 A. Yes, I do understand.

15 MR. STEPHENS: Would counsel for Patent
16 Owner like to make his appearance?

17 MR. JAIRAM: Good morning. That's
18 Arvind Jairam. Just as a totally logistical
19 matter. In the realtime feed, when
20 Mr. Stephens was speaking, it says "By
21 Mr. Jairam." That is actually by
22 Mr. Stephens.

1 (Discussion held off the record.)

2 BY MR. STEPHENS:

3 Q. Dr. Saber, do you understand that
4 you're under oath today?

5 A. Yes, I do.

6 Q. Is there any reason that you cannot
7 testify truthfully and completely in responding to
8 my questions?

9 A. No, there is not.

10 Q. You understand that we're here today
11 regarding the second declaration that you submitted
12 in the IPR in the '745 Patent?

13 A. Yes, I do.

14 (Exhibit Number 2006 was marked for identification.)

15 BY MR. STEPHENS:

16 Q. And this declaration has been marked as
17 Exhibit 2006 in the record of the IPR. Do you
18 understand that?

19 A. Yes, I do.

20 Q. And as I noted, this is the second
21 declaration that you submitted in this proceeding,
22 correct?

1 A. That is correct.

2 Q. When I refer to your declaration, I'll
3 be referring to Exhibit 2006. That's the second
4 declaration that you've submitted in the
5 proceeding, unless I indicate otherwise. Fair?

6 A. That's fair.

7 Q. How did you prepare your declaration?

8 A. I read through the materials. I met
9 with counsel.

10 Q. And what materials did you refer to in
11 preparing the declaration?

12 A. The ones cited in my declaration.

13 Q. How much of the declaration did you
14 draft as opposed to the words being drafted by
15 counsel?

16 A. The declaration was a collaborative and
17 iterative effort between myself and counsel. I
18 don't remember exactly the details.

19 Q. Does the declaration reflect your
20 opinions in this proceeding?

21 A. Yes, it does.

22 Q. Are you aware of any errors in your

1 declaration?

2 A. Yes, there are three typos.

3 Q. Can you direct me to where those are,
4 please?

5 A. Of course. Paragraph 8 in the
6 declaration. Let me know when you are there.

7 Q. Okay. Paragraph 8.

8 A. It should say, In its most --
9 Opposition to motion to amend, not petition in its
10 opposition to motion to amend.

11 Q. Okay. So it should read, In its
12 opposition to motion to amend Tesla relies on
13 several references?

14 A. Correct. And then Sinyavskiy should
15 say Zhu.

16 Q. Okay.

17 A. So on the second line, Sinyavskiy
18 should say Zhu.

19 And in Paragraph 17, Exhibit 1007, the
20 third line from the bottom of Paragraph 17, should
21 say 1002.

22 I believe those are the only typos that

1 I recall off the top of my head.

2 Q. The third line from the bottom in
3 Paragraph 17 where it refers to Exhibit 1007, that
4 should refer to Exhibit 1002?

5 A. I believe -- yes.

6 Q. Okay. And apart from those
7 typographical errors, are you aware of any other
8 errors in your declaration?

9 A. Not that I'm aware of.

10 Q. Now, before we went on the record this
11 morning, I shared six PDFs with you of documents
12 from the record. Do you have those available?

13 A. Yes, I do.

14 Q. And do you have any other materials
15 with you today apart from the PDFs that I shared?

16 A. Yes. Counsel sent two binders to me
17 earlier this week that contain all the exhibits in
18 this case. And I just pulled out the three hard
19 copies that have to do with the declaration, the
20 Grotmol and Zhu, so I don't have to keep flipping
21 through the binder.

22 Q. Do those hard copies have any notes or

1 annotations?

2 A. No, they do not.

3 Q. If you reference anything other than
4 the hard copy -- the clean hard copies or the PDFs
5 that I sent, will you, please, let me know?

6 A. Of course. I won't be referencing
7 anything that's not within the PDFs that you sent
8 or the hard copies that I have here.

9 Q. Okay. Thank you.

10 And are you in communication with
11 anyone today apart from this Zoom channel?

12 A. No, I'm not.

13 Q. All right. I'd like to turn to the
14 Grotmol reference, which has been marked as
15 Exhibit 1008 in this proceeding.

16 (Exhibit Number 1008 was marked for identification.)

17 THE WITNESS: Yeah. Yes, sir. Let me
18 go ahead and open it on my end. Give me a
19 moment. It's Exhibit 1008?

20 BY MR. STEPHENS:

21 Q. Correct. You have that in front of you
22 now?

1 A. Yes, I have it electronically in front
2 of me.

3 Q. Great.

4 And I'd like to turn to Column 10 and
5 the paragraph that starts at line 23. Just let me
6 know when you're there.

7 A. I am there.

8 Q. If you'd like to take a moment to
9 review this paragraph, please go ahead.

10 A. Line -- starting at line 23 you said?

11 Q. Yes.

12 (Witness reviews document.)

13 A. Until what line are you referring? So
14 23 to the end or where --

15 Q. Twenty-three through the end of that
16 paragraph, line 34.

17 A. Okay. Thank you.

18 (Witness reviews document.)

19 A. Okay. What is your question?

20 Q. All right. Do you recall that
21 Petitioner's opposition to the motion to amend
22 cited and quoted the disclosure from this

1 paragraph?

2 A. Yes, I believe I do.

3 Q. Now, in Paragraph 26 of your
4 declaration, that's Exhibit 2006. Let me know if
5 you -- take a moment to pull that up, please.

6 A. You said Paragraph 26?

7 Q. Yes.

8 A. Yes.

9 Q. And in the fourth line down in this
10 paragraph, you acknowledge that the opposition
11 mentions certain disclosures from Grotmol, correct?

12 A. Yes. You're referring to the sentence
13 that says, "Disclosures from Grotmol, Opp. 10-11"?

14 Q. Yes.

15 A. Yes.

16 Q. Does your declaration address the
17 substance of Grotmol's disclosure that we just
18 looked at at Column 10, lines 23 to 34?

19 A. I don't understand your question. The
20 declaration does respond to your arguments. So I
21 don't understand your question.

22 Q. Yeah. My question is, do you address

1 the disclosure at Column 10, lines 23 to 34, of
2 Grotmol in your declaration?

3 A. I believe so. I mean, starting on
4 Paragraphs 26 to Paragraphs 31, I address -- I
5 respond to the arguments that were made in the
6 opposition to motion to amend with regards to 85.11
7 and 85.12.

8 Q. And so can you point me to where you
9 addressed this disclosure from Grotmol in your
10 declaration?

11 MR. JAIRAM: Objection to form.

12 THE WITNESS: I'm not sure what you are
13 asking. But I just pointed to Paragraphs,
14 say, 26 to 31, which address the
15 limitation 85.11 and 12 and the arguments
16 that were raised in the opposition to motion
17 to amend.

18 BY MR. STEPHENS:

19 Q. So, yeah, and I guess my confusion is
20 that at lines 4 to 5 we just read that says,
21 Although the opposition mentions certain
22 disclosures from Grotmol, parenthetical

1 Oppositions 10 to 11, I believe the rest of your
2 analysis in Paragraphs 26 through the end of that
3 section all pertains to disclosure from Zhu and
4 arguments that were raised in the opposition
5 related to Zhu.

6 So I'm wondering if there's anything
7 else in the declaration that addresses Grotmol,
8 specifically with respect to those limitations.

9 A. Well, I mean, the discussion in those
10 paragraphs obviously addresses your -- the
11 arguments that were raised in the opposition to
12 motion to amend and the -- you know, whatever
13 arguments that were raised. So I'm responding to
14 those arguments.

15 Q. And one of the arguments that were
16 raised in the opposition to the motion to amend
17 related to Grotmol's disclosure at Column 10,
18 lines 23 to 34. So I'm just asking, is there any
19 portion of your declaration where you rebut the
20 arguments related to that disclosure in Grotmol?

21 A. Well, I mean, I respond to the
22 arguments as they are relevant to how the arguments

1 were raised. I mean, the arguments were raised.
2 If you look at the quote right after that line that
3 you mentioned --

4 Q. Paragraph 26?

5 A. Paragraph 26. One, two, three, four,
6 five, six line. You see that quote there, and
7 obviously, it's not quoted entirely. But it says:
8 (Reading)

9 It would have been obvious to
10 a POSITA to apply Zhu's suggestion
11 for, dot, dot, dot, et cetera.

12 So that's the arguments that were
13 raised in the opposition to motion to amend. And
14 I'm responding directly to those arguments.

15 Q. Do you respond in substance to any of
16 the arguments that were raised related to Grotmol
17 and its disclosure as cited with respect to
18 elements 85.11 to 85.12?

19 A. Well, as -- as it corresponds to the
20 arguments that were raised. So, you know, the
21 opposition to motion to amend raised an obvious
22 argument with regards to a POSITA and, you know, to

1 apply Zhu's suggestions, so I'm responding directly
2 to the arguments that were raised.

3 Q. So is it your understanding that the
4 opposition did not raise arguments based on
5 Grotmol?

6 A. The opposition raised arguments with
7 regards to Grotmol and obviousness in view of Zhu,
8 so I'm responding to those arguments.

9 Q. Did you respond to the portion of the
10 argument as it relates to Grotmol itself?

11 A. I don't understand. I mean, I'm
12 responding to that argument. I don't understand
13 what your question is. I mean, are you asking that
14 I'm responding directly to that particular
15 paragraph? I'm just -- I'm responding to your
16 arguments that -- to the arguments that were raised
17 in the motion to amend -- or in the opposition to
18 motion to amend.

19 Q. Okay. I'm about ready to move on.
20 It's just a simple question. I just wanted to
21 confirm. Is there any portion of your declaration
22 that rebuts the portions of Grotmol that were cited

1 in the opposition with respect to elements 85.11 to
2 85.12? And if there's not, you can just let me
3 know. I just want to make sure I'm not missing
4 something.

5 (Witness reviews document.)

6 A. I mean, I guess I don't understand
7 exactly the question. But I feel I have responded
8 to -- you know, the opposition to motion to amend
9 raised an obvious argument with regards to Grotmol
10 and a POSITA's obvious argument with regard to Zhu.
11 So I'm addressing directly that.

12 I didn't say something specifically
13 about the Grotmol, Column 10 section, if that's
14 what you're asking, specifically about those words.
15 But I think I have responded to the argument in
16 general.

17 Q. Okay. Well, let's turn back to that
18 paragraph from Grotmol at Column 10, lines 23 to
19 34.

20 A. Okay.

21 Q. The first sentence of this paragraph
22 refers to the output of a sensor 166, correct?

1 A. That is correct.

2 Q. (Reading)

3 The output of that sensor may
4 comprise representations of one or
5 more objects, e.g., targets and/or
6 obstacles.

7 Correct?

8 A. You read it correctly.

9 Q. And this paragraph further explains
10 that: (Reading)

11 The tasks of the robot may be
12 configured based on a context.

13 Correct?

14 A. You've read that correctly.

15 Q. The paragraph goes on to explain that:
16 (Reading)

17 The context can include, among
18 other things, a state of the
19 environment.

20 Correct?

21 A. Generally speaking, yes.

22 Q. And the words "state of the

1 environment" is -- are the words used by Grotmol,
2 correct?

3 A. Yes, the words "state of the
4 environment" is mentioned in that paragraph, on
5 Column 10, line 31.

6 Q. Grotmol further explains that:
7 (Reading)

8 The state of the environment
9 can include, quote, object size,
10 comma, location, end quote.

11 Correct?

12 A. That is -- that is mentioned there,
13 yes. You read that correctly.

14 Q. Based on your understanding of Grotmol,
15 how would a POSITA understand that object size,
16 location could be used to indicate a context?

17 A. I'm not sure I understand your
18 question.

19 Q. I'll try to rephrase.

20 How would object size, location be used
21 to configure the tasks of the robot in Grotmol?

22 A. Well, as you see in that paragraph,

1 Grotmol basically discloses that the sensor may
2 comprise representations of one or more objects.
3 So could be, you know, you capturing potentially
4 images of one or more objects.

5 Q. And what would the robot do with
6 information about object size, location?

7 A. I mean, is this specific to something
8 that I opined on in my declaration? I don't
9 believe I opined on that specifically in my
10 declaration.

11 Q. I'm asking about your understanding of
12 the Grotmol reference, which you've reviewed for
13 this proceeding, correct?

14 A. Correct. But there, it doesn't state
15 specifically what -- it doesn't describe
16 specifically what that is in that paragraph.

17 Q. Now, the term "object size" as used at
18 Column 10, line 32 of Grotmol, that's the same term
19 that's used in elements 85.11 to 85.12 of the
20 substitute claims, correct?

21 A. Well, I think you're taking the wording
22 out of context. I mean, the exact word is there,

1 but you have to look at the context of the word.
2 Like in 85.11, it says computer model for object
3 size. So you have to comprehend the context of the
4 wording and that's being claimed.

5 Q. But the two words "object size" as used
6 in Grotmol are the same two words that appear in
7 elements 85.11 and 85.12; is that correct?

8 A. The two words appear, yes. But the
9 context of how the words appear is distinctively
10 different, and I think that's where you're taking
11 it out of context. I mean, if I said to you the
12 word "bank" appears on a piece of paper, you don't
13 know if that's a snowbank or it's an institution
14 where I deposit money. So it's the context of the
15 wording that's important to the understanding of
16 what the wording means.

17 Q. You said that they're distinctively
18 different, I believe is what you said, correct?

19 A. I mean, the context of 85.11, the words
20 "object size" that you mentioned, appear in a --
21 you know, any computer model for object size. So
22 it's a distinctively different context than -- than

1 what you see there in that paragraph.

2 Q. The term "object location" as used in
3 Grotmol, is also the same words used in
4 elements 85.11 to 85.12 of the substitute claims,
5 correct?

6 A. Well, the wording -- again, the wording
7 might be the same, but the context of what is
8 claimed is different.

9 Q. So the claim refers to coordinates or
10 object location, correct?

11 A. That is correct.

12 Q. And is it your opinion that that is
13 different than what is -- different in substance
14 from what it referred to in Grotmol as object
15 location?

16 A. Well, my opinion is -- is contained in
17 Paragraphs 27 to 31, and we can go through those,
18 if you like. But it's -- it's -- there is an --
19 there is a logic behind this argument of what --
20 you know, what that opinion is. So that's all
21 disclosed in those paragraphs. It's not a single
22 sentence.

1 Q. Well, I guess I would like to better
2 understand your opinion. So what is it in these
3 paragraphs from your declaration that informs your
4 understanding either of the claim language or of
5 Grotmol's disclosure that we just have been
6 discussing?

7 A. Well, I mean, if you'll look at -- I
8 know, generally speaking, at Paragraphs 26 to 31,
9 they disclose my opinions with regards to these two
10 limitations, 85.11 and 85.12, and provide the
11 counterargument of why the Grotmol in view of Zhu
12 is not -- is not valid. So those arguments are
13 discussed there. I mean, I can walk you through
14 every one of those paragraphs, if you like.

15 Q. No. We've just discussed a few minutes
16 ago, these paragraphs in your declaration don't
17 specifically address Grotmol's disclosure of object
18 size, location at Column 10, correct?

19 A. Well, I respond to your argument in the
20 opposition to motion to amend. You know, Tesla
21 made arguments in its opposition to motion to
22 amend, and I'm responding to those arguments

1 directly.

2 Q. That wasn't my question, Dr. Saber. My
3 question was, in these paragraphs, you do not
4 address Grotmol's disclosure of object size,
5 location, correct?

6 I'm not asking you about the
7 opposition, what you were responding to. I'm
8 asking whether you address the disclosure of object
9 size, location in Grotmol?

10 (Witness reviews document.)

11 A. For instance, I'm looking at your -- I
12 mean, I address it to the extent that I'm
13 responding to your argument. I'm looking at the
14 '474 opposition to motion to amend that you sent
15 me. And if you go to page 10 that has to do with
16 element 85.11, that's obviously where that -- you
17 know, that discussion started.

18 You see Tesla references on page 10,
19 85.11, page 10, it says halfway down the page,
20 "According to Grotmol," and it discusses the
21 sensory inputs and the object at particular
22 locations and positions. And then moves on to

1 start talking about Zhu. Doesn't provide any
2 arguments in terms of this object size or location
3 in the details besides just quoting them from
4 Grotmol and moves on to talk about Zhu. And from
5 there on, it's essentially discussing Zhu.

6 So I'm responding directly to your
7 arguments, to the Tesla arguments in that
8 opposition to the motion to amend.

9 Q. So you did not address Grotmol's
10 disclosure because it's your position that the
11 opposition did not rely on Grotmol; is that
12 correct?

13 A. Well, the opposition mentioned Grotmol,
14 quoted those sentences that we've been talking
15 about, or similar sentences, with regards to object
16 and location, and then moved on to talk about Zhu.
17 Didn't say any specifics about these objects or
18 locations besides quoting the quotes. So --

19 Q. So you recognize that the opposition
20 cited to and quoted from Grotmol, but you elected
21 not to respond to those citations, correct?

22 A. Well, I responded -- I responded

1 what -- what I think, properly, to what has been
2 argued in the citations and the obviousness with
3 regards to Zhu. So my response was directly to
4 what was raised.

5 Q. Okay. That's fine. Your declaration
6 is what it is. I'm just asking, you referred me
7 earlier to Paragraphs 26 to 31 to understand
8 Grotmol's teaching of object size, location. But I
9 just don't see any discussion in those paragraphs
10 of Grotmol's disclosure. And if they're not there,
11 that's fine. I just wanted to confirm that.

12 A. Well, I mean, my arguments in those
13 paragraphs is just responding directly to what --
14 the arguments that were raised in the opposition to
15 motion to amend.

16 Q. In Paragraph 28 of your declaration?

17 A. Yes, sir.

18 Q. So in the first sentence, you state
19 that: (Reading)

20 In contrast, the opposition
21 relies on disclosures showing a
22 bounding box in an image, the height

1 and width of the box in pixels for the
2 size of the bounding box, not the
3 object's actual size, and the first
4 and second pixel coordinates that
5 define location of the box in the
6 image, not the object's actual
7 coordinates.

8 Correct?

9 A. You read that correctly, but those
10 disclosures are disclosures from Zhu.

11 Q. Yes, I agree.

12 A. Just to be clear. So maybe it should
13 have said, Relies on disclosures of Zhu. But just
14 would be clear, those are disclosures from Zhu.

15 Q. Is it a fair characterization of your
16 position that object -- that size and object
17 location as recited in elements 85 to -- 85.11 to
18 85.12 refer to the object's actual size or actual
19 location?

20 A. Well, if you look at 85.11, it says:

21 (Reading)

22 Coordinates or object location

1 in a computer model for object size.

2 So it's referring to coordinates for
3 object location and a computer model for object
4 size.

5 And in my declaration, that paragraph
6 that you mentioned, and continuing on to the next
7 two paragraphs, I argue why the bounding box of Zhu
8 doesn't meet those disclosures.

9 Q. And one reason that you argue that the
10 bounding box of Zhu does not, in your view, meet
11 the claim limitation is because the bounding box
12 does not reflect the object's actual size; is that
13 correct?

14 A. That is correct. I mean, if you look
15 at the figure, look at Figure 9 for instance, the
16 bounding box on the left. You see where that car
17 is kind of diagonally?

18 Q. Yes.

19 A. So you see that bounding box doesn't
20 reflect the size of the object, right. It doesn't
21 show the back end properly or the side. So yeah,
22 the size of the bounding box is not the size -- the

1 object's actual size. It doesn't reflect that.

2 Q. So in your view, the claims -- in the
3 claims, the computer model for object size has to
4 reflect the object's actual size; is that correct?

5 A. Well, I mean, my opinion is disclosed
6 on the next paragraph. So you see, if you go to
7 Paragraph 29, you notice on the bottom, it says:
8 (Reading)

9 These portions of Zhu just
10 show representations of objects as
11 indicated by the bounding boxes.

12 Q. Uh-huh.

13 A. And the bounding box obviously is in
14 the image coordinate system. And those are not the
15 coordinates of location and model for size of the
16 object. Because as I just pointed to you in that
17 picture, that bounding box on the left side of that
18 picture is not a coordinate for the object.

19 So my opinion is that third sentence of
20 Paragraph 29 -- I'm sorry, third -- excuse me for a
21 moment. The third line on the next page -- excuse
22 me for a moment.

1 Q. Take your time.

2 A. Something went down the wrong pipe.

3 Sorry about that.

4 So if you look at the start of
5 Paragraph 29, if you go to next page, page 21, and
6 look at the third line, you see it is stating my
7 opinion that the bounding boxes of Zhu do not
8 provide coordinates for object location and
9 certainly don't constitute a computer model for
10 object size.

11 And I go on to describe why that is the
12 case. Because, you know, bounding boxes are used
13 for -- to do a rough indication for -- for
14 potential representation, but they don't represent
15 the coordinates of the object. And you can see
16 that clearly from the object on the left side of
17 the image where, for instance, if you look at the
18 bottom backside of the door, the passenger side
19 back door, the coordinates of that is -- aren't in
20 the bounding box. So the bounding box don't
21 represent coordinates for object location.

22 Q. I would like to turn back to Grotmol

1 and that disclosure that we were looking at earlier
2 at Column 10, lines 23 to 34.

3 A. Okay.

4 Q. Grotmol uses the term "object size" as
5 we've discussed, correct?

6 A. Yes, that term is mentioned in that
7 paragraph.

8 Q. And so Grotmol does not state that --
9 excuse me. Strike that.

10 Grotmol does not use language like size
11 of a representation of an object, correct?

12 A. I don't understand your question. But
13 if you look at -- if you look at Column 10,
14 lines 23, 24, you say -- it says on line 24:
15 (Reading)

16 May comprise representations
17 of one or more objects.

18 Because obviously, the imagery -- in
19 the camera capturing imagery of Grotmol is
20 capturing, you know, images just like you saw in
21 the Zhu image there. So it's capturing
22 representations of one or more objects in the scene

1 as captured by the camera.

2 Q. And that could be similar to the
3 claims, correct, in which the claims have object
4 representations as part of a circumstance
5 representation and in which the object
6 representation, data structures include computer
7 model for object size and coordinates for object
8 location, correct?

9 A. I think you have multiple questions
10 there. So I guess I don't understand what is the
11 part of the question you're asking.

12 Q. Well, your response to my last question
13 seemed to suggest that there's a distinction in
14 object size because of the fact that the object
15 size might be contained in a representation.

16 Is that -- is that my understanding of
17 your testimony? Is that correct?

18 A. Well, for instance, Zhu provides a
19 bounding box. And a bounding box, as I explained
20 to you, is not a computer model for object size.
21 So the claim isn't just mentioning object size.
22 The claim is mentioning a computer model for object

1 size. So what is claimed is the coordinates for
2 object location. So those coordinates have to
3 provide the object location and the computer model
4 for the object size.

5 So that's what's claimed in 811 and
6 812. And that's not what a bounding box is, as
7 described in Zhu, which is what the argument that
8 the opposition has raised.

9 Q. Let's set Zhu aside. I'm not talking
10 about Zhu right now. I'm talking about Grotmol.

11 In Grotmol, is there anything in
12 Grotmol's disclosure that would preclude a POSITA
13 from understanding that object location as referred
14 to at Column 10, line 32 could include coordinates
15 for the actual location of the object?

16 A. It's -- first of all, it's not
17 described. And second, the opposition did not
18 raise such an argument specifically about it. So
19 I'm responding directly to your arguments in my
20 declaration.

21 Q. I understand your position. I think we
22 might agree to disagree on that. And so but I am

1 interested in your analysis of Grotmol and your
2 understanding of Grotmol. So let's just stick with
3 that regardless of what you think was stated or not
4 in the opposition.

5 So my question is, is there anything
6 that would preclude the object location referred to
7 in Grotmol from being coordinates for object
8 location as recited in the claim?

9 A. Again, I don't mean to be difficult,
10 but I'm trying to respond directly to your
11 arguments. So my opinions are in my declaration.
12 The opinions I have provided are in a declaration,
13 are in direct response to your arguments.

14 The motion -- the opposition motion to
15 amend arguments did not raise any arguments with
16 regards to Grotmol object size, what that means or
17 object location. Just mentioned that and moved on
18 to provide an obviousness with regard to Zhu, and
19 I'm responding directly to that. So that's the
20 opinions that I provided.

21 Q. So I'll just give you another
22 opportunity then.

1 Is there anything in Grotmol that would
2 preclude object location as recited at Column 10,
3 line 32 from being coordinates for object location
4 as recited in the claims?

5 A. Well, first of all -- go ahead.

6 MR. JAIRAM: Objection, scope.

7 THE WITNESS: As I mentioned to you
8 earlier, I'm responding directly to your
9 arguments that were raised in the opposition
10 to motion to amend. That opposition to
11 motion to amend did not raise any arguments
12 with regards to what that object size or
13 location is in Grotmol. So I didn't provide
14 any opinions directly on that. Instead, my
15 opinions were directly to respond to the
16 obviousness argument with regards to Zhu.
17 That's what I'm responding to.

18 BY MR. STEPHENS:

19 Q. Okay. Well, I'm giving you another
20 opportunity here. You didn't address it in your
21 declaration, but you have an opportunity to now.
22 So is there anything in Grotmol that

1 precludes object location as disclosed in Grotmol
2 from being coordinates for object location as
3 recited in the claims?

4 MR. JAIRAM: Objection, form;
5 objection, scope.

6 THE WITNESS: And again, as I
7 mentioned, I did not provide direct opinion
8 on that. I'm not going to provide an opinion
9 today here in the declaration -- in the
10 deposition without, you know, taking the
11 proper time to think about it. But the
12 opinions that I provided were directly in
13 response to what -- the arguments that were
14 raised in the opposition to motion to amend
15 and those contained in the paragraphs that
16 we've been talking about. I think
17 Paragraph 26 to 31.

18 BY MR. STEPHENS:

19 Q. Okay. So that's -- we can move on.
20 My -- I'll give you one last chance, because as I
21 understand it, you're electing not to offer further
22 opinions on Grotmol with respect to this

1 disclosure; is that correct?

2 A. The opinions that I'm willing to offer
3 are those that are disclosed in my declaration.
4 Those are the opinions that I offer that are in
5 direct response to the arguments that were raised.

6 Q. Okay. Just one last question then.

7 On page 11 of our opposition to the
8 motion to amend.

9 A. Page 11 of your opposition?

10 Q. Correct.

11 A. Yes, sir.

12 Q. The third line, we have quoted the
13 disclosure from Grotmol that we just -- I've just
14 been referring to from Column 10, lines 23 to 34.

15 A. Yes.

16 Q. And in bold and italic -- italicized
17 text, we have emphasized "object size, location."

18 On what basis is it that you believe
19 that Petitioner did not rely on Grotmol with
20 respect to elements 85.11 to 85.12?

21 A. I mean, as I mentioned to you, you
22 quoted the exact quote there, quoting -- you

1 emphasized object size and location. There's no
2 description there of what that is. All you did is
3 quoted that there, emphasized it, and moved on to
4 discuss Zhu and, you know, the -- what is going on
5 with Zhu and how -- the obviousness argument that
6 we've been talking about. You didn't provide any
7 arguments with regards to what that object size is
8 or what that object location is in Grotmol besides
9 just bolding those two words. So there was no
10 argument there. All you did is bolded those two
11 words and moved on to Zhu.

12 MR. STEPHENS: Why don't we -- would
13 you like to take a 5-minute break? I could
14 use five minutes, if that's all right.

15 THE WITNESS: Absolutely. I would love
16 it. Thank you. And I'll be back on my desk
17 at 10:05.

18 (Recess taken from 9:59 a.m. to 10:07 a.m.)

19 BY MR. STEPHENS:

20 Q. Welcome back, Dr. Saber.

21 A. Thank you.

22 Q. During the break, did you discuss the

1 substance of your testimony at all with counsel?

2 A. No, I have not.

3 Q. Let's turn to Paragraph 15 in your
4 declaration, please.

5 A. Paragraph 15?

6 Q. Yes.

7 A. Okay.

8 Q. And this paragraph is part of a section
9 describing the Zhu reference, correct?

10 A. Yes. It's a block quote from Zhu,
11 correct?

12 Q. Correct. There's a block quote from
13 Column 14, lines 58 to 67, of Zhu?

14 A. That is correct.

15 Q. And in the paragraph below 15 and
16 Paragraph 16, you've reproduced Figure 9 from Zhu,
17 correct?

18 A. Yes, I have.

19 Q. Now, in the block quote from Column 14
20 of Zhu, Zhu refers to object label parameters that
21 can include a height parameter that defines the
22 height of the bounding box, e.g., in pixels; a

1 width parameter that defines the width of the
2 bounding box, e.g., in pixels; a first pixel
3 coordinate that defines the latitudinal placement
4 of the bounding box, e.g., an X-coordinate; and a
5 second pixel coordinate that defines the
6 longitudinal placement of the bounding box, e.g. a
7 Y-coordinate.

8 Did I read that correctly?

9 A. You have read that correctly.

10 Q. Do the pixel coordinates that define
11 the latitudinal and longitudinal placements of a
12 bounding box in Zhu bear a relationship to the
13 actual location of the detected object?

14 A. Well, they're typically the top left,
15 you know, corner of the bounding box, is what they
16 refer to. And if you'll look at my declaration,
17 supplemental declaration -- when I say
18 "declaration," I mean supplemental. So when you
19 look at my declaration on Paragraph 29, you see on
20 the third line there -- well, I'm on page -- let me
21 be specific. On page 21 of my declaration, see the
22 third line there says: (Reading)

1 The bounding boxes don't
2 provide coordinates for object
3 location and don't constitute a
4 computer model for object size.

5 And you see the next line says:

6 (Reading)

7 Bounding boxes are typically
8 utilized to provide a rough indication
9 of the location.

10 So as you can see, obviously, in the
11 imagery, the bounding box kind of points -- it's a
12 rough indication of where the vehicle is, but
13 doesn't -- doesn't provide coordinates for object
14 location and certainly doesn't provide a computer
15 model for object size.

16 Q. You've referred in Paragraph 29 to
17 bounding boxes providing a rough indication of the
18 location. What -- what's the significance of a
19 "rough indication"?

20 A. Just what it says. It's a approximate
21 indication of the location. I mean, typically,
22 bounding boxes are used -- as you see in the image

1 in Figure 9, just above on the previous page, it
2 kind of gives you a rough indication where the
3 vehicle is, but doesn't provide coordinates for
4 object location or a computer model for object
5 size, as I pointed you to Figure 9, left car where
6 that bounding box certainly doesn't provide the
7 size of the vehicle.

8 Q. Does the claim require a certain
9 precision to the coordinates or object location?

10 A. Well, the claim requires coordinates or
11 object location. So the coordinates have to
12 indicate the object location. So coordinates for
13 object location in a correct -- and it requires a
14 computer model for object size.

15 Q. And the claim doesn't specify any
16 minimum level of precision necessary for the
17 coordinates for object location, correct?

18 A. Well, I mean, if you read -- you
19 obviously, as you are well aware, you read the
20 claims and like of the specification in the
21 description described in the specification. So
22 it's clearly stating it needs coordinates for

1 object location. So it's got to have the
2 coordinates for the object location and the
3 computer model for object size. Doesn't --
4 doesn't -- that's not the bounding box.

5 Q. Well, let's -- I think there's two
6 parts, maybe, to that response. One was, you
7 referred to the claim language. And then, two, you
8 referred to the specification. So I would like to
9 first start with the claim language.

10 In the claim language, is there
11 anything in the language of Substitute Claim 85
12 that requires a minimum level of precision for the
13 coordinates for object location?

14 A. Well, the claim language says
15 coordinates for object location. So a POSITA would
16 understand that as -- I mean, it's plain and
17 ordinary meaning, coordinates for object location.
18 So I -- those coordinates have to specify the
19 object location, is to provide the object location.

20 Q. But the claim leaves open how -- the
21 resolution of those coordinates for object
22 location, correct?

1 A. I don't understand your question. I
2 mean, I'm not -- I'm not a legal expert here. I'm
3 just telling you plain and ordinary meaning from a
4 POSITA, when I read the word "coordinates for
5 object location," I'm expecting coordinates for
6 object location. So those coordinates, those X-,
7 Y-coordinates should provide me with the object
8 location.

9 Q. Okay. So I'm just trying to understand
10 your opinion at Column 29 as it relates to a rough
11 indication of the location.

12 Are you -- is it your opinion that
13 coordinates that provide only a rough indication of
14 location would not satisfy the claim?

15 A. Well, as I said to you, a bounding box
16 like if -- like I showed you in that picture in
17 Figure 9, you look at the left car, which is more
18 visible than the other two obviously in the
19 picture. If you look at the left car, if I were to
20 remove that car from the image and put a bicycle in
21 there, that bounding box would be potentially the
22 same and there could be a bicycle there instead of

1 a car. You see, that bounding box doesn't provide
2 coordinates for object location, just provides you
3 with a rough idea where the object is in the image.
4 So rough indication, like the object, look over
5 here, right. That's essentially what it's saying.
6 It doesn't provide coordinates for object location.

7 Q. So is there any language in the claim
8 itself that requires a level of precision or
9 accuracy for the coordinates for object location?

10 A. I don't understand your question. But
11 what I -- as I've answered to you already, a POSITA
12 reading the words "coordinates for object location"
13 would understand that if I'm talking about 2D
14 object, I'm getting X-, Y-coordinates that define
15 the object location. So when I look at those
16 coordinates and I plot them, I see an object
17 location. It's coordinates for object location.
18 It's not a rough estimate of roughly where the
19 object is in the scene. It's coordinates for
20 object location. It's well understood by a POSITA.
21 Clear -- plain and ordinary meaning.

22 Q. There's no language that you can point

1 to that requires a certain level of precision or
2 accuracy as to the coordinates for object location,
3 correct?

4 A. The words "coordinates for object
5 location" provide an underlying, essentially,
6 accuracy or precision, that they have to provide
7 the coordinates for the object location. So when I
8 look at those coordinates, it reflects where the
9 object is in the image. And then when you read the
10 spec, obviously, you read the claim language in
11 light of the spec, you come to that understanding.

12 Q. Okay. So you are -- as I understand
13 it, your opinion is based on the POSITA's
14 understanding of a coordinate for object location,
15 but there's no other language specifically that
16 requires -- that defines a level of precision or
17 accuracy for the coordinates in the claim, correct?

18 A. I don't understand your question. Why
19 not? When I tell you I have a coordinate X equals
20 two, Y equals three, that's a certain level of
21 precision and accuracy that basically states the
22 object is located at X equal two, Y equal three.

1 So when I state coordinates for object location,
2 those coordinates have to locate the object in the
3 image.

4 Q. In that example where X equals two and
5 Y equals three -- well, strike that question.

6 So I'd just like to go back to
7 Paragraph 16 of your declaration. Where you --

8 A. Paragraph 16?

9 Q. Sixteen, correct.

10 A. Yes, sir.

11 Q. And in this paragraph, you reproduced
12 Figure 9 from Zhu which shows three rectangular
13 bounding boxes, 902, 904, 906, correct?

14 A. That is correct.

15 Q. Now, let's take the bounding box 902.
16 You see that?

17 A. Yes, I do.

18 Q. And bounding box 902 surrounds a first
19 vehicle shown on the left side of the image,
20 correct?

21 A. Well, it surrounds part of that
22 vehicle. It doesn't surround the entire vehicle.

1 You see like part of the front tire is missing,
2 passenger's side, and part of the rear left side is
3 missing, from what I can see from the figure here.

4 Q. So the -- now, bounding box 902 would
5 be defined by an X-coordinate, a Y-coordinate and a
6 width and height parameter, according to Zhu's
7 disclosure that you cited in the preceding
8 paragraph, correct?

9 A. So the height parameter defines the
10 height of the bounding box in pixels. The width
11 parameter defines the width of the bounding box in
12 pixels. And a first pixel coordinate and second
13 pixel coordinate would define, basically, the
14 latitudinal and longitudinal. So let's just say
15 they're the top left corner of the box.

16 Q. And so the first pixel coordinate and
17 the second pixel coordinate place the bounding box
18 around that vehicle to the front and to the left of
19 the camera that acquired this image, correct?

20 A. I don't understand your question.

21 Q. Well, does the -- do the pixel
22 coordinates for the bounding box, do they define

1 any bearing angle relative to the camera that
2 acquired the image?

3 A. The bounding box, as you read that
4 block disclosure we've been talking about. So did
5 that disclosure basically say that bounding box has
6 a height of blah, has a width of blah, and the top
7 left corner is located here. That's it. That's
8 not coordinates for object size. That's just the
9 rough indication, as I mentioned earlier.

10 Q. But we can tell from the coordinates
11 that the object corresponding to bounding box 902
12 is located to the left of the camera that acquired
13 this image, correct?

14 A. As I mentioned to you from my
15 Paragraph 29, bounding boxes are typically utilized
16 to provide a rough indication, yes. It provides
17 you with a rough indication of the location of the
18 object. That doesn't -- that is not a coordinate
19 for object size.

20 Q. And that's a rough indication of the
21 actual location of the object in the real world,
22 correct?

1 MR. STEPHENS: And Counsel --

2 THE WITNESS: I missed part of your
3 question, I think.

4 MR. STEPHENS: Counsel disappeared from
5 my view. I just wanted to make sure he was
6 still there.

7 BY MR. STEPHENS:

8 Q. Yeah. I'll repeat the question.

9 So the coordinates of the bounding box
10 in Zhu do provide, at least in your view, a rough
11 indication of the actual location of the object; is
12 that correct?

13 A. Yeah, of the location of the objects in
14 the image.

15 Q. Now, they also indicate a location of
16 the object -- of the actual location of the object
17 in the real world, correct?

18 A. No, that's not correct. I mean, the
19 bounding -- you've captured an image. I have a 2D
20 frame here of a video. You captured one image. In
21 that image, there is a car. The bounding box
22 provides a rough indication in the image where the

1 car is. It doesn't tell you it's in the actual
2 world at exactly this location. It just -- in the
3 image, it tells you it's located roughly here.

4 Q. The coordinates of pixels in the image
5 correspond to locations and -- two physical
6 locations in the scene of the image, correct?

7 A. I didn't understand your question.

8 Q. I'll rephrase.

9 Do the pixel -- I'm sorry. Do the
10 coordinates of pixels in Zhu's image correspond to
11 actual locations in the real world?

12 A. Well, relatively speaking to each other
13 in the image, there is some relative scaling, but
14 they weren't exact coordinates of the real world
15 because an image is just a two-dimensional
16 projection, essentially. So it's not the exact
17 location in the three-dimensional world, but it
18 does provide in the image, relatively speaking to
19 other parts of the image, you know, pixel
20 locations.

21 Q. Those pixel locations also indicate
22 some information about the location of the object

1 in the real world as well, correct?

2 A. I mean, generally speaking, but you
3 have to get -- you don't have the depth
4 information, in a sense, so you have to do other
5 analysis to get to that. Like if you have stereo
6 imagery or -- you have to do other analysis to get
7 to the depth information. Because I could place a
8 car at different locations in the image in the real
9 world and get the same, you know, location in an
10 image, depending on where you place the camera.

11 So I mean, generally -- relative to
12 each other in the image, it provides a level of, I
13 want to say scaling or location relative to each
14 other in the image, but it doesn't really provide
15 you with the depth of the scene. Like if I looked
16 at that image in Figure 9, you can't tell that the
17 car in front is so many meters behind the car or in
18 front of the car or whatever. You don't have the
19 exact depth information, you know, just relatively
20 speaking.

21 Q. So you need -- you would need depth
22 information as well to know the location of the

1 object in the real world?

2 A. I mean, we're not -- I don't know -- I
3 don't understand your question. We're not talking
4 about an object here. We're talking about an image
5 that's captured in Zhu, as you see here in
6 Figure 9. That image has a bounding box in it.
7 That bounding box, as I mentioned to you, provides
8 a rough indication of where the object is in that
9 image. So that car, that sedan that looks kind of
10 whitish, the bounding box provides a rough
11 indication of where it is. It doesn't provide
12 coordinates for object location.

13 Q. All right. I'd like to -- let's open
14 the Zhu reference, which is Exhibit 1023.
15 (Exhibit Number 1023 was marked for identification.)

16 THE WITNESS: Zhu, Exhibit 1023. Okay.

17 BY MR. STEPHENS:

18 Q. And please refer to Column 15, lines 1
19 through 20, of Zhu.

20 A. Column 15, lines 1 through 20?

21 Q. Yes.

22 A. Okay.

1 Q. Take a moment to review, if you'd like.

2 (Witness reviews document.)

3 A. Okay.

4 Q. So this paragraph -- I'll refer to the
5 first paragraph at lines 1 through 11 first. In
6 this paragraph of Zhu, they refer to an image that
7 was captured using one or more lasers.

8 Do you see that?

9 A. Yes.

10 Q. And with lasers, you could build a
11 point cloud of the surrounding environment,
12 correct?

13 A. Generally speaking, yes, depending on
14 how carefully and accurately and exactly you've
15 done it.

16 Q. With the data from the point cloud,
17 would you be able to detect the distance of an
18 object from the laser?

19 MR. JAIRAM: Objection, form;
20 objection, scope.

21 THE WITNESS: I don't believe I have
22 opined on this anywhere in my declaration.

1 Can you point me to where in my declaration I
2 have opined on anything that has to do with
3 lasers? You haven't raised any arguments in
4 the opposition to the motion to amend about
5 anything of that sort.

6 BY MR. STEPHENS:

7 Q. Well, that's a great question. I was
8 wondering if you had addressed this at all because
9 in our opposition, we cited this disclosure
10 repeatedly. And so I was curious why you elected
11 not to address this disclosure from Zhu.

12 Are you able to shed light on that?

13 A. Well, can you show me where in your
14 opposition to motion to amend that you've addressed
15 this particular thing and said anything about the
16 laser besides just block quoting?

17 Q. Does it make a difference whether it's
18 quoted or we add additional sentences?

19 A. Well --

20 MR. JAIRAM: Objection, form.

21 THE WITNESS: I mean, as I mentioned to
22 you earlier, I am responding to your

1 arguments you have raised in the opposition
2 to amend. So if you block quoted something
3 and then raised an argument about a bounding
4 box, I'm responding to that argument with
5 regards to the bounding box. You didn't
6 raise any arguments with regards to anything
7 else, a laser, for instance, or anything of
8 that sort, so . . .

9 BY MR. STEPHENS:

10 Q. Was there any reason that precluded you
11 from responding to our citations to these
12 paragraphs in Zhu?

13 A. I think I've already addressed that
14 question, but I'm happy to address it again. As I
15 mentioned to you, when I read your opposition
16 brief, I looked at the arguments that you raised,
17 and I've responded to those arguments. I didn't
18 need to respond to any other arguments that you did
19 not raise.

20 Q. And so you decided that our citations
21 to Column 15, lines 1 through 20, of Zhu were not
22 part of our argument; is that correct?

1 MR. JAIRAM: Objection to form;
2 objection, calls for legal conclusion.

3 BY MR. STEPHENS:

4 Q. You may answer, Dr. Saber.

5 A. I'm trying to understand your question
6 first. So you provided a citation to Zhu. You
7 provided an argument that argued with regards to
8 the bounding box that we've been discussing. And
9 I've responded to your argument with regards to the
10 bounding box.

11 Q. You responded to the argument as it
12 related to the disclosure at Column 14, as we just
13 discussed, correct?

14 A. I responded to your arguments that you
15 raised -- I responded to every argument that you
16 raised in the opposition, but in this particular
17 discussion here, I've responded to the arguments
18 that you raised. I mean, if you look at my
19 declaration. For instance, look at Paragraph 28 of
20 my declaration, you see it says: (Reading)

21 The opposition relies on
22 disclosures of Zhu showing a bounding

1 box, et cetera.

2 And I've responded to those disclosures
3 and why a bounding box doesn't meet the claim
4 language. You didn't raise any arguments with
5 regard to anything else.

6 Q. When we referred to bounding boxes, we
7 cited the disclosure both of bounding boxes from
8 images captured with cameras and images from
9 laser -- from data collected from lasers.

10 So was there something in our argument
11 that made you believe that we were not relying on
12 the laser embodiments from Zhu?

13 MR. JAIRAM: Objection to form;
14 objection, calls for a legal conclusion.

15 THE WITNESS: I think I've already
16 addressed that question multiple times. I'm
17 happy to do it again. Your opposition --

18 BY MR. STEPHENS:

19 Q. Did you -- let me just ask this
20 question then.

21 Did you consider this disclosure from
22 Zhu when offering your opinions in your

1 supplemental declaration?

2 A. I've read your opposition to the motion
3 to amend. I've considered -- I've read that very
4 carefully multiple times. I've considered the
5 arguments that you have argued there in that
6 opposition brief, and I've responded to them. So
7 whatever arguments you've raised, I've responded
8 directly to those arguments stating why your
9 arguments are invalid.

10 Q. But in responding to our arguments, did
11 you account for the -- for Zhu's disclosure in its
12 entirety or did you cabin your disclosure to
13 certain -- or cabin your arguments to certain
14 paragraphs of Zhu's disclosure?

15 A. I guess I don't understand your
16 question. I think -- if I understand it correctly,
17 I've already answered it, and I'm happy to answer
18 it again.

19 As I mentioned to you, I've read your
20 opposition brief very carefully. I've looked at
21 the arguments that you have raised, and I've
22 responded directly to those arguments. I didn't

1 need to provide any other details about any
2 arguments that you did not raise. You raise
3 certain arguments, and I responded to those.

4 Q. So just for the record, there's nothing
5 in your -- in your declaration that addresses the
6 disclosure at Column 15, lines 1 through 20, of
7 Zhu; is that correct?

8 A. That is not correct.

9 Q. Can you point to me -- point me to
10 where you did address that disclosure?

11 A. That disclosure talks about, obviously,
12 the bounding box that we've been talking about for
13 probably close to an hour now. So that disclosure
14 discloses a bounding box that the opposition
15 brief -- when I say "opposition brief," I mean the
16 Tesla opposition brief to motion to amend -- raised
17 arguments about that bounding box and why that
18 bounding box meets certain claim limitations. And
19 I provided counterarguments of why that is not the
20 case and that your arguments are invalid. So I've
21 responded to the relevant parts that were raised in
22 the opposition brief, and I think I've done that

1 very accurately.

2 Q. I'm going to move on from this, but I
3 just want to ask one last time. Can you point me
4 to a -- any citation in your declaration to the
5 disclosure at Column 15, lines 1 through 20, of
6 Zhu? A specific citation, please.

7 MR. JAIRAM: Objection to form.

8 THE WITNESS: I mean, I don't -- I
9 don't know what you're asking. I mean, we --
10 I responded to that. You've raised arguments
11 about the bounding box, why the bounding box
12 meets certain claim limitations. So I've
13 responded to those arguments and provided my
14 opinions of why that is not the case. So I
15 don't understand why -- I mean, you've --
16 those are the arguments you raised, and if
17 you notice on Paragraph 28 of my declaration,
18 the fourth or fifth line down, you see that
19 there is an opposition 11, 12, citing 1023,
20 which is Zhu. I'm on Paragraph 28, line 1,
21 2, 3, 4, 5.

22

1 BY MR. STEPHENS:

2 Q. Uh-huh.

3 A. And then I quote a citation 14, 43 to
4 67 and citation 15, 1 through 20, and then
5 Figures 9 and 10. So I refer to those citations
6 that you have raised in your opposition brief, and
7 I've responded to the arguments that you made.

8 Q. All right. Well, let's look again at
9 the substance of what's described by Zhu at
10 Column 15, lines 1 through 20.

11 A. Lines what?

12 Q. Well, let's start with lines 1 through
13 11.

14 As we've just discussed, in this
15 paragraph, they're referring to an image captured
16 by one or more lasers, correct?

17 A. Generally speaking.

18 Q. And then in this embodiment, the object
19 label parameters may also include a third pixel
20 coordinate that defines the physical height of the
21 object, correct?

22 A. Generally speaking.

1 MR. JAIRAM: Objection to form.

2 THE WITNESS: Excuse me. Generally
3 speaking, yes. But you didn't -- your
4 opposition brief didn't say anything about
5 this particular paragraph. You didn't
6 provide any arguments or discussions about it
7 or made any arguments, reference to that
8 particular section of the paragraph.

9 BY MR. STEPHENS:

10 Q. Let's put that aside. Okay. I think
11 we can agree to disagree. But I'm focused now on
12 the substance of this disclosure. Okay?

13 In this embodiment, the object label
14 parameters can also include a third pixel
15 coordinate that defines the physical height of the
16 object; is that correct?

17 A. You've read that correctly.

18 MR. JAIRAM: Objection to form.

19 BY MR. STEPHENS:

20 Q. And that third pixel coordinate can be
21 defined, for example, in meters. For instance,
22 they give the example of 3 meters above sea level,

1 2 meters above sea level, correct?

2 A. I don't understand what this has
3 anything to do with the opposition brief or my
4 declaration details. You didn't raise any
5 arguments about it. I didn't provide any opinions
6 in my declaration about this particular paragraph
7 because you didn't raise any arguments. So you're
8 asking me to provide an opinion here on the fly
9 today, and I'm not prepared to do that.

10 Q. I'm not asking you to provide an
11 opinion on the fly at all. You just referred me to
12 Paragraph 28 of your declaration and --

13 A. Yes.

14 Q. -- what you pointed me to was a
15 parenthetical that acknowledged explicitly that the
16 opposition cited this disclosure from Zhu in your
17 declaration. Okay. So I'm not sure why you're
18 saying this is new or surprising.

19 I'll go back to the disclosure here.

20 A. But you cited --

21 MR. JAIRAM: Objection to form.

22 THE WITNESS: Let's make sure the

1 record is clear. You cited this particular
2 paragraph and I cited that in my
3 Paragraph 28.

4 BY MR. STEPHENS:

5 Q. Yes.

6 A. Didn't provide any arguments with --
7 from your citation about any third pixel, any
8 meters, any -- anything that has to do with 15, 1
9 through 11, at all. You didn't provide any
10 arguments, you didn't provide any analysis, you
11 didn't provide any details in your opposition
12 brief. You provided arguments with regards to the
13 bounding box, which is 15, 12 through 20, and I
14 responded directly to those arguments. You didn't
15 provide any other opinions or any analysis with
16 regards to the third pixel coordinate stuff that
17 you are mentioning today.

18 Q. Are you refusing to answer any
19 questions about the substance of the disclosure at
20 Column 15, lines 1 through 11?

21 A. Well, you're asking me to provide an
22 opinion that is not currently in my declaration. I

1 didn't provide any opinions in my declaration about
2 15, 1 through 11, because you didn't provide any
3 arguments with regards to that -- these
4 disclosures.

5 So if you want me to provide an opinion
6 about it, I would need to sit down and analyze it,
7 and I'm more than happy to render an opinion. But
8 I don't want to do that in a deposition on the fly
9 today.

10 Q. How much time would you need to
11 consider these 11 lines?

12 A. I don't know, but I would need to -- I
13 would need time to properly analyze them, think
14 through it, read the disclosures carefully, and
15 write something down and properly analyze it, and
16 then render an opinion. But I'm not going to
17 render an opinion on the fly in the middle of a
18 deposition.

19 Q. So is it fair to say that the opinions
20 that you did render in your declaration, because
21 you apparently need additional time to consider
22 this disclosure, you did not consider that

1 disclosure in offering the opinions in your
2 declaration?

3 MR. JAIRAM: Objection to form.

4 THE WITNESS: I have no idea what you
5 are asking. So I'm sorry. I didn't -- first
6 of all, I didn't hear all your question. And
7 second of all, I didn't understand the parts
8 that I heard.

9 BY MR. STEPHENS:

10 Q. Let's just focus, please, on the
11 substance of what's actually disclosed in
12 paragraph -- in this paragraph.

13 You would agree that Zhu discloses that
14 the third pixel coordinate can define the physical
15 height of the object; is that correct?

16 A. I mean, I -- again, I think you're
17 trying to get into an analysis on the fly
18 situation, and I don't want to do that.

19 Q. Dr. Saber, I read those words verbatim
20 from the reference. I don't know why you are
21 hedging on this.

22 A. I don't know -- I don't know which

1 words you read. So can you point me to the exact
2 line of what you've read?

3 Q. Yes. It's at line 2, starting at
4 line 2, Zhu states that: (Reading)

5 The object label parameters
6 may also include a third pixel
7 coordinate that defines the physical
8 height of the object.

9 Correct?

10 A. You've read that correctly.

11 Q. And Zhu also discloses at lines 8 to 9
12 that: (Reading)

13 The third pixel coordinate may
14 indicate that elevation of the
15 detected object, such as 3 meters
16 above sea level, 2-meters above sea
17 level, et cetera.

18 Correct?

19 A. You've read that correctly except you
20 skipped the "or of a given laser point." But yes,
21 you've read that correctly.

22 Q. And 3 meters above sea level, 2 meters

1 above sea level are indications of the elevation of
2 the object in the real world, correct?

3 MR. JAIRAM: Objection to form.

4 THE WITNESS: I mean, generally
5 speaking. But again, you know, as I
6 mentioned to you earlier, you didn't provide
7 any analysis in your opposition brief or
8 discussed any part of that paragraph that
9 you're talking about. So I didn't provide
10 any opinions in my declaration about it in
11 response to your opposition brief. And I'm
12 not prepared to do that today on the fly in a
13 deposition.

14 BY MR. STEPHENS:

15 Q. Based on the disclosure in this
16 paragraph, a pixel coordinate in Zhu can indicate a
17 location of the object in the real world, correct?

18 MR. JAIRAM: Objection to form. I'm
19 going to (technical interruptions) --

20 MR. STEPHENS: I'm sorry, Counsel, I
21 couldn't hear you.

22 MR. JAIRAM: Please answer, Dr. Saber,

1 and then I will make a comment.

2 THE WITNESS: I couldn't hear you,
3 Arvind. You may have to get either closer to
4 the microphone or raise your voice.

5 MR. JAIRAM: Objection to form.

6 Please answer, Dr. Saber, and then I
7 will make a comment.

8 THE WITNESS: So as I -- I'm not trying
9 to be difficult. I'm trying to answer your
10 questions as best as I can. But again, as I
11 mentioned to you, you didn't provide -- in
12 your opposition brief, you didn't provide any
13 arguments with regards to this paragraph.
14 You didn't provide any analysis that says
15 anything about third pixel coordinates. You
16 didn't discuss anything that has to do with
17 meters above sea level or anything that has
18 to do with actual objects in the real world.
19 You -- you quoted this paragraph, this
20 section, and your analysis focused on the
21 bounding box, and that's what I responded to
22 in my declaration. I didn't provide any

1 opinions in my declaration about the third
2 pixel, and I'm not prepared to do that today
3 on the fly.

4 MR. STEPHENS: Counsel, did you want to
5 offer a comment?

6 MR. JAIRAM: No, I will not. Thank
7 you. But I will not right now.

8 BY MR. STEPHENS:

9 Q. I'll ask just one last question about
10 this paragraph and then I will move on. And I'll
11 just repeat my last question, which was, based on
12 this disclosure in Zhu, would you agree that pixel
13 coordinates can indicate the actual location of an
14 object in the real world?

15 MR. JAIRAM: Objection to form.

16 THE WITNESS: Again, I would repeat the
17 same answer I told you earlier. You're
18 trying to get me to provide an analysis to
19 you on the fly in a deposition for something
20 you did not raise in the opposition to amend
21 brief. So I'm not -- I didn't provide any
22 opinions in my declaration about this, and

1 I'm not prepared to do it today on the fly.

2 I'm happy to do it if I'm given, you know,
3 ample time to properly analyze the entirety
4 of Zhu so I can render the proper opinion.

5 MR. STEPHENS: Okay. For the record,
6 after multiple attempts, the witness has
7 refused to answer that question.

8 BY MR. STEPHENS:

9 Q. Let's turn now to Column 20.

10 A. Of Zhu?

11 Q. Yes, of Zhu. Lines 34 to 40.

12 A. Lines 34 to 40.

13 Q. Yes. And please take a moment to
14 review, if you would like.

15 (Witness reviews document.)

16 A. Okay.

17 Q. This paragraph refers to "object label
18 deviations," correct?

19 A. Yes.

20 Q. Do you have an understanding of an
21 object label deviation in Zhu?

22 MR. JAIRAM: Objection to form.

1 BY MR. STEPHENS:

2 Q. I'll reask the question.

3 What is your understanding of object
4 level deviation in Zhu, Dr. Saber?

5 A. Is this something related to the
6 opinions that I provided in this declaration?
7 Because I think you're asking something that's not
8 part of this declaration. Is there something --

9 Q. Yes, it is related.
10 I'm sorry. Please complete your
11 response.

12 A. Is there something in my declaration
13 that you are referring to? I didn't provide any
14 opinions on object label or label deviations in my
15 declaration. I think my opinions were confined to
16 object coordinates and object size.

17 Q. Yes. This -- this paragraph is
18 relevant to the opinions that you've offered, for
19 example, in Paragraph 30 of your declaration, where
20 you stated --

21 A. Where --

22 Q. Paragraph --

1 A. Where in Paragraph 30 are you referring
2 to? The entirety of the paragraph?

3 Q. The first sentence.

4 A. Okay.

5 Q. Not just here, but throughout your
6 declaration regarding Zhu, you seem to have an
7 understanding that pixels, pixel coordinates in
8 Zhu, are distinct from coordinates for object
9 location or computer model for object size.

10 And so this paragraph is relevant to
11 understanding what Zhu actually means when it talks
12 about pixels and object labels.

13 MR. JAIRAM: Objection to form.

14 THE WITNESS: Well, first of all, my
15 response there was directly to your -- the
16 argument that you raised about the height and
17 width of Zhu's bounding box in pixels and the
18 first pixel coordinates and second pixel
19 coordinates that were raised in the
20 opposition brief. So -- and that's with
21 regards to coordinates for object location
22 and a computer model for object size.

1 You didn't provide any arguments with
2 regards to object label deviations in your
3 opposition brief, and I didn't provide any
4 opinions with regards to object label
5 deviations.

6 BY MR. STEPHENS:

7 Q. Well, did you review the Zhu reference
8 as a whole, Dr. Saber?

9 A. Yes, I have.

10 Q. And is it your understanding that
11 object label deviations are calculated by comparing
12 the object height and object width parameters of
13 the object label of the bounding boxes?

14 A. But, I mean, this is not relevant to
15 the discussion that you -- or the arguments that
16 you have raised. You've raised an argument -- so
17 if you go back to your opposition brief and have a
18 look there, you've raised an argument that the
19 bounding box essentially refers to object
20 coordinates and a computer model for object size.
21 You didn't raise any arguments with regards to
22 object label deviations. So I responded directly

1 to those arguments and why the bounding box is not
2 a -- does not constitute a -- is not coordinates
3 for object location and does not constitute a
4 computer model for object size.

5 Q. At Column 20, line 34, Zhu discloses
6 that: (Reading)

7 The object label deviations
8 may be measured in physical units,
9 e.g., centimeters, meters, et cetera,
10 or in electronic units, e.g., pixels.

11 Do you see that?

12 A. You've read that correctly.

13 MR. JAIRAM: Objection to form.

14 BY MR. STEPHENS:

15 Q. And so the object label parameters can
16 be defined in terms of either physical units or
17 pixels, correct?

18 MR. JAIRAM: Objection to form.

19 THE WITNESS: Well, this is saying the
20 object label deviations may be measured, as
21 you read initially. It doesn't say the word
22 "parameter" here, but it says: (Reading)

1 Deviations may be measured in
2 physical units or in electronic units.

3 But the bounding box that you see in the
4 image that we've been discussing on Figure 9
5 of Zhu, that bounding box essentially does not
6 represent coordinates for object location, as
7 we have discussed. And my analysis, I think,
8 is very clear in the supplemental dec.

9 BY MR. STEPHENS:

10 Q. Your declaration refers to bounding box
11 parameters in terms of pixels a number of times,
12 correct?

13 A. In response to your opposition brief, I
14 think I provided an -- the counterargument why your
15 arguments are incorrect. They don't read on the
16 claim language that you have attempted to do so.

17 Q. Have you considered the disclosure at
18 Column 20, lines 34 to 40, when you offered the
19 opinions in your declaration?

20 MR. JAIRAM: Objection to form.

21 THE WITNESS: So as I mentioned to you
22 earlier, I've read Zhu in its entirety

1 multiple times. I have also read your
2 opposition brief multiple times. And I've
3 responded to the arguments that you raised in
4 the opposition brief. You didn't raise any
5 arguments about object label deviations there
6 or anything that have to do with meters. If
7 I go into your opposition brief and search
8 the word "meters," I probably wouldn't find
9 anything. You didn't raise any arguments
10 with regards to that wording in your
11 opposition brief. So my response in the
12 declaration is confined to the arguments that
13 you raised.

14 BY MR. STEPHENS:

15 Q. So would you acknowledge that there
16 might be additional disclosure in Zhu that would
17 indicate that the object label parameters could
18 indicate the size and location of an object in the
19 real world?

20 MR. JAIRAM: Objection to form.

21 THE WITNESS: The answer is no. And
22 the second answer is, as I said to you, I've

1 responded to the arguments that you have
2 raised. So if you wanted to mention object
3 label deviations, you should have raised
4 those arguments in the opposition brief and I
5 would have responded to them. You didn't
6 raise any arguments there, so I responded
7 directly to the arguments that were raised.

8 BY MR. STEPHENS:

9 Q. At line 37 of Column 20 in Zhu, Zhu
10 refers to physical characteristics of the object
11 encompassed by the object label.

12 Do you see that?

13 MR. JAIRAM: Objection to form.

14 THE WITNESS: Yes. Yeah, I do see
15 that.

16 BY MR. STEPHENS:

17 Q. And those are physical characteristics
18 of the object itself as opposed to the object
19 label, correct?

20 MR. JAIRAM: Objection to form.

21 THE WITNESS: I think -- I mean, I'm
22 not trying to be difficult. I think you are

1 asking me to provide an opinion on the fly
2 about something that you did not raise in the
3 opposition brief. And, you know, I'm not
4 prepared to provide an opinion today about
5 something that's not raised or discussed in
6 the opposition brief. My opinions are in my
7 declaration. Is there something specific
8 there that you're asking about? I don't
9 believe I've provided any opinions about
10 physical characteristics or object label
11 deviations in my declaration.

12 (Exhibit Number 1001 was marked for identification.)

13 BY MR. STEPHENS:

14 Q. (Technical interruption) to the
15 '474 Patent, Exhibit 1001.

16 A. '474?

17 Q. Yes.

18 A. Yes, sir.

19 Q. And actually, before we do that, I'm
20 sorry, let's refer to Paragraph 23 of your
21 declaration.

22 A. Paragraph 23?

1 Q. Yes.

2 A. Okay.

3 Q. The second sentence in this paragraph
4 that starts at the fourth line of Paragraph 23
5 reads: (Reading)

6 In my opinion, a POSA would
7 have recognized by reading the
8 specification that the inventor of the
9 '474 Patent had possession of, for
10 example, the top right neuron in
11 Figure 17 providing instruction sets
12 for operating one device, second
13 device, and the bottom right neuron
14 providing instruction sets for
15 operating another device, third
16 device.

17 Do you see that?

18 A. Yes, you read that correctly.

19 Q. Can you point me to any specific
20 disclosure in the '474 Patent that identifies
21 different output neurons in the neural network as
22 providing instruction sets for operating different

1 devices?

2 A. I think in my previous declaration in
3 the motion to amend section, we provided multiple
4 citations. So I don't want to go through all of
5 that again today. But there were several citations
6 to -- to all of this.

7 Q. I would like to -- strike that.

8 Are you aware that the Board in its
9 preliminary guidance invited the Patent Owner to
10 provide additional explanation of where written
11 description support is found for the substitute
12 claim features?

13 A. Yes. I read the Board, I forgot what
14 the number of the paper is, but I read the Board
15 paper, I forgot, paper 21 or something. I read
16 that paper. And I think in this paragraph that you
17 see here, we provided -- I provided additional
18 explanation. But there were many citations in the
19 previous motion -- in the previous declaration that
20 provided citations to where all of this is
21 described in the '474.

22 Q. Well, I think the Board was looking for

1 additional clarity beyond what was offered in the
2 first declaration. So I'm going to give you this
3 opportunity to explain to the Board, where is it
4 that in the '474 Patent it describes how these
5 output neurons can provide different instruction
6 sets for operating different devices?

7 A. Well, if you continue reading this --
8 in this paragraph that you raised, Paragraph 23,
9 after that "in my opinion, a POSA," so if you
10 continue reading to the next page, you see it says:
11 (Reading)

12 The specification discloses
13 that, quote, device 98 may include a
14 loader, quote.

15 And there's a citation there, 146, 29,
16 Figure 38, showing the multiple loaders type of
17 thing.

18 Q. Uh-huh.

19 A. And in that there may be any number of
20 loaders, and that's also quoted in the DCADO unit.
21 And there's another citation there, 148, 6 to 8,
22 and 147, 8. And then the specification explains,

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1 quote, Remote DCAD0 unit, et cetera. And there is
2 another citation there to the original application,
3 '991, which is where the '474 came from. So you
4 see that citation in 147, 38, to 148, 6, and 93,
5 et cetera.

6 So there are several citations in this
7 paragraph that add to what was initially cited in
8 the previous declaration.

9 Q. Do any of the citations that you've
10 offered here in Paragraph 23 address the
11 architecture of the neural network insofar as you
12 would have different output neurons providing
13 instruction sets for operating different devices?

14 A. Well, I mean, obviously, we would
15 continue to Paragraph 24. So Paragraph 23 is
16 talking about the multiple -- the multiple loaders
17 or multiple boats or whatever. So it's providing
18 that you have multiple devices and citing to all of
19 that.

20 Paragraph 24 gets into the using
21 correlations between input neurons, et cetera, and
22 there's citations there as well. And you see on

1 page 17, there are multiple citations to the '991
2 application. And towards the end of Paragraph 24,
3 there are multiple time stamp citations as well to
4 show, you know, object representations are captured
5 at different time instance.

6 Is this a good time to take a break,
7 Counsel? I think we've been going over an hour.

8 Q. We have been. And we can certainly do
9 that. I think I probably have, at most,
10 five minutes left on this module. If you'd like --
11 if you're okay to continue, I think that would be
12 great.

13 A. Sure. I think five minutes is fine.

14 Q. Okay.

15 Specifically with respect to your
16 assertion in the second sentence of Paragraph 23
17 regarding the top right neuron in Figure 17 and the
18 bottom right neuron.

19 A. Yes.

20 Q. Can you point to any specific
21 disclosure that actually says each output neuron
22 corresponds to instruction sets for operating a

1 different device?

2 A. I mean, we provided many citations in
3 the previous declaration. And, you know, a POSITA
4 reading this specification would come to those --
5 that understanding. So as I mentioned to you, in
6 that second sentence that you have read, you know,
7 a POSA would have recognized by reading the spec
8 that the inventor had possession of that
9 understanding because they do provide, obviously, a
10 model A neural network with input neurons, hidden
11 layers and output neurons. And you're talking
12 about input neurons absorbing object
13 representations and output neurons providing
14 instruction sets. And I think we provided multiple
15 citations in the previous declaration and
16 additional citations here.

17 I don't think you provided me with the
18 '991 application, Counsel.

19 Q. That's correct.

20 A. So the citations that you see there are
21 citing to the '991 application, which I think is
22 the -- is where the '474 came from.

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1 MR. STEPHENS: All right. Why don't we
2 take -- how about a 10-minute break?

3 THE WITNESS: That sounds good. It's
4 11, let's say, 17. I'll be sitting back on
5 my desk at 11:30. How's that?

6 MR. STEPHENS: That works for me.

7 THE WITNESS: Fantastic. Thank you.

8 (Recess taken from 11:17 a.m. to 11:30 a.m.)

9 BY MR. STEPHENS:

10 Q. Dr. Saber, during the break, did you
11 discuss the substance of your testimony at all with
12 counsel?

13 A. No, I have not.

14 MR. STEPHENS: Petitioner has no
15 further questions.

16 MR. JAIRAM: Let's take a short break.
17 Let's go off the record.

18 (Recess taken from 11:31 a.m. to 11:44 a.m.)

19 MR. JAIRAM: Nothing further. This
20 deposition is concluded. Thank you.

21 THE CERTIFIED STENOGRAPHER: As far as
22 turnaround time, I think it's scheduled for a

1 5-day business turnaround. Is that going to
2 be good with you, Mr. Stephens?

3 MR. STEPHENS: Monday, the 7th would be
4 fine.

5 THE CERTIFIED STENOGRAPHER: And is
6 opposing counsel looking for the same
7 turnaround?

8 MR. JAIRAM: That's fine.

9 THE CERTIFIED STENOGRAPHER: And do you
10 need a rough draft sent over?

11 MR. JAIRAM: No rough draft.

12 THE CERTIFIED STENOGRAPHER: Do you
13 want the rough draft, Mr. Stephens?

14 MR. STEPHENS: Yes, please.

15 (Signature reserved)

16 (Deposition concluded at 11:45 a.m. EDT)

17 - - -

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1 CERTIFICATE OF REPORTER

2 I, Amy A. Brauser, Registered Merit Reporter and
3 Notary Public for the State of South Carolina at
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15 of the examination to the best of my ability. I
16 further certify that I am neither related to nor
17 counsel for any party to the cause pending or
18 interested in the events thereof.
19 Witness my hand this is 7th day of July, 2025.

20
21
22



Amy A. Brauser, RPR RMR CRR
Notary Public
State of South Carolina at Large
My Commission expires:
March 17, 2033

Page 90

1 Eli Saber, Ph.D., c/o

McKool Smith

2 1717 K Street, NW, Suite 1000

Washington, DC 20006

3

Case: Tesla, Inc. v. Autonomous Devices, LLC

4 Date of deposition: June 27, 2025

Deponent: Eli Saber, Ph.D.

5

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9 Witness Name: Eli Saber, Ph.D.

10 Deposition Date: June 27, 2025

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