

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

META PLATFORMS, INC.; INSTAGRAM INC.; WHATSAPP
LLD; META PLATFORMS TECHNOLOGIES, LLC; AND GIPHY,
INC.,

Petitioners,

V.

VL COLLECTIVE IP LLC,
Patent Owner.

IPR 2023-00924
U.S. Patent No. 7,436,980

REMOTE DEPOSITION OF
CHANDRAJIT BAJAJ, PH.D.

Zoom Videoconference
07/11/2024
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DIGITAL EVIDENCE GROUP
1730 M Street, NW, Suite 812
Washington, D.C. 20036
(202) 232-0646

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07/11/2024

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9:59 a.m. (EDT)

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REMOTE DEPOSITION OF CHANDRAJIT BAJAJ, PH.D.,

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held virtually via Zoom Videoconferencing, before

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Amanda Gorrone, Certified Live Note Reporter, and

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Notary Public of the State of New York.

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1 A P P E A R A N C E S

2 (Via Zoom Videoconferencing):

3 ON BEHALF OF THE PETITIONER META PLATFORMS:

4 W. Todd Baker, Esquire

5 Kirkland & Ellis LLP

6 1301 Pennsylvania Avenue, N.W.

7 Washington, D.C. 20004

8 PHONE: +1 202 389 3135

9 E-MAIL: W.baker@kirkland.com

10

11 ON BEHALF OF THE PATENT OWNER, VL COLLECTIVE IP

12 LLC:

13 Philip Eklem, Esquire

14 Reichman Jorgensen Lehman & Feldberg

15 1909 K Street, NW, Suite 800

16 Washington, D.C. 20006

17 PHONE: (202) 894-7451

18 E-MAIL: Peklem@reichmanjorgensen.com

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1 CHANDRAJIT BAJAJ, called as a witness, having
2 been first duly sworn by a Notary Public of the
3 State of New York, was examined and testified as
4 follows:

5 THE WITNESS: I do.

6 THE COURT REPORTER: Thank you.

7 Can you state your name and address
8 for the record?

9 THE WITNESS: Chandrajit Bajaj, and
10 I'm in Austin, Texas.

11 THE COURT REPORTER: Okay. Thank
12 you.

13 MR. EKLEM: Okay. For the record,
14 this is Philip Eklem with Reichman Jorgensen
15 Lehman Feldberg on behalf of the Patent
16 Owner, VL Collective IP LLC.

17 Todd, do you want to make an
18 appearance?

19 MR. BAKER: Absolutely.

20 This is Todd Baker of Kirkland &
21 Ellis here on behalf of Petitioner, Meta
22 Platforms.

1 MR. EKLEM: Okay. Let's get
2 started.

3 EXAMINATION.

4 BY MR. EKLEM:

5 Q. Good morning, Dr. Bajaj.

6 A. Good morning.

7 Q. You were deposed once already in
8 this matter, correct?

9 A. That's correct.

10 Q. And that was in relation to your
11 first declaration, which is Exhibit 1004 to those
12 proceedings, right?

13 A. That is correct.

14 Q. Okay. Do you understand why you're
15 now being deposed a second time?

16 A. I believe so.

17 Q. And what is your belief?

18 A. I filed a supplemental declaration
19 in reply to the petitioner's brief, and I'm here
20 to answer questions about that second
21 declaration.

22 Q. Okay. And that second -- excuse me.

1 That second declaration is
2 Exhibit 1052 to the proceedings, correct?

3 A. That's correct.

4 (Whereupon, Exhibit 1052,
5 Supplemental Declaration of Chandrajit Bajaj,
6 Ph.D. in Support of Petitioner's Reply, was
7 identified.)

8 BY MR. EKLEM:

9 Q. Okay. Do you have a copy of your
10 second declaration with you?

11 A. I do.

12 Q. Okay. So, for purposes of today,
13 I'll just refer to that as your declaration, or
14 your second declaration, if it's unclear.

15 So if I refer to your declaration
16 today, will you understand I'm talking about your
17 second declaration, which is Exhibit 1052?

18 A. Yes. I will assume you're referring
19 to that alone.

20 Q. Okay. Now, if I need to refer to
21 your first declaration, I'll be sure to make that
22 clear. I'll either call it your first

1 declaration or Exhibit 1004.

2 Is that okay?

3 A. That's fine.

4 Q. All right. Do you also have a copy
5 of your first declaration with you today?

6 A. I do.

7 Q. Okay. Did you do anything to
8 prepare for this deposition today?

9 A. Yes, I did.

10 Q. And what did you do?

11 A. I reviewed my supplemental
12 declaration and all of the material I cited
13 there.

14 Q. Did you do anything else, for
15 example, meet with counsel?

16 A. I also met and discussed with
17 counsel.

18 Q. Okay. And with whom did you meet?

19 A. So, counsel Todd Baker and, briefly,
20 also with counsel Yan-Xin Li.

21 Q. And how many times did you meet with
22 them to prepare for your deposition?

1 A. We had discussions in the morning
2 and just briefly in the afternoon.

3 Q. Are you referring to the morning and
4 afternoon of yesterday?

5 A. That's correct.

6 Q. You said "just briefly."

7 Could you describe about how long
8 each of those meetings were?

9 A. Well, they were present, and
10 whenever I had a question, as I was reviewing my
11 declarations, I would interrupt them and ask
12 them. But that was the nature of the
13 interaction.

14 Q. Okay. So how long were those
15 meetings? Were they two hours? Three hours, for
16 example?

17 A. I spent the morning, you know, 9:00
18 to 12:00 and then maybe an hour or two after
19 lunch, which was from 1:30 to 3:30.

20 Q. Okay.

21 MR. EKLEM: So for today, the
22 documents that we're going to be referring

1 to -- and Todd, this is probably just more
2 for you -- the documents we'll be referring
3 to are all already of record so we'll just
4 refer to them by the exhibit number for the
5 proceedings rather than, you know, giving
6 them separate exhibit numbers for the
7 deposition.

8 All right?

9 MR. BAKER: That's fine. And for
10 your knowledge, Dr. Bajaj has paper copies of
11 most exhibits that we anticipate you'll be
12 talking about.

13 MR. EKLEM: Okay.

14 BY MR. EKLEM:

15 Q. Dr. Bajaj, can you take your
16 declaration Exhibit 1052, which is your second
17 declaration and put that in front of you, please?

18 A. Yes, I have it.

19 Q. Great. Could you go to Paragraph 5,
20 please, and just let me know when you're there.

21 A. I'm there.

22 Q. Okay. Do you see Paragraph 5

1 includes five bullet points?

2 A. Yes.

3 Q. All right. In Paragraph 5, you
4 state that in forming your opinion you considered
5 the items in those bullet points, and the third
6 one is, "the relevant legal standards including
7 the standard for obviousness, as I understand
8 from counsel."

9 Do you see that?

10 A. Yes.

11 Q. Other than the standard for
12 obviousness, did you consider any other relevant
13 standards?

14 A. Not that I recall.

15 Q. Okay. Did you consider any claim
16 construction standards?

17 A. I'm conversant with them and I think
18 I mention some of them in my first declaration,
19 so I am familiar with that.

20 Q. Okay. And so my question is
21 specifically related to claim construction
22 standards.

1 So is it your -- are you saying that
2 you discussed claim construction standards in
3 your first declaration?

4 A. I don't recall all that I did in my
5 first declaration. Whatever I did, I stated
6 there. I'm familiar with these legal standards
7 and I refamiliarized myself with the
8 supplemental, you know, reasons what I've given
9 in my supplemental report, and so, hence, I, as
10 and when needed, I refer to them and discuss with
11 counsel.

12 Q. Okay. You did not give any claim
13 construction opinions in your first declaration,
14 right?

15 A. I don't recall all that I did in my
16 first declaration. I was here to answer about my
17 second declaration.

18 Q. Okay. So do you -- do you set forth
19 your understanding of the applicable claim
20 construction standards anywhere in your
21 supplemental declaration?

22 A. No. I didn't put anything about the

1 legal standards in my supplemental declaration.

2 Q. Okay. So looking at the fourth
3 bullet point in Paragraph 5, it says, "any
4 additional authoritative documents as cited in
5 the body of this supplemental declaration."

6 Do you see that?

7 A. Yes.

8 Q. What do you mean by "authoritative
9 documents"?

10 A. These are all documents other than
11 what I, you know, put in the first three bullet
12 points; the board's decision, documents
13 identified in the table of exhibits, and relevant
14 legal standards. So everything else I have to
15 look at are captured in that bullet point.

16 Q. All right. Because I don't see it
17 there, I'm going to ask you, since I don't see it
18 listed in your bullet points, did you consider
19 Dr. Saber's declaration, Exhibit 2004, in
20 rendering your opinions in your supplemental
21 declaration?

22 A. Yes. And I mentioned that in the

1 paragraph above, because I was providing a
2 rebuttal to Dr. Saber's declaration. And that's
3 what I have in my supplemental declaration.

4 Q. Okay. And when you -- when you
5 considered Dr. Saber's declaration, did you read
6 the whole thing in its entirety?

7 A. Yes.

8 Q. Okay. So are there any parts of
9 Dr. Saber's declaration that you did not
10 consider?

11 A. I looked at Dr. Saber's declaration
12 in entirety.

13 Q. Okay. So if we go to Paragraph 6 of
14 your supplemental declaration, why don't you take
15 a moment and just read that quickly and let me
16 know when you're finished.

17 A. (Witness reviewing.)

18 Yes.

19 Q. All right. You see the second --
20 I'm sorry -- the third sentence, it says, "I
21 understand that Dr. Saber disagreed with the
22 Board's provisional determination as to element

1 1[e]/9[e]."

2 Do you see that?

3 A. Yes.

4 Q. You use the word "provisional
5 determination."

6 What do you mean by "provisional"?

7 A. Board's decision, which I read,
8 is -- and the Board's determination is what I'm
9 citing for claim element 1[e] and 9[e], as I
10 understand the proceedings, you know, is their
11 initial decision based on all the petitions, and
12 so on, and the declaration. And so that's what
13 the statement is stating.

14 Q. So if we called it their initial
15 decision, is it your understanding then that the
16 board has not made a final decision as to the
17 construction of Element 1[e]/9[e]?

18 A. It is because the proceedings are
19 still ongoing, and hence, you know, the -- the
20 fact that this matter is being discussed, I'm
21 citing my truthful opinion about what I'm
22 rebutting in Dr. Saber's testimony.

1 Q. Okay. So can you go down to
2 Paragraph 13 of your supplemental declaration,
3 please, and read that to yourself. And let me
4 know when you're finished.

5 A. Yes.

6 Q. Okay. So it's a -- Paragraph 13
7 begins with kind of a longer sentence, and if you
8 look at the about -- if you look at the third
9 line up from the bottom of Page 8, there is a
10 comma. And then it says "and detecting the
11 (presence of the)."

12 Do you see that part of the
13 sentence?

14 A. Yes.

15 Q. Okay. It says, "detecting the
16 (presence of the) object in any image by
17 comparing the (collection of component)
18 probabilities for each image to a threshold."

19 Do you see that?

20 A. Yes.

21 Q. Okay. And so you see that the words
22 "presence of the" are in parentheses?

1 A. Yes.

2 Q. And do you see that the words
3 "collection of component" are in parentheses as
4 well?

5 A. Yes, I wrote this.

6 Q. Okay. And so then, you would agree
7 that the words in parentheses there are not
8 literally present in Element 1[e]/9[e], right?

9 A. The words "collection of components"
10 is present in 1[e]/9[e], and the probabilities
11 are the likelihood of the presence of an object
12 in an image. And that's what the sentence refers
13 to.

14 Q. Okay. Let's take a look at
15 Paragraph 12, which is just above Paragraph 13 on
16 Page 8 of your declaration.

17 You -- you include here the text of
18 Element 1[e]/9[e]. And it says, "detecting the
19 object in any image upon comparing the
20 probabilities for each image to a threshold for
21 detecting the object."

22 Do you see that?

1 A. I see the elements, yes.

2 Q. Okay. Referring specifically to the
3 Element 1[e]/9[e], the words "collection of
4 component" are not literally present in Element
5 1[e]/9[e], right, as you've written it?

6 A. They are implicitly, and that's why
7 I put that -- put the words -- "collection of
8 components" is part of the entire plane.

9 Q. Yeah, that's -- that's what I want
10 to -- to clarify here. You said that they're --
11 that they're there implicitly and so -- you said
12 that they're there implicitly, but you agree that
13 they're not there expressly or literally?

14 A. There's nothing to agree about your
15 statement. The claims are as they are. It's
16 very clear the claims starting from the
17 beginning; and, you know, we can go back to the
18 very beginning of the claim.

19 But the words I repeated were in
20 1[c]. It says, "measuring the object as a
21 collection of components in each image."

22 So objects are always a collection

1 of components. And then determining a
2 probability that the object -- you can always put
3 parentheses again -- of collection of components
4 because the object is always a collection of
5 components. And then detecting that object which
6 is again a collection of components is upon
7 comparing the probabilities for each image to a
8 threshold for detecting the object.

9 Q. Okay. So going back to Paragraph 13
10 of your declaration, at the end of the first
11 sentence, you refer to a threshold.

12 Do you see that?

13 A. Yes.

14 Q. Okay. And what is that threshold
15 for?

16 A. When the probabilities of each
17 component in the collection of components in an
18 image is beyond a certain threshold, that value,
19 then your likelihood that that object is present
20 in the image is high. And that's what thresholds
21 are used for.

22 Q. So you said that when the

1 probabilities of each component in a collection
2 of components in an image is beyond a certain
3 threshold. Is it -- is it that threshold that
4 you're talking about in Paragraph 13, the first
5 sentence?

6 A. I'm reading the claims as they are
7 written. I'm not reading anything more. Claim
8 1[e] says, "detecting the object in any image
9 upon comparing the probabilities for each image
10 to a threshold for detecting the object."

11 And that's the threshold I'm
12 referring to.

13 Q. So in your previous answer when you
14 were talking about comparing the collection of
15 components and checking whether that probability
16 is beyond a threshold, the component -- are you
17 saying that -- that the threshold in Paragraph 13
18 that you're talking about is not the threshold
19 that you compare a component to or is it?

20 A. Sorry. Could you repeat your
21 question? I couldn't understand.

22 Q. Sure.

1 So you stated that -- in your
2 previous answer, you said that when the
3 probabilities -- when the probabilities of each
4 component in the collection of components in an
5 image is beyond a certain threshold, so you're
6 talking about the probabilities of components
7 being beyond a threshold.

8 What I'm asking is: Is the
9 threshold in Paragraph 13 that you're talking
10 about, is that the threshold that you compare the
11 component probability to?

12 A. I'm reading the claims as they are
13 written, and as a person of ordinary skill in the
14 art would interpret it.

15 The object is the collection of
16 components in each image. You determine a
17 probability that the object is in each image and
18 detect the object in any image upon comparing the
19 probabilities. Since the object is a collection
20 of components, there is a probability for each of
21 the components.

22 And the joint probability, as you

1 learn later on, as far as that claim is
2 concerned, it's comparing the probabilities of
3 each of the collection of components in that
4 image to a threshold.

5 Q. Okay. Does the probability for each
6 of those components get compared to the same
7 threshold?

8 A. If you were to look at the claim, it
9 is specifying a singular threshold. It's what
10 the claim is saying. It's not what I'm doing or
11 what you're doing.

12 Q. So it's your understanding that each
13 of the components is compared to the same
14 threshold for the claim?

15 A. I'm not stating that.
16 I'm saying it requires at least a
17 threshold. That's what the claim is requiring.
18 Whether you have more than one threshold, it's up
19 to how you might practice the claims; but the
20 requirement is for a threshold.

21 Q. And based on your review of the
22 claims and specification, is it your

1 understanding that the claim encompasses
2 comparing each of the components to the same
3 threshold?

4 A. The claims stand as they are. They
5 are written and they are -- you cannot limit the
6 scope or enlarge the scope. So the claims
7 require that to detect the object which is a
8 collection of components in each image, you have
9 to compare the probabilities of those for each
10 image to a threshold for detecting the object.
11 That's what the claim requires.

12 Q. So you're saying that the claim
13 requires comparing the probability of each
14 component to a threshold for the object?

15 MR. BAKER: Objection. Form.

16 A. I'm stating what the claim states.
17 It says, "detecting the object in any image upon
18 comparing the probabilities for each image to a
19 threshold for detecting the object."

20 The object is a collection of
21 components that have been measured, and you are
22 determining and comparing. You're doing a

1 detection of the object by comparing the
2 probabilities to a threshold. That's what the
3 claim requires.

4 BY MR. EKLEM:

5 Q. And when you said just now
6 "comparing the probabilities to a threshold,"
7 you're saying your interpretation of the claim is
8 that the probabilities are probabilities for
9 components, right?

10 A. Comparing the probabilities for the
11 collection of components because that's what
12 constitutes the object in each image.

13 Q. Okay. Let's go down to Paragraph 14
14 of your declaration. Just read it really quick,
15 and then let me know when you're finished.

16 A. I've read.

17 Q. Okay. In the first sentence of
18 Paragraph 14, it appears that you've bolded the
19 letter A in the second line where it says
20 "provides a spatio-temporal model."

21 Could you clarify for me why you
22 bolded the letter A or what emphasis that is

1 intended to provide?

2 A. The claims require a spatio-temporal
3 model. Your -- it's a claim for object
4 detection -- a method, I should say, for object
5 detection. So it says it provides a
6 spatio-temporal model.

7 Q. Did you finish your answer?

8 A. Yes.

9 Q. Okay. My question is: Why did you
10 bold the letter A?

11 It's bold and usually people bold
12 stuff to put emphasis. And so I'm trying to
13 understand if you're trying to -- if your -- if
14 your intention was to provide emphasis there for
15 some reason because it's not clear to me?

16 So could you clarify?

17 A. Well, to bring attention to the fact
18 that there's "A" spatio-temporal model only.

19 Q. So "A" meaning only -- does that
20 mean, is it your -- so now are you saying that
21 "A" means "one," like only one?

22 Is that what you mean by "A"?

1 A. That's correct. It's a singular
2 spatio-temporal model for an object. That's what
3 is provided by the claim.

4 Q. Okay. And then at the beginning of
5 the sentence, you say, "As a precursor to image
6 by image processing..."

7 Do you see that?

8 A. Yes.

9 Q. Okay. What do you mean by
10 "precursor"?

11 A. I need to -- I don't think I
12 repeated the full claim, so I would like to read
13 that back to you. So if I can access the patent.

14 Q. Yeah. Sure. Go ahead.

15 A. That's exhibit.

16 Q. It's Exhibit 1001.

17 A. 1001.

18 (Whereupon, Exhibit 1001, U.S.
19 Patent 7,436,980, was identified.)

20 A. Unfortunately, it's not here
21 somehow. Maybe it got mixed up in a binder.

22 THE WITNESS: Todd, I can't see.

1 MR. BAKER: Dr. Bajaj, would you
2 like me to print Exhibit 1001? I can do that
3 quickly.

4 THE WITNESS: Yeah. Please do.
5 That way I don't misstate any words of the
6 claim.

7 MR. BAKER: All right. I'm doing
8 that. One second.

9 I want to make sure I have a clean
10 copy. I don't want to give you one that's
11 annotated. One second.

12 Phil, should we take a two-minute
13 break while I print out a clean copy? Or do
14 you want to keep the line of questioning
15 going and circle back around?

16 MR. EKLEM: I want to wait for his
17 answer.

18 MR. BAKER: So, Dr. Bajaj, do the
19 best you can do to answer the outstanding
20 question while I print a clean copy.

21 BY MR. EKLEM:

22 Q. So, Dr. Bajaj, while we're waiting

1 for your copy, you know, not only will I
2 represent to you that the word "precursor" is not
3 in the claim, but if you look at Paragraph 12 and
4 13, you provided the text for, collectively,
5 Elements 1[a], [b], [c], [d], and [e]. So if you
6 need to see the claim language, I think you have
7 it there in Paragraphs 12 and 13, but --

8 A. I don't have the preamble, and
9 that's important. And that will explain my
10 answer. So I'm precise and I would like to tell
11 you why I stated this.

12 Q. Okay. So you don't cite the
13 preamble in Paragraph 14, but you need to see the
14 preamble to answer my question?

15 A. To explain to you why I said that.

16 Q. I see. Yeah. We can wait for your
17 copy of the patent then. If you want, I can put
18 it up on the screen.

19 A. That would do, because then I have
20 the rest stated.

21 Q. All right. Let me see if I can
22 just -- it's got so many windows here.

1 MR. EKLEM: All right. I'm going to
2 share my screen.

3 And then, Todd, if that hard copy
4 shows up when we're talking, interrupt me and
5 let me know.

6 MR. BAKER: Yeah. I'm about to hit
7 "print," but go ahead and pull it up now so
8 we can keep it rolling.

9 MR. EKLEM: That's all right. So
10 let's see here. All right.

11 BY MR. EKLEM:

12 Q. Okay. Dr. Bajaj, let me know when
13 you can see my screen.

14 A. I can see the screen.

15 Q. Okay.

16 A. Zoom it a little bit.

17 Q. Yeah. I'm going to go down to the
18 claim and then zoom in on it so you can see
19 the -- okay. Is that -- is that good?

20 A. Very good. Thank you.

21 Q. Okay. Take a minute read the claim
22 and then I'll reask you my question.

1 A. Actually, I could explain, if you
2 would like, because that's all I wanted to point
3 you to. But if you want me to, I will wait and
4 you can repeat your question.

5 Q. Yeah. My question is: In Paragraph
6 14 in the first sentence you refer to -- you
7 say -- I have to switch over.

8 You say, "As a precursor to image by
9 image processing steps, limitation 1[a]/9[a]
10 provides a spatio-temporal model for an
11 object..."

12 So my question is, is what do you
13 mean by "precursor"?

14 A. Yes. So if you could put back the
15 claim, I'll tell you.

16 Q. Okay.

17 A. So claim 1 starts as "A computer
18 implemented method for object detection
19 comprising..."

20 It provides "...a spatio-temporal
21 model for an object to be detected."

22 It provides "...a video comprising

1 of plurality..."

2 And then it goes to the three steps
3 of the object detection computer implemented
4 method.

5 Step 1 is "...measuring the object
6 as a collection of components in each image."

7 Step 2 is "...determining a
8 probability that the object is in each image.

9 And Step 3 is "...detecting the
10 object in any image upon comparing the
11 probabilities for each image to a threshold for
12 detecting the object."

13 These three steps are image
14 processing steps for the computer implemented
15 method for object detections and images.

16 Q. Have you finished your answer?

17 A. And as a precursor --

18 Q. Continue. I'm sorry.

19 A. -- they are providing a
20 spatio-temporal model to these three steps. As a
21 precursor, you're providing a video to these
22 three image processing steps.

1 They are all part of the computer
2 implemented method for object detection.

3 Q. So why is providing a
4 spatio-temporal model for an object to be
5 detected a precursor to performing the Steps [c],
6 [d], and [e]?

7 A. Obviously. What am I going to
8 detect? I'm going to detect an object, so you
9 have to provide me what type of object are you
10 trying to detect.

11 The computer implemented method is
12 not a human. It's an automated program. It
13 needs the initial setup.

14 See, here's the ruling model that
15 you need to detect. Here's the video where you
16 have to detect that object.

17 So those are part of the setup to
18 the image processing steps of measuring the
19 object, determining a probability, detecting the
20 object in each image.

21 Q. Okay. So you need the
22 spatio-temporal model to do the other measuring,

1 determining, and detecting steps?

2 A. You need the video as well.

3 Q. Okay. I see.

4 Okay. So I'm going to stop sharing
5 my screen here now for a moment. And I want to
6 go back to Paragraph 14 of your declaration --
7 your second declaration, Exhibit 1052.

8 In the second sentence, it starts
9 with, "A POSITA would have understood..."

10 Do you see that?

11 A. Sorry. Which paragraph?

12 Q. 14?

13 A. 14.

14 Q. Yes, 14.

15 A. Great. I'm there. Thank you.

16 Q. Okay. The second sentence starts
17 with, "A POSITA would have understood..."

18 Do you see that?

19 A. Yes.

20 Q. Okay. At the end of that sentence,
21 you refer to "...the ability of this component
22 collection model to change configuration in

1 time."

2 And I'd like to know what you mean
3 by "change configuration in time."

4 A. Well, I'll read that sentence again
5 and explain.

6 A POSITA would have understood that
7 claims 1 are not limited to a graphical model
8 because the term "graphical model" doesn't appear
9 in claim 1. It appears later on in the dependent
10 claims.

11 Nor is the word "two layer graphical
12 model" mentioned in claim 1, but a
13 spatio-temporal model is provided, "...that
14 consists of a set of collection of components,
15 each with spatial dimensions that are
16 measurable..."

17 You cannot implement a measuring
18 step in the computer implemented method unless
19 you have components which are measurable.

20 And with this ability that the
21 component collection model will change
22 configuration; that's exactly what a

1 spatio-temporal model that's provided, saying I'm
2 giving you a model -- giving "you" being the
3 computer program -- that's going to change in
4 time. It's a moving model.

5 But all I'm asking you for you to do
6 is look at each image, and capture and measure
7 each of the components.

8 So the model changing configuration
9 in time is implicit that you know that the model
10 can move in time. Just like when you're filming
11 it. The model is moving and you're giving me a
12 video which is capturing a moving model.

13 That's what I mean by the "component
14 collection model to change configuration in
15 time."

16 Q. Okay. So then the ability for the
17 model to change configuration in time, is that
18 what provides the temporal element of it being a
19 spatio-temporal model?

20 A. That's correct. Obviously.

21 Q. Okay. Let's go down to Paragraph 18
22 of your declaration. And if you want to just

1 read that paragraph to yourself and let me know
2 when you're finished.

3 A. (Witness reviewing.)

4 I have read it. Thank you.

5 Q. So you say that you read the file
6 history for the '980 patent, right?

7 A. I have.

8 Q. I'm sorry. I think your audio broke
9 up a little bit.

10 Could you repeat your answer? Oh, I
11 can see it on the realtime.

12 A. Okay.

13 Q. That's okay.

14 So in Paragraph 18, you're -- you're
15 specifically and only discussing the notice of
16 allowance in the file history, right?

17 A. Paragraph starts -- says, "Dr. Saber
18 indicates" -- in his testimony and this is his
19 verbal testimony at deposition -- "that his
20 interpretation" -- or actually in his
21 declaration, 2004, at Paragraph 63 which I was
22 rebutting -- that his interpretation of what I've

1 explained before, 1[e] and 9[e], as what the
2 claim reads, that his interpretation was based in
3 part on the '980 file history.

4 And so what I was rebutting is
5 saying I do not see any discussion to support his
6 interpretation of '980 because he's reading in
7 more into '980 than there is which is what this
8 section is all about.

9 And in doing so, I also elaborate in
10 this rebuttal, that, you know, if you were to
11 look at the file history, you can see the
12 examiner's notice of allowance reflects that the
13 -- the examiner also did not understand the claim
14 limitation to the broad interpretation that
15 Dr. Saber was trying to build into the claims.
16 And that's what I then provide in Paragraphs 19,
17 21 -- 20, 21, and so on.

18 Q. Okay. So in Paragraphs 18 through
19 22 -- as it relates to what you reviewed in the
20 prosecution history or the file history,
21 Paragraphs 19 through 22 of your declaration are
22 really talking about the notice of the allowance,

1 right?

2 A. As I stated in Paragraphs 19, that
3 "The examiner acknowledged...that the 'close
4 prior art'...Cham" does everything that the claim
5 requires except that it provided a kinematic
6 model. And according to the examiner then, there
7 was then a distinction that was being made
8 between a kinematic model and a spatio-temporal
9 model.

10 Actually there's no distinction.
11 And the fact that a kinematic model is a model
12 that changes configuration over time just like a
13 spatio-temporal model is. And Cham discloses
14 that too. But besides that point, the fact that
15 it does all the required elements of the claim,
16 it measures the object as a collection of
17 components, it determines a probability, and
18 compares that probability to a threshold.

19 So the examiner found that too, and
20 these were probabilities of the components of
21 each of the objects whether the object was a
22 collection of components in Cham as it is in the

1 '980.

2 And that's what I've stated in
3 Paragraph 21, "The examiner's conclusion is
4 consistent with my understanding of Cham.
5 Similar to the '980 Patent, Cham uses a
6 probabilistic framework to identify occurrences
7 of an object model in an image...an 'object
8 model' which describes the target to be located
9 in an input image...a 'comparison function' that
10 determines how well a specific instantiation of
11 the object model" which is changing configuration
12 in time matches the image, and a search strategy
13 that specifies how to systemically identify
14 occurrence of this object model which it consists
15 of multiple parts in the image.

16 So given that the examiner saw this
17 one-to-one parallel, there's no reason to broaden
18 the 1[e] and 9[e] limitation of the claim because
19 even the examiner took it at face value and said,
20 yes, everything is the same.

21 The only part that the examiner
22 allowed or allowed the notice of allowance was

1 the fact that it gave away the fact that a
2 kinematic model is not a spatio-temporal model.
3 But that -- like I said, my opinion is that's
4 wrong as well; or that part is the only thing I
5 disagreed with. Everything else I -- the
6 examiner got right.

7 Q. The examiner's notice of allowance
8 also discusses the Ozer reference, right?

9 A. If I recall, it might have, yes.

10 Q. Okay. You didn't discuss the
11 examiner's discussion of the Ozer reference in
12 Paragraphs 19 through 22 of your declaration, did
13 you?

14 A. My supplemental declaration is a
15 supplemental to my primary. I was rebutting and
16 responding to Dr. Saber's, you know, statements
17 and the petitioner's, that I disagree with these.
18 And I was elaborating on only those specific
19 points.

20 Q. So in responding to Dr. Saber's
21 opinions in your supplemental declaration, you
22 didn't discuss the examiner's observations about

1 Ozer in the notice of allowance though, right?

2 A. I don't recall if Dr. Saber, you
3 know, referred to -- the part we've been
4 discussing is where Dr. Saber indicates that his
5 interpretation of 1[e]/9[e] was based on the '980
6 file history and it was pursuant to the 1[e]/9[e]
7 limitation of the claim that I was rebutting.

8 Q. Have you finished your answer?

9 A. Yes.

10 Q. Okay. Well, I don't see the word
11 "Ozer" or the name "Ozer" discussed anywhere in
12 Paragraphs 19 through 22 of your declaration.

13 So if you think they are discussed
14 there somewhere, can you let me know?

15 A. Sorry. I think I responded to what
16 you're indicating. But I'll again bring
17 attention to this is Section II of my rebuttal
18 report, supplemental declaration, where the
19 section heading is "Dr. Saber's Claim
20 Construction of Element 1[e]/9[e] is Inconsistent
21 with the '980 Specification and File History,"
22 because those were the claims he made in his

1 declaration and testimony.

2 And I've addressed each one of them
3 in these paragraphs, including those Paragraphs
4 18, 20. So it's with specific response to his --
5 his inconsistent, you know, interpretation of
6 1[e]/9[e] and alluding to the fact that he had
7 looked at the file history is what I was
8 responding to here.

9 Q. Well, the notice of allowance is
10 part of the file history, right?

11 A. It is.

12 Q. And the notice of allowance includes
13 the examiner's characterizations about Ozer,
14 right?

15 A. And many other things which I don't
16 have in memory, but it's not what this section is
17 addressing.

18 This section is addressing a
19 response to a specific point that Dr. Saber
20 raised, and returning to 1[e]/9[e].

21 Q. And so in making your response to
22 that point of Dr. Saber's that you're addressing,

1 you did not discuss the examiner's observations
2 of Ozer in the notice of allowance, right?

3 I mean, if I'm -- if I'm wrong, just
4 tell me that. But I don't see it here, and
5 that's what I want to confirm. I want to know
6 just whether or not you mentioned the -- the
7 examiner's observations about Ozer in your
8 response to Dr. Saber's claim construction
9 opinions or not.

10 A. I'm not here to tell you that you're
11 wrong. I'm here to point out what I put in my
12 declaration. And I've stated it correctly and
13 truthfully. And I'm responding to 1[e]/9[e].
14 And I'm saying this is -- this, what I've given
15 you is evidence.

16 Q. Have you finished your answer?

17 A. Yes.

18 Q. Do you know what claim construction
19 standard patent examiners use?

20 A. I'm not an attorney. And I also am
21 not familiar with all the processes, and so I'm
22 not here ready to opine on anything on that

1 matter.

2 Q. So sitting here today, you don't
3 know what the -- you cannot tell me what the
4 claim construction standard is that patent
5 examiners use?

6 A. The legal standards for claims
7 construction are documented. Everyone uses
8 those. And so there's no reason to believe
9 otherwise, but I'm here not to give you a quiz on
10 what patent examiners do or don't.

11 Q. In formulating your opinions in
12 Paragraphs 18 through 22 of your declaration, did
13 you consider the patent examiner's claim
14 construction standard?

15 I'm sorry. Did I miss your answer?
16 What was the answer to the question?

17 A. I'm trying to understand your
18 question. So I did not answer.

19 Q. Oh, I'm sorry. I thought I heard a
20 sound. That's okay.

21 A. Paragraphs 6 to 22 of my
22 supplemental is addressing in response to

1 Dr. Saber's claim construction of Element
2 1[e]/9[e] and its inconsistency where he mentions
3 that he looked into the specification to bring
4 light to claims. And he looked into the file
5 history.

6 So I looked into that, and I could
7 not find any evidence but to the contrary. I
8 provided some evidence where the interpretation
9 for 1[e]/9[e] even by the examiner was consistent
10 with my own, and that's what I stated.

11 Q. Okay. So the -- some of the
12 evidence that you say you considered included the
13 examiner's analysis.

14 But my question is: Whether in
15 formulating your opinions you considered the
16 claim construction standard that the examiner was
17 using while performing that analysis, did it
18 factor into your opinions at all?

19 MR. BAKER: Objection. Asked and
20 answered.

21 And, Philip, we've been going about
22 an hour as well.

1 MR. EKLEM: Okay.

2 A. The examiner has written a report, a
3 notice of allowance, and he's given his
4 justifications and reasons I believe that are to
5 the best of his ability. I looked at that. I
6 looked at what Dr. Saber claimed that he was
7 reading more into claim element 1[e]/9[e] by
8 looking into specifications and file histories.

9 That is wrong. The claims stand as
10 they are. They are written and are there. And
11 so I've stated those facts in my report.

12 BY MR. EKLEM:

13 Q. Okay. Do you know if the examiner
14 of the '980 patent used the same claim
15 construction standard that the board applies in
16 this proceeding?

17 A. I have no opinion about that.

18 Q. Okay.

19 MR. EKLEM: Yeah. We can take a
20 break now, Todd, if you want.

21 MR. BAKER: Ten minutes?

22 MR. EKLEM: Ten minutes is fine.

1 MR. BAKER: All right. Thank you.

2 THE COURT REPORTER: Off the record.

3 (Recess taken.)

4 THE COURT REPORTER: Back on the
5 record.

6 BY MR. EKLEM:

7 Q. Dr. Bajaj, could you go to Paragraph
8 27 of your supplemental declaration, please? And
9 just read it to yourself and let me know when
10 you're finished.

11 A. (Witness reviewing.)

12 Yes. I've read that. Thank you.

13 Q. Okay. And the first sentence begins
14 with, "A POSITA would have understood from the
15 '980 claims and specification..." and then the
16 sentence and the rest of the paragraph continue.

17 You reference both the claims and
18 the specification in that sentence, but my
19 question is whether in that paragraph are you
20 referring to any specific parts of the '980
21 specification?

22 A. Not specific parts but generally.

1 Q. I see. Okay.

2 Then let's go to Paragraph 28,
3 please. Read that paragraph to yourself and let
4 me know when you've finished.

5 A. (Witness reviewing.)

6 Yes, I have.

7 Q. Okay.

8 A. Thank you.

9 Q. Sure.

10 So in the first sentence, it's a
11 little bit longer that you -- you mention that,
12 that the determining that you're discussing in
13 this sentence "...could be accomplished without
14 fusing or combining probabilities from a
15 previous...frame I(j-1) and/or
16 future...frame I(j+1) via Belief Propagation
17 ('BP')." "

18 Do you see that part? It's the
19 second half of that sentence.

20 A. Yes, I see it.

21 Q. Okay. I need you to clarify
22 something about that sentence.

1 Are you saying that the determining
2 could be accomplished without belief propagation
3 or with belief propagation just without fusing or
4 combining probabilities from other frames?

5 A. Belief propagation is used always in
6 determining the likelihood. The statement there
7 is referring to that there's no limitation on the
8 smoothing step, which fuses probabilities from
9 previous images and future images.

10 Q. Okay. That clarifies. Okay.
11 Thanks.

12 So in this paragraph, you have
13 terms. You use terms like $I(j)$ or $I(j-1)$ or
14 $I(j+1)$.

15 Could you tell me what the "I" means
16 and what the "j" means?

17 A. Yeah. So the image frame is
18 designated by "I," the image itself, which is all
19 the pixels in the image. And the "j" refers to
20 the index, as to which frame in that video
21 plurality of images.

22 Q. I see. Okay. And so plus 1 and

1 minus 1, so in parentheses you have $j-1$ or $j+1$,
2 what specifically does the plus 1 or minus 1
3 indicate?

4 A. So video is an ordered sequence of
5 images. It's not just a soup of images. That
6 sequencing of image frames in a video, " j " is
7 your current image frame, " $j-1$ " would be the
8 frame before and " $j+1$ " would be the frame after.

9 Q. Okay. And so by "before" and
10 "after," you mean before in time, after in time,
11 right?

12 A. That's correct. That's when you
13 have a time sequence.

14 Q. Okay. So plus 1 would be a temporal
15 distance of 1 forward and minus 1 would be a
16 temporal distance of 1 earlier then in that case?

17 A. These are not absolutes, but that's
18 why one uses, you know, this indexing saying when
19 you give you an ordered sequence of images, at
20 whatever time intervals, there is an ordered
21 sequence.

22 So there's for a current frame, a

1 previous image frame and a future image frame.

2 And so from a previous image frame $I(j-1)$ and/or
3 a future image frame $I(j+1)$.

4 Q. So -- I'm sorry. Did you finish
5 your answer?

6 A. I'm sorry. I did. I did.

7 Q. Okay. Okay. So if you have --
8 let's just talk in the forward direction, in the
9 positive direction.

10 If you have $j+1$ and $j+2$, $j+1$ would
11 be closer in time to the current frame than $j+2$,
12 correct?

13 A. Typically, yes.

14 Q. Okay. So then at the end of the
15 paragraph, you refer to " $I(j-0)$."

16 What is -- what does " $j-0$ " mean in
17 that circumstance?

18 A. That's the condition when " W " is
19 equal to " 1 " using the way that the patent
20 specifies it as well. So this windowing, it
21 refers to $(j-(w-1)/2)$ and $(j+(w-1)/2)$.

22 And when " W " is equal to " 1 ," that

1 would become zero. So hence, there's no previous
2 frame or no future frame.

3 Q. Okay. So if there's no previous
4 frame and no future frame, then the analysis does
5 not extend past the point in time of the current
6 image, right?

7 A. The analysis of detection in that
8 image frame is not using any information from a
9 previous frame or a future frame. The processing
10 is still being done frame by frame. "J" is
11 moving from the beginning to the end of your
12 video processing. The computer method is
13 detecting, measuring, you know, comparing these
14 probabilities.

15 And so every time it does, it has an
16 added ability to go and look at the previous
17 frame and also look at the future frame if it
18 chooses to do so.

19 But the way it works, is that "W"
20 equals "1" also works and that it doesn't need
21 to. It is just processing frame by frame.

22 Q. Okay. So if you have j-0, then the

1 image that you're considering is a temporal
2 distance of zero from the current frame, which
3 means you're looking at the current frame, right?

4 A. That's the only frame you're
5 currently making your belief propagation analysis
6 on.

7 Q. So the current frame, temporally
8 speaking, is a distance of zero from itself,
9 right?

10 A. It's a strange way to say it, but
11 yes.

12 Q. So in this Paragraph 28, when you
13 say "...without fusing or combining probabilities
14 from a previous image frame or future image
15 frame..." what do you mean by "fusing or
16 combining probabilities"? Yeah.

17 MR. BAKER: Objection. Form.

18 BY MR. EKLEM:

19 Q. If you want to take those
20 separately, we could.

21 I could ask, What do you mean by
22 fusing first if that's different from combining

1 probabilities, so let's do that.

2 What do you mean by

3 "fusing...probabilities from a previous
4 image...or future image..." in Paragraph 28?

5 A. These are words, you know, that are
6 used to refer to the same thing, which are called
7 a smoothing process, which is very well known in
8 the art as I indicate.

9 And this approach, when you're
10 processing frame by frame, you have the ability
11 to look at the information from the previous
12 frame and the current frame and average them out
13 or do a weighted average or that process of
14 fusing the information is part of the smoothing
15 of the processing that you're doing to the
16 current frame.

17 And you're doing this for every
18 frame. So "j" will always move to process every
19 frame.

20 You have the ability to take
21 information and average it with your current
22 information, information from previous and

1 future.

2 Q. Okay. So, well, what does it mean
3 to "fuse probabilities"?

4 A. Combine them in a weighted average
5 setting is one way of fusing.

6 Q. Okay. Let's go to Paragraph 29 of
7 your supplemental declaration, please. Go ahead
8 and read that to yourself and let me know when
9 you're finished.

10 A. (Witness reviewing.)

11 Yes, I've read that.

12 Q. Okay. Yeah. In the third sentence,
13 which starts at the bottom of Page 17, you say,
14 "Thus, even though the ability to disambiguate an
15 object in a current frame by referencing the
16 probabilities in the previous or future frame may
17 be lost when $w=1$, the ability to disambiguate the
18 object in the current frame alone is still
19 possible after multiple iterations of the BP
20 algorithm."

21 Do you see that?

22 A. Yes.

1 Q. Okay. What do you mean by
2 "disambiguate an object"?

3 A. That's what likelihood and
4 probabilities are all about. You're trying to
5 detect an object in an image. And your
6 likelihood that that object is present in the
7 image is by looking at each of its component's
8 presence in that image. And then by belief
9 propagation of all of the spatial connectivity
10 that this model must have these components, and a
11 large number of them are present, is this process
12 of increasing your likelihood that the object is
13 present in that image.

14 So that disambiguation refers to
15 this belief propagation process of improving the
16 likelihood by looking at the probabilities of
17 each of the component's presence in the image and
18 in a spatial connectivity conditioned way.

19 Q. So you said "spatial connectivity
20 conditioned way."

21 Does it not require temporal
22 connectivity conditions as well?

1 A. Not when you're looking at a single
2 frame. You're looking at detecting an object in
3 that frame. You're saying is the component that
4 you're saying is likely to be the head, is it
5 close to the torso or maybe that component is
6 really a hand, because they have logs in the
7 image.

8 Q. Okay. In that same sentence -- that
9 same third sentence of Paragraph 29, when you say
10 the ability -- the ability to disambiguate may be
11 lost when $W=1$, when would the ability not be lost
12 when W equals 1?

13 A. I'm sorry. Which sentence?

14 Q. It's the third sentence. It starts
15 at the very bottom of -- it's the same one we've
16 been talking at the -- starts at the bottom of
17 Page 17 and carries over. And in -- in the
18 second line down from the top of Page 18, you say
19 that the -- well, reading the whole sentence that
20 the ability to disambiguate may be lost -- well,
21 to disambiguate an object in a current frame by
22 referencing the probabilities in the previous or

1 future frame may be lost when $W=1$.

2 So you use the word "may." And my
3 question is: When would that ability not be lost
4 when $w=1$?

5 A. It's very clear. So what happens is
6 the following: When you are disambiguating an
7 object in each frame, you're using belief
8 propagation. If all of the components are
9 present in that frame and you have high
10 likelihood of each of those components, there's
11 no necessity to look at the previous frame or the
12 backward frame.

13 So this ability is further improved
14 when some components are missing. So there exist
15 cases where there's no need to look at the
16 previous because everything is present in that
17 current frame. The object, all of its components
18 are very high likelihood. So that is the case
19 for W equal to 1.

20 Now, the ability that is lost is
21 that if you're using W equal to 1, your algorithm
22 is still going to detect objects in each frame;

1 but it might lose a little bit of its ability
2 when there are images which have occlusion of
3 various components in them if you are restricting
4 it to the case where you cannot look at the
5 previous or the future frame.

6 Q. Okay. Let's go to Paragraph 30 of
7 your supplemental declaration, please, and why
8 don't you just read it to yourself and just let
9 me know when you're finished.

10 A. Yes, I've read it.

11 Q. Okay. So here you say that
12 "Dr. Saber did acknowledge during his
13 deposition...however, that the first time an
14 object is detected in an image frame, an object
15 must be detected without the benefit of motion
16 information from a prior image frame:" -- and
17 then you insert a clip of his deposition,
18 Page 94, Lines 9 through 19.

19 The block of deposition testimony
20 that you have in there doesn't use the words
21 "motion information."

22 So could you tell me what you're

1 referring to when you say that Dr. Saber
2 discussed motion information?

3 A. It absolutely does. So the block
4 starts with we're talking about detecting an
5 object in an image frame, so you detect it. You
6 don't have a velocity at this point. Velocity is
7 motion information.

8 Q. I see.

9 A. Because we only have one frame so
10 he's acknowledging that the claims can be met.
11 You're doing object detection. It's a
12 computer-implemented method for object detection
13 where each frame, you're detecting the object.

14 You don't need motion information to
15 detect an object in a current frame. You're
16 using belief propagation. The likelihood of the
17 presence of each of the components of that model
18 being present in that image, those are the
19 probabilities that you're comparing to your
20 threshold.

21 Q. Okay. So let's go to Paragraph 31
22 of your declaration, please. Go ahead and read

1 that to yourself, and let me know when you're
2 finished.

3 A. Okay.

4 Q. Sorry. Did you say you were ready?

5 A. Yes.

6 Q. Okay. In the first sentence of
7 Paragraph 31, you mention the simple fusion
8 scheme as well as the 3-frame spatio-temporal
9 object model.

10 Do you know what the difference is
11 between the simple fusion scheme and the 3-frame
12 spatio-temporal object model?

13 A. I do. But just to make sure, I
14 point to Column 7. And I'm explaining what the
15 patent is and also explaining why I disagree with
16 Dr. Saber because he confuses what the patent is
17 stating.

18 Q. Okay. So with reference to the
19 simple fusion scheme and 3-frame spatio-temporal
20 object model that you discussed from Column 7
21 through 8 of the '980 patent, what's the
22 difference between the -- the simple fusion

1 scheme and the 3-frame spatio-temporal object
2 model?

3 A. What Dr. Saber opines in his
4 declaration, Paragraph 69, that "the 'simple
5 fusion scheme' used in the experimental
6 comparison is the W=1 scenario," a POSITA reading
7 Column 7, 56 through 63 would completely
8 disagree. It says clearly, "Tests were performed
9 using a set of images collected with a single
10 car-mounted grayscale camera. The result of
11 vehicle detection and tracking over a sequence of
12 55 consecutive frames was evaluated. A 3-frame
13 spatio-temporal...was used and shifted in a
14 tracking centric way...BP was run with 30
15 particles...for comparison a simple fusion scheme
16 was implemented that" only "averages the best
17 reduction result from each of the four components
18 to produce an estimate for the vehicle position
19 and scale independently at every frame."

20 There's no mention of W equal to 1.
21 It's a 3-frame analysis. And the simple fusion
22 is just a simple averaging of the best detection.

1 You can do fusion in weighted averaging. You can
2 do it selective on what the probabilities are in
3 one frame versus another frame. So this
4 simplistic scheme, they compared with a better
5 scheme later on.

6 So that's the confusion that I was
7 pointing to that Dr. Saber opined on. He
8 confused the 3-frame analysis with the simplistic
9 averaging to $w=1$. And that's what I disagreed
10 about and I pointed out.

11 Q. Okay. Thanks for that.

12 Let's take a look at. Let's shift
13 down to Paragraph 35 of your declaration -- your
14 supplemental declaration and if you would please
15 read that paragraph and let me know when you've
16 finished.

17 A. Thank you. Yes, I'm ready.

18 Q. Okay. So in -- in the -- oh,
19 actually I think I -- I think I told you the
20 wrong paragraph. Could we go to Paragraph 42 of
21 your declaration, please.

22 A. Okay.

1 Q. Yeah. Please go ahead and read that
2 paragraph, and let me know when you're finished.

3 A. Yes.

4 Q. Okay. Thanks.

5 A. I've read that.

6 Q. At the end of the paragraph, you say
7 "Here, a POSITA would understood Steffens'
8 disclosure about 'landmarks' and 'similarity' to
9 be discussing 'components' and 'probabilities' as
10 used in the '980 Patent, as I detail below."

11 Do you see that?

12 A. Which page?

13 Q. It's the end of the paragraph which
14 is on Page 26.

15 A. Right.

16 Q. The end of Paragraph 42.

17 A. Thank you, yeah.

18 Q. So here you're saying that
19 similarity in Steffens is probability. Is that
20 what you're saying?

21 A. Yes, it's as I explain in my
22 supplement. I elaborate.

1 Q. So let's go to Paragraph 52 of your
2 supplemental declaration, a few pages down.
3 Again, that's 52.

4 And then if you could just read that
5 paragraph, and let me know when you've finished.

6 A. Yes, I have read that.

7 Q. Okay. So in Paragraph 52, you said,
8 "As I explained in my First Declaration (§144),
9 Steffens uses a similarity measure to match and
10 determine whether an object is an image -- is in
11 an image."

12 Do you see that?

13 A. Yes.

14 Q. Do you have your first declaration
15 handy?

16 A. I do.

17 (Whereupon, Exhibit 1004,
18 Declaration of Chandrajit Bajaj, Ph.D. In
19 Support of Petition for Inter Partes Review
20 of U.S. Patent No. 7,436,980, was
21 identified.)

22 BY MR. EKLEM?

1 Q. Okay. Could you grab it and go to
2 Paragraph 144, please? And when you've read that
3 paragraph, please let me know.

4 A. (Witness reviewing.)

5 Yes, I have.

6 Q. So you would agree that Steffens'
7 similarity measure is not explicitly formulated
8 as calculating a probability that an object is an
9 image, right?

10 A. This is exactly what I'm pointing
11 out in both my first and second declaration,
12 saying any POSITA, while Steffens explicitly does
13 not say it's similarity, normalized similarity
14 measure is a probability, it's akin to a
15 probability. It ranges from values of 0 to 1.
16 And so the fact that it does not, any POSITA
17 would know.

18 So to claim that the similarity, as
19 Dr. Saber did in his testimony, is not a
20 probability is counter to what a POSITA would
21 know.

22 Q. So you're saying now that Steffens'

1 similarity measure is akin to probability, but it
2 is not formulated as probability?

3 A. It is formulated but not explicitly
4 stated as probability in his terminology. But as
5 any POSITA would know, that that is exactly what
6 is happening.

7 And, furthermore, he uses mark of
8 fields, which are probability distributions, for
9 the image space. So when he talked about
10 similarity measures, he was not saying likelihood
11 or probabilities. Those were terms that are, you
12 know...

13 Q. So in Paragraph 144 of your first
14 declaration, you didn't say that Steffens uses
15 different terminology. You said that it's not
16 explicitly formulated as calculating an object
17 probability, right?

18 A. As a likelihood, probably in whether
19 it is a probability measure as any POSITA would
20 know.

21 Q. Okay. Can you please turn to
22 Paragraph 125 of your first declaration? And

1 after you've read it, please let me know.

2 A. (Witness reviewing.)

3 Yes, I have.

4 Q. Okay. So in the second sentence, in
5 Paragraph 125, you indicate that Steffens
6 "...does not provide all details on how an object
7 is identified based on a similarity measure."

8 Do you see that?

9 A. I do.

10 Q. Okay. And in the next sentence you
11 say that "...a POSITA would have known and
12 appreciated, similarity measures may include
13 probabilistic frameworks."

14 Do you see that?

15 A. I do.

16 Q. You didn't say, however, that
17 Steffens' similarity measure does include a
18 probabilistic framework in that paragraph, did
19 you?

20 A. Sorry, but you're missing the point.
21 Let me explain.

22 Q. Well, my question --

1 A. I'm explaining my paragraph. What I
2 wrote. And I'll tell you, but I'll let you
3 complete what you wanted to say.

4 Q. My question is a yes-or-no question.
5 Are you able to answer it yes or no?

6 A. It's not a yes-or-no question, and
7 I'm sorry you have to give me the benefit of the
8 doubt.

9 You're asking me to talk about my
10 first declaration. We were here to talk about my
11 supplemental. I'm explaining to you the
12 difference between a framework and probability
13 measures.

14 A probability framework such as
15 Bayesian frameworks are different to probability
16 measure frameworks such as just computing
17 similarity measures, which are like probabilities
18 because they vary between 0 and 1.

19 So for supplemental declaration,
20 Dr. Saber's confusion in saying similarity is not
21 probability is what I was pointing out. In my
22 first declaration, I've stated accurately that in

1 the reasons to combine both are using
2 probabilities.

3 The framework of Zhao, which is in
4 that Paragraph 125, was a Bayesian framework.
5 The framework of Steffens is a probability
6 calculation, but it's not a Bayesian framework.

7 But, and as any POSITA would know,
8 similarity -- normalized similarity measures are
9 calculating probabilities of detections of
10 objects. So the reasons to combine are very
11 clear. There's no contradiction here.

12 Similarity measures, computing
13 probabilities, but not using the Bayesian
14 framework is not to say that Steffens doesn't use
15 probabilities. It uses hidden mark of models.

16 Q. So looking at your first
17 declaration, you said that Steffens does not
18 provide all the details about its similarity
19 measure and you didn't say that it does use a
20 probabilistic framework.

21 But now, in your second declaration,
22 you're saying that it does use a probabilistic

1 frame, right?

2 A. What you state is not what I said.

3 So let me repeat what I said to the context of

4 what I state in my second declaration is

5 rebutting what Dr. Saber mentioned and his

6 confusion about similarity measures and

7 probabilities. And I explained that using

8 Steffens, not my own.

9 What I state in my first

10 declaration, which we just read, I said Steffens

11 does not provide all details on how an object is

12 identified based on these similarity measures

13 which are probabilities. I did not say that

14 Steffens does not use probabilities.

15 Steffens clearly uses probabilities.

16 He clearly uses it in mark of models.

17 It's exactly the reasons of

18 combining that I've reiterated and elaborated why

19 Zhao's Bayesian probability similarity measure is

20 similar to a similarity measure which is

21 non-Bayesian but that's what Steffens does.

22 And if Dr. Saber is saying he said

1 it has nothing to do with probability at all is
2 an astounding statement. And that's what I
3 rebutted in my declaration.

4 Q. Okay. Have you finished your
5 answer?

6 A. I believe so.

7 Q. Okay. So let's go to Paragraph --
8 go back to your supplemental declaration and go
9 to Paragraph 64. It's a really short paragraph
10 so if you want to maybe read the preceding one in
11 conjunction with it, but for some context. But
12 let me know after you've familiarized yourself
13 with Paragraph 64 and its context.

14 A. I'm reading it.

15 (Witness reviewing.)

16 Yes, I have read it. Thank you.

17 Q. Okay. In Paragraph 64, you said, "A
18 POSITA would have thus understood that Ozer
19 classifies and tracks object parts over multiple
20 frames."

21 Do you see that?

22 A. Yes.

1 Q. You understand that the USPTO
2 previously determined that Ozer does not teach
3 the probabilistic framework claimed in the '980
4 patent, right?

5 MR. BAKER: Objection. Form.

6 A. The intention is not of Ozer
7 repeating what's in the specification of the
8 '980. The contention here is a rebuttal first of
9 what Ozer's activity classification encompasses
10 in object tracking, and Dr. Saber's statements of
11 the fact that, you know, that activity
12 classifications have nothing to do.

13 So classifying activities, such as
14 human walking, cannot be the same as tracking a
15 moving object, a walking human, it didn't make
16 sense and that's what I point out.

17 Secondly, Ozer teaches exactly the
18 statement which is part of the claims of the '980
19 of detecting, classifying each of the components
20 or parts of the object in each of the image
21 frames. So it's doing exactly what the claim is
22 saying.

1 Q. Okay. Can you get your first
2 declaration back in front of you, and go to
3 Paragraph 45? And after you've read Paragraph 45
4 of your first declaration, let me know.

5 A. (Witness reviewing.)

6 Yes. This paragraph I've read now.

7 Q. Okay. At the last sentence of
8 Paragraph 45 in your first declaration, you say
9 "While the examiner did not dispute that Ozer
10 taught a spatio-temporal model, the examiner
11 found that it did not teach the probabilistic
12 framework claimed in the '980 patent..."

13 And then you quote what the examiner
14 said.

15 It says, quote, However, Ozer does
16 not teach the claimed features of determining a
17 probability that the object is in each image; and
18 detecting the object in any image upon comparing
19 the probabilities for each image to a threshold
20 for detecting the object, end quote.

21 Do you see that?

22 A. I do.

1 Q. So what you're talking about here is
2 the PTO's determination that Ozer does not teach
3 Elements 1[d] and 1[e] of the claims, right?

4 A. First I want to get it on record I'm
5 here to defend my supplemental, and we are now
6 starting to talk about my first declaration.

7 Second, the section I'm reading is
8 from the summary of the prosecution history that
9 I've put down. These are opinions which are
10 accurately summarizing what I read in the
11 prosecution history.

12 These are not my opinions. My
13 opinions are in my declaration with respect to
14 the claims. So what the examiner did, and so on,
15 I point out. And there are times when I agree
16 with them, and sometimes I don't, but that's my
17 opinion. My opinion with regards to this matter
18 are in my declaration.

19 Q. Okay. But you did not disagree with
20 what the examiner's findings were with respect to
21 Ozer, did you?

22 A. Of course I point out that that's

1 not correct. I did disagree in pointing out that
2 Ozer, which I referred to as well as in my
3 supplemental, teaches all of the elements of the
4 claim and in combination with Steffens.

5 The reasons to combine are
6 completely clear. And I detail that in my second
7 declaration.

8 Q. So with respect to Steffens, when
9 you said that you disagreed that the
10 examiner's -- you said you disagreed with the
11 examiner's interpretation that Steffens does not
12 teach a spatio-temporal model. In that case, you
13 disagreed with the examiner.

14 And my question is here, in
15 Paragraph 45 of your first declaration, you did
16 not disagree with the examiner, did you?

17 A. I'm sorry. I'm very confused by
18 your question.

19 Are you questioning me about my
20 supplemental rebuttal on what I've stated in
21 that?

22 Q. Yeah, this all relates to your

1 opinions in your supplemental declaration; but
2 the things you said in that declaration implicate
3 what you previously said. That's why I'm asking
4 you about them.

5 So this -- I'll just give you a
6 yes-or-no question.

7 Did you disagree with the examiner's
8 findings, in Paragraph 45 of your first
9 declaration?

10 MR. BAKER: Objection. Outside of
11 the scope of direct.

12 A. Can you point me to where you stated
13 just before in your long -- you know, that it's
14 related to what I stated in my supplemental?
15 What did I state in my supplemental declaration
16 that are you referring to?

17 BY MR. EKLEM:

18 Q. Dr. Bajaj, it's my turn to ask the
19 questions. And I'd like you to answer them. Are
20 you going to answer my question with a yes or no
21 or not?

22 A. I'm asking for clarification. What

1 in my supplemental declaration are you referring
2 to that you are saying you are questioning?

3 Q. My question is about Paragraph 45 of
4 your initial declaration. Okay. So if you're
5 not going to answer it, that's okay. We can move
6 on. I'm happy to do that if you're not going to
7 answer it.

8 MR. BAKER: I'll repeat my objection
9 as the question is outside the scope of the
10 direct testimony provided in Dr. Bajaj's
11 supplemental declaration.

12 A. I believe I answered you. You asked
13 me to read Paragraph 45. I pointed out that that
14 was a summary. My opinions are contained in
15 my -- a summary of the prosecution history that I
16 included. Those are parts of my first
17 declaration.

18 I'm here asking what of my second
19 declaration do you disagree with or what do you
20 need clarifications on? That's why I'm confused
21 by what you're asking me as well as I'm asking
22 for clarification.

1 BY MR. EKLEM:

2 Q. So if you go to Paragraph 59 of your
3 supplemental declaration. Go there and let me
4 know when you're there.

5 A. Can I read that?

6 Q. I'm sorry?

7 A. Do you want me to read that?

8 Q. I want you to read it to yourself,
9 yeah.

10 MR. BAKER: And, Philip, when you're
11 done with this line of questioning, I think
12 it's time for a break.

13 MR. EKLEM: Okay.

14 BY MR. EKLEM:

15 Q. In Paragraph 59, you said, "As I
16 state in My First Declaration," and then you
17 explain yourself, right.

18 Do you see that?

19 A. "My reliance on Ozer's "Classifying
20 Activity Over Multiple Frames," that's the
21 complete sentence.

22 Q. And then go down to Paragraph 61,

1 Paragraph 61 of your supplemental declaration.

2 It starts, "As I stated in my First Declaration,"
3 and then you give your explanation.

4 Do you see that?

5 A. Yes.

6 Q. All right. So you're invoking your
7 opinions from your first declaration to explain
8 yourself here which is why I'm asking you about
9 the opinions in your first declaration.

10 So I'd like you to answer my
11 original question of whether in Paragraph 45 of
12 your original declaration did you disagree with
13 the examiner's findings?

14 A. 59 and 60 and 61 are part of a
15 rebuttal under the section rebutting Dr. Saber's
16 declaration. It starts with "Dr. Saber states in
17 ¶150...that: Dr. Bajaj's reliance on Ozer's
18 "Classifying Over Multiple Frames" is misplaced."

19 I disagree with that, and I
20 elaborate in 59. And I say you misunderstood or
21 you choose to ignore what I stated in my first
22 declaration. And my reliance, Paragraph 59, "As

1 I stated in my First...my reliance on Ozer's
2 Classifying"...is detecting and tracking the
3 presence of the moving object in multiple frames,
4 is not misplaced."

5 I'm explaining my rebuttal, why I
6 disagree with his -- his statement in his
7 declaration, which he's saying that I'm
8 misplaced. And I'm saying I'm not. The truth is
9 in Ozer.

10 And I elaborate by telling you that
11 any POSITA would have understood activity
12 classification encompasses object tracking over
13 multiple frames and activity is over multiple
14 frames. And to discriminate and classify over
15 motion trajectories includes detecting objects in
16 each and all the parts of the object.

17 So in direct response to his
18 statement, I've elaborated and I've pointed to
19 that this is not a new argument. This is in my
20 first declaration.

21 Paragraph 61, "Ozer teaches a method
22 to 'detect, recognize, and analyze people or

1 other objects' in video images."

2 Exactly as the -- and it does more.

3 It does it over multiple frames, and it can also

4 classify activities. That's the statement, an

5 understanding of Ozer. I've stated in my first

6 declaration, and I'm referring to that

7 elaboration in my second declaration.

8 Q. Okay. Since you won't answer my

9 question with a yes or no, we're going to move

10 on, Dr. Bajaj.

11 MR. EKLEM: We can take a break. I

12 don't think we'll need a lot of time after

13 this break, so I think just the normal-sized

14 break would be fine.

15 MR. BAKER: All right. Let's do ten

16 minutes.

17 MR. EKLEM: All right.

18 THE COURT REPORTER: Off the record.

19 (Recess taken.)

20 THE COURT REPORTER: Back on the

21 record.

22 BY MR. EKLEM:

1 Q. So Paragraph 66, Dr. Bajaj, could
2 you go to your supplemental declaration and turn
3 to Paragraph 66. I want you to, please, read
4 that paragraph to yourself, and let me know when
5 you have finished.

6 A. Yes, I'm there.

7 Q. Okay. In the first sentence you
8 say, "First, a joint probability distribution for
9 the spatio-temporal model with N components is
10 for any N, as shown in claims 8/16 (repeated
11 below)."

12 Do you see that?

13 A. Yes.

14 Q. And you're referring to the image of
15 the distribution pasted into your declaration in
16 Paragraph 66, right?

17 A. Right.

18 Q. Okay. So the N that you're talking
19 about relates to the number of component nodes,
20 not the number of object nodes in the
21 distribution, right?

22 A. The N here is N and the index goes

1 from C0 to CN. C0 is for the object node, and CN is
2 for the last.

3 Q. You said that C0 is for the object
4 node?

5 A. Let me look at this again. Sorry.

6 So there's N for how many components
7 there are going from C0 to C1 to CN in that order.

8 Q. Okay. So the number N that you're
9 talking about in the first sentence of Paragraph
10 66 is the number of component nodes, not object
11 nodes, right?

12 A. There's only one object node.

13 Q. Okay. And where is that represented
14 in -- in the claim A distribution, the object
15 node that you referred to?

16 A. The state of that object is X
17 subscript 0, superscript 0. That's the state.

18 Q. Okay. So if you took out that term
19 X, that you just mentioned, X subscript 0
20 superscript -- you said superscript 0. I think
21 it might be superscript 0, 0 for object. But
22 either way, if you took that term out, that would

1 affect the formula of the distribution, wouldn't
2 it?

3 A. It's not a matter of taking
4 something out. It's an indexing scheme. The
5 formula as I've shown and I've also stated in my
6 supplemental is on the right-hand side. It's a
7 product of 1 over Z times potential functions ψ_{ij} ,
8 you know, for X_{i0} , X_{j0} . And there's also
9 ψ_i . There is another product. It's like one,
10 two, three, four, five products.

11 If you look at all the other
12 formulas I've shown, they have the same factored
13 form. They are products. The important to
14 notice, as I've tried to explain in my
15 declaration, is they are identical. There is a
16 ψ_{ij} potential function relating I and J in
17 your set. And there is a singular potential
18 function ϕ_i , which is for each -- potential
19 function for each state of each node in your
20 graphical model.

21 And so these -- whether you write it
22 together or you break it apart, the formula is

1 exactly the same.

2 Q. So you think the formula shown in
3 claim 8 is exactly the same as the others that
4 you show in your declaration in Paragraphs 67 and
5 68?

6 A. Exactly.

7 Q. Exactly the same without any
8 differences at all?

9 A. The formula is a partition function
10 $1/Z$ times the product of pairwise potential
11 functions and singular potential functions. You
12 can change the size of the ϕ s in the first
13 example on Page 46. They are identical even in
14 their size and ϕ s. The -- in the Page 47, it's
15 the same formula, $1/Z$ times the product of
16 pairwise and then singular. And instead of using
17 π and ψ , you just change the notation of it.

18 Q. So in claim 8, the size and ϕ s in
19 claim 8 distinguish between object state and
20 component state, right? Isn't that what the
21 superscript "O" and "C" mean? Those correspond
22 to whether it's ϕ of something corresponding to

1 the object or the component?

2 A. Yeah. But the object is a
3 collection of components. And that's why I tried
4 to explain it with a figure on Page 48, is to
5 detect an object which is a collection of
6 components as also a graphical model and also a
7 spatio-temporal model. Same.

8 Q. So --

9 A. Largest component is in that figure
10 which I've shown, is borrowed from TLP, which is
11 where the formula is also used, is the torso, and
12 then all the other components are connected to
13 it.

14 And also, across time. So there's
15 here, time is this vertical axis showing two
16 frames and then the spatial connectivity is -- so
17 the formula is talking about the individual
18 objects.

19 So you can think of the torso, which
20 is the largest part of the object, you know, in
21 this human, is if the -- if that torso is not
22 present, of course the probability of -- you

1 know, the other components being present is
2 minute.

3 So this is exactly captured in both
4 these formulas. That is the potential function
5 phis of each component. You can merge the two,
6 right, last two terms of your -- as any POSITA
7 would do and say, Oh, that's one product, which
8 is exactly the second term on Page 46.

9 If you look at Page 45, take the
10 last two terms and combine them, or you could
11 write them as factored out. It does not change
12 the formula.

13 And you could combine the first
14 three products and group them as a group on Page
15 46, so the first three terms of the right-hand
16 side of Page 45 of -- is the same as in 46.

17 So using indices and changing them
18 is fairly very obvious to any person of ordinary
19 skill in the art. There's nothing unique or
20 innovative about that.

21 Q. So, in claim 8 -- in claim 8, the
22 product $1/Z$, the first potential function has XiO

1 and XjO.

2 Do you see that?

3 A. Yes.

4 Q. What does that mean?

5 A. That's designating two states, and
6 here these are states for an object. That object
7 is a portion of your overall object because an
8 object is always a collection of components.

9 Q. Okay -- sorry.

10 A. That's what I'm saying. You can
11 layer node zero in Figure 1, which I've annotated
12 to explain that, is the presence of the art. If
13 you're looking for a human, the body of the human
14 is not there, then the object is not there.

15 Looking for a car, you look at the
16 main portion of the frame before you look at the
17 tires and so on.

18 And TLP explains this as well as
19 other prior art that I cite.

20 Q. So in the first -- in the first
21 potential function that I just asked you about,
22 where it's the states are both object states,

1 what does the subscript "i" and subscript "j"
2 mean respectively?

3 A. This is over time. So the
4 subscripts are indexing over time. It goes from
5 zero to capital T. And the superscripts are over
6 the various components that you designate.

7 Q. Okay. And so since we're talking
8 about a potential function in the superscript
9 "O," we're just talking about the object, not the
10 ones that are superscript "C," right?

11 A. The object is the sum of its parts.

12 Q. I understand that.

13 A. It is -- it's -- it's a designation
14 you make. So if you look at 46, I say, I put all
15 of that in a capital "P" of, you know, pairwise
16 component edges, and I'm going to look at the
17 pairwise, psi-ized between X_j . They didn't
18 resort to superscripts and subscripts, but they
19 do refer to both spatial and temporal as I
20 explained in Paragraphs 72, 73, onwards.

21 They are both spatial and temporal
22 as well as what is shown in Figure 1. There is a

1 spatial connectivity and a temporal in time,
2 edges. So these edges, the total number of edges
3 is indexing overall edges whether they are space
4 or over time.

5 And they have also mentioned they
6 haven't shown all the edges here just because it
7 would make it a spaghetti mess. But indexing is
8 identical saying over all time frame, all of the
9 conditional components in time, and then the
10 association about the spatial pairwise of the
11 components within.

12 So it's in a compact form on Page
13 46. It's just in a slightly expanded form on
14 Page 45, identical, as any POSITA would see it.
15 Nothing to do about factoring out one part or the
16 other.

17 Q. So you said that the other formulas
18 don't result or don't, you know, use the
19 superscript notation. So if you look at the
20 formulations in Paragraph 67 and 68 of your
21 declaration, those formulations do not use the
22 superscripts to differentiate between what's

1 object and what's component, right?

2 A. Not true. It's all folded into to
3 the sets of edges, (i,j) epsilon P in 46. And
4 there are edges between components in the space
5 and edges across time.

6 That's what Figure 1 and the
7 descriptions are given. All edges, space time
8 edges.

9 Q. So you say over all edges, so you
10 mean that that includes all object-to-object
11 edges, as well as all object-to-component edges,
12 as well as all component-to-component edges.

13 That's what you're saying?

14 A. Exactly. Object-to-object edges are
15 in time, because there's only one object.
16 Object-to-component are edges in space. It's
17 spatio-temporal. So the set of all edges are
18 factored in to the formula.

19 Q. So the difference between the object
20 state X_0 and the component state X_C , those are
21 different states, right?

22 A. Not at any point in time. The

1 object is the collection of components.

2 Q. So --

3 A. -- yeah, sorry.

4 Q. If you take one component, so you
5 said there's N components, say I take C1, the
6 first component or zero -- call zero the first
7 component.

8 Is the state of X0 the same as X XC0?

9 A. It's best to answer that -- or
10 exactly what you said is what is captured. I
11 could -- you could look at that figure, or you
12 could image it's just an indexing.

13 So if I say the 0th node is the
14 object, that's that blue circle in the figure I
15 was annotating just to explain it better, that's
16 your object node. That's the main component of
17 your object. And all the other ones, which are
18 labeled 1 to 9 are all of your component --
19 additional component nodes.

20 So you can factor them both ways. I
21 mean you can combine them, or you can treat them
22 slightly independently by using index notation.

1 And so the prior art has done
2 exactly that. I think some were all
3 spatio-temporal edges are not some. Product
4 overall. Pairwise products and singular
5 products. The singular products are over nodes.
6 The pairwise products are over edges.

7 Q. So in claim 8 of the '980 patent,
8 that formulation separates out object from
9 component by using a superscript O and C, right?

10 A. Just a small rewriting of that
11 formula, which is already there. It's not very
12 obvious. It's just rewriting the same formula in
13 a slightly expanded fashion.

14 Q. I see. So you would have to rewrite
15 the formula to do it like --

16 A. No, no. It's --

17 Q. -- like the one --

18 A. I'm not rewriting it. It's what the
19 patent owners rewrote by looking at what was
20 there in the prior art and saying, Oh, let's just
21 rewrite it at this nomenclature.

22 But it captures the same totality.

1 It is the same form, one over Z times pairwise
2 times singular potential functions.

3 Q. Okay. So what's shown in claim 8 is
4 written differently than what's shown in
5 Paragraph 67 and 68 of your declaration, right?

6 A. Marginally different; it's just
7 expanded slightly. But it's very obvious to a
8 person of ordinary skill in the art that the form
9 and structure of the formula is identical. It
10 captures the same joint probability distribution
11 over spatio-temporal object.

12 Q. So you're saying the form and
13 structure is identical, but you have to rewrite
14 it. I don't understand.

15 A. I'm not saying you have to rewrite
16 it. You've rewritten it in a slightly different
17 way. That different way is you put superscripts
18 for the time and subscripts for the spatial
19 indexing.

20 And there it's combined, but they
21 are all over all edges. And the reference in the
22 figure I showed you, and if you look at other

1 figures in these other arts, which I did not
2 repeat, it's absolutely the same calculation of
3 belief propagation.

4 Q. So the superscripts --

5 A. And it's being used by the '980
6 patent, and they say we are using it. They cite
7 the same prior art reference, and this is not new
8 in our scheme.

9 Q. So the superscripts and the
10 subscripts in the claim 8 of the '980 patent,
11 those superscripts and subscripts have specific
12 meanings, don't they?

13 A. Every formula you write, the
14 notation has to be unambiguous. And so it has to
15 be explained.

16 The point I'm making, which is
17 obvious to a person of ordinary skill in the art,
18 is I'm explaining in these paragraphs as a
19 rebuttal, and just as an elaboration. Nothing
20 new. I said I mentioned this already in my
21 declaration.

22 But let me explain again that the --

1 what Dr. Saber provides reasons 167 to 170, and I
2 address each one of those, you know, statements
3 that's in 167 that he claims this, and these are
4 all incorrect assumptions.

5 Q. Okay. So --

6 A. There's no difference in this joint
7 probability formulation. That's not innovative.

8 Q. So it's your opinion that each -- in
9 claim 8 each of the psi and each of the phi
10 elements, each of those are exactly included in
11 the formulations in Paragraph 67 and 68 of your
12 declaration. Is that what you're saying?

13 A. Other than a slight nomenclature
14 variation, they are the same joint probability
15 distribution and also calculated as stated in
16 both by the same nonparametric belief
17 propagation. And that's what they state in their
18 patent specification as well, saying we draw upon
19 PAMPAS and Sudderth which is what I stated in my
20 first declaration. That's what I elaborated on
21 in Paragraph 67, 68.

22 Q. So if any of the psi or phi elements

1 in claim 8 were not included in a formulation,
2 would that formulation be different from claim 8?

3 A. It's a hypothetical. I'm saying it
4 is. I pointed you that and I elaborated and I
5 tried to explain in my second declaration as well
6 as elaborating what I said in my first.

7 Q. So do you not want to answer my
8 hypothetical question?

9 A. I'm here to defend my supplemental
10 declaration. I'm saying -- I'm telling you what
11 the facts are. What is stated and if you read
12 and look at these facts or what I've stated, it's
13 in direct rebuttal to inferences or -- or claims
14 that Dr. Saber and petitioners have made that
15 this is new, this is different. It's not.

16 MR. EKLEM: I'm going to go ahead
17 and pass the witness.

18 MR. BAKER: All right. Let us take
19 a five-minute break.

20 So you're done with cross?

21 MR. EKLEM: I'm done.

22 MR. BAKER: Okay. Give us a

1 five-minute break, please.

2 MR. EKLEM: Sure.

3 THE COURT REPORTER: Off the record.

4 (Recess taken.)

5 THE COURT REPORTER: Back on the
6 record.

7 MR. BAKER: Petitioner has no
8 further questions. I think we can go off the
9 record.

10 (Discussion held off the record.)

11 MR. BAKER: Can I just have a rough
12 by the end of the day tomorrow. Final
13 regular.

14 (Time noted: 12:53 p.m. EDT.)

15

16

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1 CERTIFICATE OF SHORTHAND REPORTER-NOTARY PUBLIC

2 I, Amanda Gorrono, the officer
3 before whom the foregoing deposition was
4 taken, do hereby certify that the foregoing
5 transcript is a true and correct record of
6 the testimony given; that said testimony was
7 taken by me stenographically and thereafter
8 reduced to typewriting under my direction;
9 and that I am neither counsel for, related
10 to, nor employed by any of the parties to
11 this case and have no interest, financial or
12 otherwise, in its outcome.

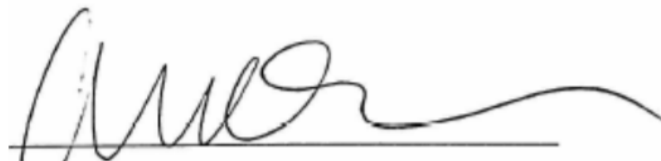
13 IN WITNESS WHEREOF, I have hereunto
14 set my hand this 11th day of July, 2024.

15

16

17

18



AMANDA GORRONO, CLR

19

CLR NO: 052005 - 01

Notary Public in and for the State of New York

20 County of Suffolk

21 My Commission No. 01G06041701

22 Expires: 01/07/2027

1 Chandrajit Bajaj, Ph.D., c/o
2 KIRKLAND & ELLIS LLP
3 1301 Pennsylvania Avenue, Northwest
4 Washington, D.C. 20004
5

6 Case: Meta Platforms, Inc. et al. v. VL Collective IP LLC

7 Date of deposition: July 11, 2024

8 Deponent: Chandrajit Bajaj, Ph.D.
9

10 Please be advised that the transcript in the above
11 referenced matter is now complete and ready for signature.
12 The deponent may come to this office to sign the transcript,
13 a copy may be purchased for the witness to review and sign,
14 or the deponent and/or counsel may waive the option of
signing. Please advise us of the option selected.

15 Please forward the errata sheet and the original signed
signature page to counsel noticing the deposition, noting the
16 applicable time period allowed for such by the governing
Rules of Procedure. If you have any questions, please do
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9 Deposition Date: July 11, 2024
10

11 I do hereby acknowledge that I have read
12 and examined the foregoing pages
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14 (Check appropriate box):

15 () The same is a true, correct and
16 complete transcription of the answers given by
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19 attached Errata Sheet, the same is a true,
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11 Page No. Line No. Change

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