

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

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GOOGLE LLC, :

Petitioner, : Case No.

v. : IPR2022-00623

JAWBONE INNOVATIONS, LLC, :

Patent Owner :

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DEPOSITION OF DAVID J. ANDERSON

Friday, February 3, 2023 - 9:00 a.m.

REPORTED BY:

GISELLE MITCHELL-MARGERUM, RPR, CRI, CCR, LCR, ACCR,
CSR

JOB NO.: 6530

1 Stenographic deposition of DAVID J. ANDERSON,
2 held at:

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4
5 FINNEGAN, HENDERSON, FARABOW, GARRETT &
6 DUNNER, LLP
7 271 17th Street Northwest, Suite 1400
8 Atlanta, Georgia 30363
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12 Pursuant to agreement, before Giselle
13 Mitchell-Margerum, Registered Professional Reporter,
14 Certified Reporting Instructor, Licensed Court Reporter
15 (TN), Certified Court Reporter (GA), Certified Court
16 Reporter (NJ), Certified Court Reporter (WA), Certified
17 Shorthand Reporter (OR), Certified Shorthand Reporter
18 (CA), Alabama Certified Court Reporter (ACCR), and
19 Notary Public (Washington, D.C.).
20
21
22
23
24
25

A P P E A R A N C E S

ON BEHALF OF PLAINTIFF:

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W I T N E S S I N D E X

Witness Page

DAVID J. ANDERSON (sworn) 5

Examination by RICHARD COWELL 5

P R O C E E D I N G S

DAVID J. ANDERSON

having been duly sworn testified as follows:

EXAMINATION BY MR. COWELL:

Q. Good morning, Dr. Anderson.

A. Good morning.

Q. Could you state your full name for the record, please?

A. David Viri Anderson.

Q. Okay. And you've been deposed before. Correct?

A. Yes.

Q. As recently as this week, in fact. Right?

A. Yes.

Q. Since you've been deposed before, I assume you know the process, but I'll go over the ground rules again anyway.

Today I'm here to ask questions and you're going to answer them. Is that right?

A. Yes.

Q. You understand that your attorney may object from time to time, however, you still have to answer my questions unless she orders -- unless she instructs you not to answer.

Do you understand that?

1 A. Yes.

2 Q. If, at any time, you'd like a break, just
3 let me know and we'll take a break. I will ask that
4 if there is a pending question, that you answer it
5 before we go on the break.

6 Is that fair?

7 A. Yes.

8 Q. If, at any time, you don't understand one
9 of my questions, please let me know and I'll do my
10 best to clarify or rephrase. But if you do answer
11 it, I will assume you understood it.

12 Is that fair?

13 A. Yes.

14 Q. Okay. Are you on any medications that
15 would prevent you from giving full and truthful
16 testimony today?

17 A. No.

18 Q. Is there any other reason you cannot give
19 full and truthful testimony today?

20 A. No.

21 Q. How did you prepare for this deposition?

22 A. I reviewed my declaration and cited
23 materials, and met with the attorneys at
24 Finnegan & Henderson.

25 Q. When did you meet with the attorneys at

1 Finnegan & Henderson?

2 ATTORNEY YANG: I caution the witness not
3 to reveal any attorney/client privileged
4 information.

5 THE WITNESS: Last Saturday and yesterday.

6 BY ATTORNEY COWELL:

7 Q. And who did you meet with?

8 A. Christina and Kevin.

9 Q. Did you speak with anyone else in
10 preparing for today's deposition?

11 ATTORNEY YANG: Same objections.

12 THE WITNESS: No.

13 BY ATTORNEY COWELL:

14 Q. About how long did you take to prepare for
15 today's deposition? How many hours?

16 A. Between 10 and 20 hours.

17 Q. Where do you currently work?

18 A. Georgia Tech.

19 Q. And what classes do you teach at Georgia
20 Tech?

21 A. This semester, I'm teaching a digital
22 signal processing class at the senior level, and a
23 graduate class on adaptive filtering.

24 Q. And what's the title of that senior level
25 class?

1 A. I believe it's fundamentals of digital
2 signal processing.

3 Q. And what's the title of the graduate
4 class?

5 A. Adaptive filters.

6 Q. Do you recall the title of your PhD
7 thesis?

8 A. Something about multi-resolution
9 sinusoidal modeling.

10 Q. And you used the VAD in your PhD thesis
11 work. Is that correct?

12 A. Yes.

13 Q. By VAD, I'm talking about Voice Activity
14 Detection. Is that your understanding as well?

15 A. Yes. Although, what I used might be more
16 accurately called a Speech Activity Detector. But
17 "SAD" is not a very good acronym.

18 Q. And what was -- what Speech Activity
19 Detector did you use for your PhD thesis work?

20 A. One of my own design, based on some prior
21 art.

22 Q. And how did that Speech Activity Detector
23 work?

24 A. It measured spectral qualities and
25 temporal qualities of the signal and determined

1 whether or not they varied from constant background
2 noise.

3 Q. Did your Speech Activity Detector use a
4 separate receiver from the main microphone that
5 picked up the primary signal?

6 A. I didn't have the luxury of having a
7 separate microphone for that. Or any other sensor.

8 Q. In your PhD thesis, you only had one
9 sensor? Is that correct?

10 ATTORNEY YANG: Objection. Foundation.

11 THE WITNESS: In my PhD thesis, I had
12 actual recordings of signals. I wasn't actually
13 recording the signal and implementing it in
14 realtime.

15 COURT REPORTER: Could you repeat, please?

16 THE WITNESS: I wasn't actually recording
17 the signal and implementing it in realtime.

18 BY ATTORNEY COWELL:

19 Q. Were those recorded signals recorded using
20 only one microphone?

21 A. Yes.

22 Q. And you worked on a project for DARPA in
23 2003. Is that right?

24 A. Yes.

25 Q. And what was that project about?

1 A. The project was speech encoding in
2 extremely noisy environments.

3 Q. And what was your portion of the project
4 in relation to?

5 A. I worked on enhancing the speech based on
6 a voicing sensor, and acoustic sensors. Acoustic
7 microphones near the mouth.

8 Q. What was the voicing sensor you used in
9 your 2003 work for DARPA?

10 A. We used many different ones.

11 Q. Which ones do you recall?

12 A. We used bone conduction sensors. We used
13 throat microphone. We used several types of
14 electromagnetic sensors. Several types of bone
15 detection sensors. And one or two others I can't
16 recall.

17 Q. And what kind of electromagnetic sensor
18 did you use?

19 A. We had one that was developed here at
20 Georgia Tech Research Institute. And then, we also
21 had data from one collected using the GEMS device.

22 Q. And what does GEMS stand for?

23 A. I don't recall, exactly. But it's
24 something electromagnetic sensor, I think. Glottal.
25 Must be glottal.

1 Q. Glottal Electromagnetic Sensor?

2 A. As far as I can remember.

3 Q. Is that the same GEMS that's referred to
4 in the Jawbone patents that you've reviewed?

5 ATTORNEY YANG: Objection. Form.

6 THE WITNESS: I'm not certain, but it does
7 have the same roots, at least.

8 BY ATTORNEY COWELL:

9 Q. Who provided the GEMS sensor to the
10 project?

11 A. I am not certain as to how that came to
12 the project. We didn't physically have a copy of
13 the GEMS. We just had some data. So that was
14 somebody else.

15 Q. You also said you used a throat microphone
16 in your 2003 work for DARPA. Is that right?

17 A. Yes.

18 Q. What kind of throat microphone was that?

19 A. I don't recall. I saw it once but I
20 wasn't the one who collected the data.

21 Q. Did you ever see it in action?

22 A. I don't recall.

23 Q. During your work in 2003, did you meet a
24 man named Alex Asseily?

25 A. Yes.

1 Q. Who is Alex Asseily?

2 A. He was on another team that was working on
3 the same project.

4 Q. What was Alex Asseily's team doing?

5 A. I don't know the details of what they were
6 doing, but they were essentially also trying to
7 achieve the goals of the program, which were to
8 reduce noise and audio signals and speech signals,
9 to improve speech coding.

10 Q. Did your team have a particular focus?

11 A. Our team worked on removing noise and
12 improving speech coding for signals that have been
13 so enhanced.

14 Q. Was there any more particular focus to
15 your team?

16 ATTORNEY YANG: Objection. Vague.

17 THE WITNESS: Yeah. I'm not sure what you
18 mean by any more particular focus. That was our
19 focus.

20 BY ATTORNEY COWELL:

21 Q. I'm just curious if the project was broken
22 up into different partitions and if you had a
23 particular focus for your team, or if everyone was
24 working towards the exact same thing, just in
25 different ways?

1 A. I see. The program was set up in somewhat
2 of a competitive manner, where all teams were trying
3 to achieve the same objectives.

4 Q. Did any team ever achieve that objective?

5 A. The program manager changed partway
6 through and the program changed. So, we never
7 completed the program.

8 Q. What did the program change to?

9 A. I don't know what you mean by "change to."
10 The program manager changed. The new program
11 manager changed the -- I guess the makeup of the
12 program. So that I'm not exactly sure what happened
13 after we left, but we and most of the participants
14 left before the end of phase one. And the program
15 was taken in a somewhat different direction.

16 I believe eventually, the MIT support
17 group were able to achieve some of the objectives of
18 the program.

19 Q. And you say the program was taken in a
20 somewhat different direction. What direction was
21 that?

22 A. I wasn't involved with the program after
23 that, so I'm not sure. But generally, more emphasis
24 was placed on some quantitative goals and less on
25 other quantitative goals. And there was

1 restructuring on how the program was run.

2 Q. You say more emphasis was placed on
3 quantitative goals. What were the quantitative
4 goals on which more emphasis was placed?

5 A. I don't recall.

6 Q. And what quantitative goals were less
7 emphasis placed on?

8 A. I don't recall that either.

9 Q. You understand we're here today for a
10 deposition in regards to IPR 2022-00623? Is that
11 right?

12 A. Yes.

13 Q. All right. And that proceeding is in
14 regards to U.S. Patent No. 7,246,058. Is that
15 right?

16 A. Yes.

17 Q. And in that proceeding, the petitioner's
18 asserted three grounds of invalidity. Is that
19 right?

20 COURT REPORTER: Mr. Cowell, could you
21 speak up a little, please.

22 ATTORNEY COWELL: Sure.

23 THE WITNESS: Yes.

24 BY ATTORNEY COWELL:

25 Q. And each of those three grounds is

1 asserting obviousness of the claims of the
2 '058 Patent. Is that right?

3 ATTORNEY YANG: Dr. Anderson, this is a
4 long document so feel free to take some time to
5 review the document.

6 THE WITNESS: Yes.

7 BY ATTORNEY COWELL:

8 Q. And those obviousness grounds are based on
9 combinations of five references. Is that right?

10 A. The first one is a combination of three
11 references. The second ground is a combination of
12 four references. And the third ground is a
13 combination of four references.

14 Q. Okay. So the first ground is a
15 combination of Meisel, in view of Kaneda and
16 Freidin.

17 Is that correct?

18 A. Yes.

19 Q. And the second ground is a combination of
20 Meisel in view of Kaneda, Freidin, and Lyons. Is
21 that right?

22 A. Yes.

23 Q. And then the last ground is a combination
24 of Meisel, in view of Kaneda, Freidin, and Sakoe.
25 Is that correct?

1 A. Yes.

2 Q. In front of you, there should be those
3 five references as well as the '058 Patent. Do you
4 see them?

5 A. Yes.

6 Q. Are all of your obviousness opinions
7 included in your declaration?

8 ATTORNEY YANG: Objection.

9 THE WITNESS: So are you asking if I have
10 opinions that are relative to this matter that I
11 have not written?

12 BY ATTORNEY COWELL:

13 Q. Well my question is whether all of your
14 opinions relative to this matter are within the
15 declaration.

16 A. This declaration has my opinions relative
17 to the matter.

18 Q. And you don't have any opinions you intend
19 to present that aren't included in your declaration.
20 Is that right?

21 A. None that I can think of. If you ask a
22 question for clarification, that clarification, I
23 don't know if you'll consider it a new opinion. But
24 everything that I opine on is in here.

25 Q. Okay. And by "here," you're pointing at

1 Exhibit 1003, which is your declaration?

2 A. Yes. Thank you.

3 Q. And your declaration cites the various
4 evidence for your opinion. Is that right?

5 A. Yes.

6 Q. Does your declaration cite all the
7 evidence you relied on to arrive at your opinions?

8 ATTORNEY YANG: Objection. Vague.

9 THE WITNESS: I believe so. With the
10 caveat that in addition to the cited prior art, I've
11 been working in this field for decades. And so, my
12 opinions also reflect my experience and expertise
13 with this field as well.

14 BY ATTORNEY COWELL:

15 Q. Who hired you to work on this case?

16 ATTORNEY YANG: I instruct the witness not
17 to reveal any attorney/client privileged
18 information.

19 THE WITNESS: I can't remember if it's a
20 search firm or if it were the attorneys from
21 Finnegan & Henderson. But one of that.

22 BY ATTORNEY COWELL:

23 Q. Is your retention with the attorneys at
24 Finnegan & Henderson or with Google? Or with
25 somebody else?

1 ATTORNEY YANG: Same instructions.

2 THE WITNESS: I can't actually recall the
3 exact nature of that retention document. But --
4 yeah.

5 BY ATTORNEY COWELL:

6 Q. Did you speak to anyone at Google itself
7 in forming your opinions in this case?

8 ATTORNEY YANG: Same instructions.

9 THE WITNESS: I did not.

10 BY ATTORNEY COWELL:

11 Q. Have you been retained in connection with
12 the District Court litigation between Google and
13 Jawbone?

14 ATTORNEY YANG: Same instructions.

15 THE WITNESS: Yes, I have.

16 BY ATTORNEY COWELL:

17 Q. When were you retained to work in regards
18 to this matter?

19 ATTORNEY YANG: Same instruction.

20 THE WITNESS: I don't recall exactly. I
21 believe we submitted this about a year ago and it
22 would have been sometime before that. So...

23 BY ATTORNEY COWELL:

24 Q. Do you know roughly how long before you
25 submitted your declaration that you were retained?

1 ATTORNEY YANG: Same objections.

2 THE WITNESS: I don't. It would have been
3 less than a year but more than a few months.

4 BY ATTORNEY COWELL:

5 Q. Did you conduct a prior art search in
6 connection with this case?

7 ATTORNEY YANG: Same instructions.

8 THE WITNESS: Yes.

9 BY ATTORNEY COWELL:

10 Q. When did you do that prior art search?

11 A. Prior to forming my opinions.

12 Q. So sometime in the period between when you
13 were retained and when you submitted this
14 declaration?

15 Is that right?

16 A. Yes.

17 Q. Why did you conduct a prior art search?

18 ATTORNEY YANG: Same instructions.

19 THE WITNESS: I was asked to perform a
20 prior art search.

21 BY ATTORNEY COWELL:

22 Q. Who asked you to perform a prior art
23 search?

24 ATTORNEY YANG: Same instructions.

25 THE WITNESS: That would have been the

1 attorneys with whom I'm working.

2 BY ATTORNEY COWELL:

3 Q. How much time did you spend on that prior
4 art search?

5 A. I don't recall.

6 Q. Was it more than an hour?

7 A. Significantly more than an hour.

8 Q. Was it more than 10 hours?

9 A. At this point, I don't recall. I wouldn't
10 speculate.

11 Q. Did you do the prior art search over the
12 course of multiple days?

13 A. Likely.

14 Q. Do you believe your prior art search was
15 thorough?

16 ATTORNEY YANG: Objection. Speculation.
17 Vague.

18 THE WITNESS: I'm not quite sure how to
19 answer that. I probably could have searched all
20 technical documents in the world, and called it
21 thorough.

22 I will say that I searched until I found
23 art that made the '058 Patent obvious.

24 BY ATTORNEY COWELL:

25 Q. What sources did you search during your

1 prior art search?

2 ATTORNEY YANG: Objection. Vague.

3 THE WITNESS: Technical publications.

4 Patents.

5 BY ATTORNEY COWELL:

6 Q. Did you locate the five references that
7 you used in your declaration?

8 A. I did locate references used in my
9 declaration. I don't recall which ones I
10 particularly personally found.

11 Q. Did you locate Meisel?

12 A. As I said, I don't recall.

13 Q. Did you locate Freidin?

14 A. Same answer.

15 Q. Did you locate Kaneda?

16 A. Same answer.

17 Q. Did you locate Lyons?

18 A. Same answer.

19 Q. Did you locate Sakoe?

20 A. Same answer.

21 Q. Did anyone else give you any of the
22 references you used in your declaration?

23 ATTORNEY YANG: Objection. Vague.

24 THE WITNESS: I'm not sure the process
25 that the attorneys used. My guess is they engaged

1 the search firm as well.

2 But everything included in my declaration,
3 I personally selected and viewed from among
4 documents that I personally found through searches
5 or that were suggested.

6 BY ATTORNEY COWELL:

7 Q. And when you say that were suggested, who
8 made those suggestions?

9 A. This would have been a search firm or the
10 attorneys. I'm not sure how that happened, as I
11 said.

12 Q. You said you did locate references used in
13 your declaration. Does that mean that there were
14 other references that you used in your declaration
15 that you didn't personally locate?

16 A. I think I've already answered that
17 question.

18 Q. Please give me the answer again, then.

19 ATTORNEY YANG: Objection. Asked and
20 answered.

21 THE WITNESS: I know that some of the ones
22 in my declaration, I personally found in my own
23 searching. And others were suggested and I
24 reviewed.

25 I don't recall which were which, for the

1 most part.

2 BY ATTORNEY COWELL:

3 Q. Did you formulate the three grounds of
4 obviousness used in your declaration?

5 ATTORNEY YANG: Objection. Vague.

6 THE WITNESS: Can you clarify that?

7 BY ATTORNEY COWELL:

8 Q. Did you, yourself, apply the prior art to
9 determine that the '058 Patent was obvious, as it
10 says in your declaration?

11 ATTORNEY YANG: Objection. Vague.

12 THE WITNESS: My declaration was made in
13 consultation with counsel. I determined, to my
14 satisfaction, that the '058 Patent was obvious,
15 based on the prior art that I found.

16 The actual grounds, I think were in
17 consultation with counsel.

18 BY ATTORNEY COWELL:

19 Q. Are you aware of any references that
20 anticipate any claim of the '058 Patent?

21 ATTORNEY YANG: Objection. Outside the
22 scope of the declaration. Vague.

23 THE WITNESS: My declaration is just about
24 obviousness. Sitting here right now, I could not
25 make anticipation arguments.

1 BY ATTORNEY COWELL:

2 Q. Did you uncover any references and
3 anticipate any claim of the '058 Patent during your
4 prior art search?

5 ATTORNEY YANG: Same objections.

6 THE WITNESS: So, I'm just going to have
7 to give the same answer. Anticipation is a legal
8 question that I would arrive at in consultation with
9 counsel.

10 In my mind, what was done in the
11 '058 Patent was abundantly obvious to somebody with
12 skill in this art -- area of art. And many of the
13 things would be no more than what a practitioner
14 might use.

15 I express my opinions in here in terms of
16 obviousness. I haven't yet considered anticipation.

17 BY ATTORNEY COWELL:

18 Q. Would you agree with me that none of the
19 references included within your declaration disclose
20 every element of any claim of the '058 Patent?

21 ATTORNEY YANG: Objection. Outside the
22 scope of the declaration. Vague.

23 THE WITNESS: My declaration just
24 discusses obviousness. And I'm not prepared to
25 discuss anticipation right now.

1 BY ATTORNEY COWELL:

2 Q. Are you familiar with the references
3 included in your declaration?

4 A. Yes.

5 Q. Would you say you're very familiar with
6 all of them?

7 ATTORNEY YANG: Objection. Speculation.
8 Vague.

9 THE WITNESS: That's -- "very" is a
10 qualitative term. It may mean something different
11 to you than it does to me.

12 Can you be more specific?

13 BY ATTORNEY COWELL:

14 Q. How would you characterize as being very
15 familiar with something?

16 A. That would depend on context.

17 Q. Okay. In this context, how would you
18 characterize being very familiar with, say, Meisel?

19 A. Being able, without looking at it, to
20 quote portions that relate to what we're concerned
21 with.

22 Q. Okay. So with that definition in mind, do
23 you feel you're very familiar with Meisel?

24 A. I can actually quote some portions. So
25 I'm quite familiar. But I would rather not make a

1 judgment call as to my familiarity.

2 Q. Based on your familiarity with Meisel --
3 and feel free to look at it if you need to -- does
4 Meisel disclose every element of any claim of the
5 '058 Patent?

6 ATTORNEY YANG: Objection. Outside the
7 scope of the declaration. Vague.

8 THE WITNESS: I've already said I'm not
9 prepared and I won't form opinions right now on
10 anticipation. But I have expressed my opinions on
11 obviousness in this document.

12 BY ATTORNEY COWELL:

13 Q. And those opinions don't include any
14 opinion where Meisel discloses every element of any
15 claim of the '058 Patent.

16 Is that right?

17 ATTORNEY YANG: Same objections.

18 THE WITNESS: So you are asking the same
19 question in a different way. I do testify here as
20 to obviousness. I'm not prepared to testify whether
21 or not it anticipates.

22 BY ATTORNEY COWELL:

23 Q. You just never considered whether anything
24 anticipates the '058 Patent? Is that your
25 testimony?

1 ATTORNEY YANG: Objection.
2 Mischaracterizes the witness' previous testimony.
3 Outside the scope of the declaration.

4 THE WITNESS: I was asked by the attorneys
5 to consider obviousness. That's what I did. And I
6 wrote my opinions about obviousness in this
7 declaration.

8 BY ATTORNEY COWELL:

9 Q. When you performed your prior art search,
10 did you look for any references that might
11 anticipate the claims of '058 Patent?

12 ATTORNEY YANG: Objection. Vague.

13 THE WITNESS: I looked for references
14 relevant to the '058 Patent.

15 BY ATTORNEY COWELL:

16 Q. When you were looking for those
17 references, did you consider whether any of them
18 anticipated the '058 Patent?

19 A. I don't recall.

20 Q. Then you don't recall if you found any
21 references that anticipated any claim of the
22 '058 Patent.

23 Is that right?

24 A. What I recall is that I found many
25 references that render obviousness. I don't recall

1 considering anticipation.

2 Q. And just so I understand, you performed a
3 prior art search but you only consider obviousness
4 during that prior art search.

5 Is that correct?

6 ATTORNEY YANG: Objection.
7 Mischaracterizes the witness' preview testimony.
8 Vague.

9 THE WITNESS: I looked for references
10 relevant to the '058 Patent. And I was asked to
11 look for obviousness grounds, which I did.

12 BY ATTORNEY COWELL:

13 Q. And you were never asked to consider
14 anticipation at any time?

15 ATTORNEY YANG: Objection. Vague.

16 THE WITNESS: I don't recall.

17 BY ATTORNEY COWELL:

18 Q. Let's switch gears a little. You're
19 familiar with the mathematical function
20 cross-correlation. Right?

21 ATTORNEY YANG: Objection. Vague.

22 THE WITNESS: So, when you say the
23 mathematical function, there are multiple functions
24 called 'cross-correlation.'

25 BY ATTORNEY COWELL:

1 Q. Okay. What are those multiple functions
2 that are called "cross-correlation?"

3 A. I'm not prepared to list them all here,
4 but there are multiple definitions and multiple
5 functions that accomplish cross-correlating, and
6 more in general, cross-correlation is a family of
7 functions that relate -- that encapsulate, or
8 capture, or extract the relationship between two
9 different signals.

10 Q. Are you aware of any of those multiple
11 functions that you can describe to me that are
12 called "cross-correlation?"

13 A. Yes.

14 Q. Okay. Which ones are you aware of today?

15 A. Cross-correlation can be accomplished with
16 statistical expectations. It can be defined in
17 several ways. It can be defined as a approximation
18 of statistical estimations in multiple ways.

19 It can be defined in terms of other
20 functions that are linear or non-linear, that
21 relates two signals to each other, such as through
22 neural networks or through, for example, average
23 square differences and other functions.

24 Q. Cross-correlation usually involves
25 multiplying a sample from one set of samples by

1 another -- by a sample from a different set of
2 samples.

3 Isn't that right?

4 ATTORNEY YANG: Objection. Form.

5 THE WITNESS: One of the types I mentioned
6 does that.

7 BY ATTORNEY COWELL:

8 Q. And that's the -- that's how the XCORR
9 function of Mat Lab works. Isn't that right?

10 ATTORNEY YANG: Objection. Foundation.

11 THE WITNESS: Yes.

12 BY ATTORNEY COWELL:

13 Q. And within the '058 Patent, you mentioned
14 that the '058 Patent refers to the XCORR function
15 when it talks about cross-correlation. Right?

16 ATTORNEY YANG: Objection. Foundation.

17 THE WITNESS: So, I do mention that --
18 actually, let's pull that up in my declaration.

19 [Witness reviewed document.]

20 THE WITNESS: Okay. Looks like it's -- I
21 discussed correlation between page 36 -- and I'm
22 just trying to find the end of that.

23 But, I quote Burnett, where he discusses
24 the use of cross-correlation function. And then
25 goes on to describe how -- he says the XCORR

1 function -- doesn't give details as to which form of
2 that function he is using. But he does go on to say
3 that it's susceptible to errors. And so, that
4 shouldn't be the sole source of voicing information.

5 COURT REPORTER: Of what information?

6 THE WITNESS: Voicing.

7 BY ATTORNEY COWELL:

8 Q. If you turn, maybe -- I'm not sure if this
9 is what you're looking for, but page 46 of your
10 declaration, or bolded page 51.

11 A. That wasn't exactly what I was looking
12 for. But it's the difficulty of looking through
13 this without a search function.

14 Q. If you look at footnote one on page 46?

15 A. Okay.

16 Q. Here, you say the '058 Patent identifies
17 the built-in conventional XCORR function rather than
18 explaining cross-correlation. Right?

19 A. Yes.

20 Q. So that refers to a building function like
21 the one in Mat Lab. Right?

22 A. I assume so. He didn't specifically call
23 out Mat Lab, but that's what the function in Mat Lab
24 is called.

25 ATTORNEY COWELL: All right. Why don't we

1 take a 10-minute break?

2 (Short break.)

3 BY ATTORNEY COWELL:

4 Q. Dr. Anderson, welcome back from the break.

5 A. Thank you.

6 Q. We were talking about cross-correlation
7 before we went on the break. And I believe if you
8 turn to page 42 of your declaration, paragraph 60?

9 A. Okay.

10 Q. And Freidin provides a cross-correlation
11 function. Correct?

12 A. Yes.

13 Q. And Freidin performs cross-correlation by
14 multiplying a sample from X by a sample from Y?

15 ATTORNEY YANG: Objection. To the extent
16 it mischaracterizes the document.

17 ATTORNEY COWELL: Let me strike that
18 question. I'll re-ask it.

19 BY ATTORNEY COWELL:

20 Q. Freidin performs a cross-correlation by
21 multiplying the ith sample from D with the ith
22 sample from R.

23 Is that right?

24 A. Yes.

25 ATTORNEY YANG: Same objections.

1 BY ATTORNEY COWELL:

2 Q. Could you take a look at Meisel, which is
3 Exhibit 1005? Meisel is a speech recognition
4 system. Is that right?

5 A. That is the title.

6 Q. And Meisel takes speech input and attempts
7 to classify it as -- as words as its ultimate goal.
8 Is that right?

9 ATTORNEY YANG: Objection.
10 Mischaracterizes the document.

11 THE WITNESS: Meisel is focused on the
12 front end of the speech recognition system. And
13 discloses primarily how to analyze types of speech,
14 voiced, unvoiced, fricative, plosives, vowels, and
15 nasals, et cetera.

16 For use in the speech recognition task.

17 BY ATTORNEY COWELL:

18 Q. And the ultimate output of the Meisel
19 system is the classification of sounds as particular
20 word or phrase. Isn't that right?

21 ATTORNEY YANG: Objection.
22 Mischaracterizes document. Vague.

23 THE WITNESS: Meisel discloses, as I
24 spoke, identifying fricative, vowels, plosives,
25 nasals, et cetera. It then shows those going into a

1 speech recognition subsystem, but the body of the
2 invention is about classifying the types of full
3 name that are present at the input.

4 BY ATTORNEY COWELL:

5 Q. If you turn to column 14 of Meisel? Line
6 24 through 26 says that:

7 "The output of the system is the
8 classification provided by proceeding down the tree
9 as shown in Figure 17."

10 Right?

11 A. Sorry. Fourteen?

12 Q. Twenty-four to 26. I'll just give you a
13 moment to look at it.

14 ATTORNEY YANG: Objection, to the extent
15 the question mischaracterizes the document.

16 COURT REPORTER: Ms. Yang, could you speak
17 up a little, please.

18 ATTORNEY YANG: Oh. Objection, to the
19 extent the question mischaracterizes the document.

20 [Witness reviewed document.]

21 THE WITNESS: Okay. Can you re-ask the
22 question?

23 ATTORNEY COWELL: Sure.

24 BY ATTORNEY COWELL:

25 Q. Meisel states that the classification

1 provided by proceeding down the tree, such as shown
2 in Figure 17 and described above, is the output of
3 the processor and of the system.

4 Is that right?

5 A. Yes.

6 Q. So Meisel's ultimate output is the
7 classification of sounds into a word or phrase?

8 ATTORNEY YANG: Objection.

9 Mischaracterizes the document.

10 THE WITNESS: So the output described in
11 Figure 17 appears to be numbers. Spoken numbers, or
12 indications of spoken numbers.

13 BY ATTORNEY COWELL:

14 Q. When you say a spoken number, that's
15 really just a word? Like the word, "three?"

16 ATTORNEY YANG: Objection.

17 Mischaracterizes --

18 ATTORNEY COWELL: Correct?

19 ATTORNEY YANG: Objection.

20 Mischaracterizes the witness' prior testimony.

21 THE WITNESS: Figure 17, referred to in
22 that section, has many decision points. It's a
23 decision graph. Including asking the question, if
24 there is a fricative, a voiced start or stop; nasal;
25 partial closure; plosive, and so on.

1 Based on that, the system ends up at
2 different final states that are labeled things such
3 as four; three; eight; six; two.

4 BY ATTORNEY COWELL:

5 Q. Okay. And so, that output, such as four;
6 six; eight; three; or two, those are classifications
7 of sounds into words.

8 Isn't that right?

9 ATTORNEY YANG: Objection.
10 Mischaracterizes the document. Vague.

11 THE WITNESS: Those are choosing potential
12 words based on characteristic of the sound that are
13 found earlier in the system.

14 BY ATTORNEY COWELL:

15 Q. And that output is the output of the
16 Meisel system?

17 ATTORNEY YANG: Objection.
18 Mischaracterizes the document. Vague.

19 THE WITNESS: That output is one output of
20 a -- an embodiment of the system.

21 BY ATTORNEY COWELL:

22 Q. What other outputs does the system
23 generate?

24 A. The system describes a method for
25 determining whether or not we have voiced or

1 unvoiced speech. It determines whether or not we
2 have nasals and whether or not we have speech at
3 all. Or it's just the background noise.

4 This information in Figure 13 -- I can't
5 recall if I get the right figure -- not Figure 13 --
6 in Figure 1 and Figure 2, are paths to speech
7 recognition subsystem.

8 An example speech recognition subsystem is
9 given where you just cited, and in Figure 17.

10 However, one of ordinary skill would understand that
11 for example, in Figure 1, the signals that are being
12 sent to the speech recognition subsystem exceed
13 those being processed in that example.

14 And other types of outputs are envisioned,
15 where the decisions based on the correlation data,
16 and the comparisons to thresholds and samples of the
17 audio, are passed to a system that is not described.

18 ATTORNEY YANG: Objection.
19 Non-responsive. And I'll move to strike.

20 BY ATTORNEY COWELL:

21 Q. Meisel describes its output as the
22 classification provided by proceeding down the tree
23 such as shown in Figure 17; doesn't it?

24 ATTORNEY YANG: Objection. Asked and
25 answered.

1 THE WITNESS: As I said, it describes an
2 output. Meisel describes multiple embodiments, and
3 multiple functions. Most of which involve detecting
4 types of speech, voicing, speech presence, and
5 passing that on to a system for recognition.

6 One example recognizer is given as a
7 classification tree in Figure 17. I would not
8 characterize that as the only output of Meisel.

9 BY ATTORNEY COWELL:

10 Q. Let's take a look at Figure 5 of Meisel.
11 And you rely on the Figure 5 embodiment in your
12 opinions. Correct?

13 A. Can we turn to that part of my declaration
14 while we're looking at it?

15 Q. Sure. I don't know if you want to look at
16 page 19 of your declaration, for example. You are
17 welcome to refer to whatever part you need to.

18 A. Thank you. I'm at page 19 where it shows
19 Figure 5.

20 Q. So you rely on the Figure 5 embodiment in
21 your opinions. Correct?

22 A. Yes.

23 Q. And so, Figure 5 shows the housing which
24 is number 10?

25 ATTORNEY YANG: Objection. To the extent

1 the question mischaracterizes the document.

2 THE WITNESS: I see where number 10 is
3 labeled in the figure. I'm looking through Meisel
4 right now to verify his description of what number
5 10 is.

6 BY ATTORNEY COWELL:

7 Q. If you want, you can look at column four.
8 Lines 27 to 34, for example.

9 ATTORNEY COWELL: Feel free to look at
10 other portions of the document if you need to,
11 Dr. Anderson.

12 [Witness reviewed document.]

13 THE WITNESS: Okay.

14 BY ATTORNEY COWELL:

15 Q. So, Figure 5 shows a housing 10. Is that
16 right?

17 A. Yes.

18 ATTORNEY YANG: Same objections.

19 BY ATTORNEY COWELL:

20 Q. And it shows a nose microphone? That's
21 number 16?

22 A. Yes.

23 Q. And it shows a side mouth microphone
24 that's number 18?

25 A. Yes.

1 Q. And a front mouth microphone at number 32?

2 A. Yes.

3 Q. And a throat microphone at number 20.

4 Correct?

5 A. Yes.

6 Q. And it also shows a spacer 27. Do you see
7 that?

8 A. Yes.

9 Q. And another spacer number 28?

10 A. Yes.

11 Q. And the spacer 28 is positioned on the
12 user's chin. Is that correct?

13 ATTORNEY YANG: Objection.

14 Mischaracterizes the document.

15 THE WITNESS: It says the spacer 28 may be
16 positioned again the chin of the speaker.

17 BY ATTORNEY COWELL:

18 Q. Okay. So do you agree that spacer 28
19 would be positioned on the user's chin?

20 ATTORNEY YANG: Objection. Asked and
21 answered.

22 THE WITNESS: It says it may be.

23 BY ATTORNEY COWELL:

24 Q. Where else would spacer 28 go?

25 A. It doesn't state where else it would go.

1 Q. And spacer 27 would be positioned against
2 the upper lip of the speaker. Correct?

3 ATTORNEY YANG: Objection.
4 Mischaracterizes the document.

5 THE WITNESS: Meisel says that spacer 27
6 may be positioned against the upper lip of the
7 speaker.

8 BY ATTORNEY COWELL:

9 Q. Does Meisel provide any other location
10 where spacer 27 would be positioned?

11 A. He talks about this structure being placed
12 against a person's face. He doesn't give other
13 things. He just gives -- he says that it may be
14 positioned against the upper lip.

15 Q. Are you aware of any other place the
16 spacer 27 would be positioned other than against the
17 upper lip of the speaker?

18 A. I haven't considered that.

19 Q. And spacer 28 provides acoustical
20 separation between the mouth microphone and the
21 throat microphone. Correct?

22 ATTORNEY YANG: Objection.
23 Mischaracterizes the document.

24 THE WITNESS: Are you referring to a
25 specific part of Meisel?

1 BY ATTORNEY COWELL:

2 Q. I'm just asking you based on your
3 knowledge of Meisel.

4 ATTORNEY COWELL: Same objections.

5 [Witness reviewed document.]

6 THE WITNESS: Can you repeat the question?

7 ATTORNEY COWELL: Sure.

8 BY ATTORNEY COWELL:

9 Q. Spacer 28 would provide acoustical
10 separation between mouth microphones and the throat
11 microphone. Correct?

12 ATTORNEY YANG: Objection.
13 Mischaracterizes the document.

14 THE WITNESS: Meisel -- I see where Meisel
15 discloses that spacer 27 can provide acoustic
16 separation.

17 BY ATTORNEY COWELL:

18 Q. I'm asking about spacer 28.

19 ATTORNEY YANG: Same objection.

20 THE WITNESS: Yes. I would believe that
21 would provide acoustic separation between the mouth
22 and the throat microphone.

23 BY ATTORNEY COWELL:

24 Q. And Meisel shows the housing is -- except
25 for those two spacers, the housing is flat.

1 Correct?

2 ATTORNEY YANG: Objection. To the extent
3 the question mischaracterizes the document.

4 THE WITNESS: The embodiment shown in
5 Figure 5 is a front on view. It may be flat. It's
6 hard to tell for sure from Figure 5.

7 BY ATTORNEY COWELL:

8 Q. Well, looking at the other figures of
9 Meisel, would you say that the housing is flat
10 except for the two spacers?

11 ATTORNEY YANG: Same objection.

12 THE WITNESS: The other figures three,
13 four, and seven, show embodiments that have a flat
14 face upon which the spacers are mounted.

15 BY ATTORNEY COWELL:

16 Q. Are you aware of any embodiments of Meisel
17 that have the form microphone shown in Figure 5 that
18 aren't flat?

19 ATTORNEY YANG: Objection. Outside the
20 scope of the expert declaration.

21 THE WITNESS: I didn't read Meisel with an
22 eye toward analyzing whether or not it was limited
23 to flat embodiments. But I don't recall reading
24 anything in there that required it to be so.

25 BY ATTORNEY COWELL:

1 Q. Meisel doesn't show any embodiments where
2 there is side walls around the throat microphone;
3 does it?

4 ATTORNEY YANG: Objection.
5 Mischaracterizes the document.

6 THE WITNESS: What do you mean by side
7 walls?

8 BY ATTORNEY COWELL:

9 Q. Well, looking at Figure 5, there is the
10 spacer 28. Correct? Do you see that?

11 A. Yes.

12 Q. But to the left, right, and bottom of the
13 throat microphone, there is no structure shown that
14 would block any air flow. Correct?

15 ATTORNEY YANG: Objection.
16 Mischaracterizes the document.

17 THE WITNESS: The Figure 5 shows that the
18 microphones are embedded in housing. That housing
19 shows a cover and also a ring around where the
20 microphone would be.

21 Looking at Figure 7, it seems to indicate
22 that that is recessed to help protect the microphone
23 from sounds emanating from different directions.

24 BY ATTORNEY COWELL:

25 Q. And based on your understanding of Meisel,

1 are the microphones shown in Figure 5 -- are they
2 going to pick up environmental sounds?

3 ATTORNEY YANG: Objection. Vague.

4 THE WITNESS: Can you be a little more
5 specific?

6 BY ATTORNEY COWELL:

7 Q. What part of my question needs more
8 specificity?

9 A. What type of environmental sounds, or
10 where are they coming from. What types of levels
11 are they, relative to the speech. The sensitivity
12 of the microphones that one of ordinary skill in the
13 art might choose.

14 Q. Do you know what an environmental sound
15 is?

16 A. I have an idea in my head, when you say
17 "environmental sound." I want to know what you mean
18 when you're asking the question.

19 Q. What's the idea in your head as to what an
20 environmental sound is?

21 A. That is general sound in the environment.
22 The questions I had, though, are what levels are we
23 talking about. Are we talking about quiet? Loud?
24 And I also had questions about what microphones
25 you're assuming are in there.

1 And that would answer the question. I
2 just want to know the parameters.

3 Q. Well, what microphones would you assume
4 are in Meisel?

5 ATTORNEY YANG: Objection. Speculation.

6 THE WITNESS: I hadn't considered many
7 choices. I have not considered. I do know that
8 some microphones are good at picking up sounds that
9 are nearby. Some have sensitivity that can pick up
10 environmental sounds very well. And others are
11 chosen such that they do not pick up low level
12 sounds or environmental sounds.

13 There are many questions in your
14 hypothetical, I don't know the answer to.

15 BY ATTORNEY COWELL:

16 Q. So Meisel talks about using close talking
17 microphones; doesn't it?

18 ATTORNEY YANG: Objection. Vague.

19 THE WITNESS: In his background section,
20 Meisel says that, "In actual applications, close
21 talking head nodding microphone is typically used."
22 Speaking of the background for speech recognition
23 situations.

24 If you're assuming close talking
25 microphones, to your previous question, it says:

1 "Close talking microphones do not
2 adequately pick up sounds which are not near the
3 microphone."

4 Hence my questions about the intensity,
5 type, and characteristics of the environmental
6 sounds.

7 BY ATTORNEY COWELL:

8 Q. Okay. Do you see in column two of
9 Meisel -- well, let's just start in column one,
10 actually. Lines 65 to 68. It says:

11 "It's a further objective of this
12 invention to allow close talking microphones to be
13 used."

14 Do you see that?

15 A. Yes.

16 Q. And if you see in column two, lines 54 to
17 55, he again talks -- says the selective effect of
18 microphones is enhanced by using the close talking
19 directional microphones.

20 Do you see that?

21 A. Yes.

22 Q. Does that provide guidance as to what sort
23 of microphones would be used in Meisel?

24 A. Yes.

25 Q. With that in mind, what sort of

1 microphones would Meisel use?

2 A. Meisel says or indicates it would be
3 advantageous, or at least his system enables the use
4 of close talking directional microphones.

5 Q. Okay. And using close talking directional
6 microphones, would those microphones pick up
7 environmental sounds?

8 A. If the sounds are very loud, yes. If they
9 are subdued, much less so.

10 Q. All right. And Meisel, we talked about
11 earlier -- Meisel uses the throat microphone number
12 20. Correct?

13 A. Yes.

14 Q. And that throat microphone is not in
15 contact with the user's skin; is it?

16 ATTORNEY YANG: Objection.
17 Mischaracterizes the document.

18 ATTORNEY COWELL: Let me rephrase that
19 just to make the question a little clearer.

20 BY ATTORNEY COWELL:

21 Q. Does Meisel disclose that the throat
22 microphone is in contact with the user's skin?

23 ATTORNEY YANG: Same objection.

24 THE WITNESS: Meisel discloses a throat
25 microphone. He does not explicitly state that it is

1 in contact with the skin, or rather that it picks up
2 the vibration of the skin caused by the vocal cords.

3 BY ATTORNEY COWELL:

4 Q. When it picks up those vibrations, it has
5 to pick them up from the air since it's not in
6 contact with the skin. Correct?

7 ATTORNEY YANG: Objection.
8 Mischaracterizes the document.

9 THE WITNESS: So, a throat microphone that
10 is in proximity to the throat is picking up
11 vibrations of the skin created by the movement of
12 the vocal cords, as those vibrations then cause
13 vibration in the air near the microphone.

14 BY ATTORNEY COWELL:

15 Q. Those vibrations from the skin generate
16 acoustic waves that are picked up by the microphone.
17 Is that correct?

18 A. Vibrations in the skin create acoustic
19 waves that are picked up by the throat microphone.
20 Yes.

21 Q. Right. And those acoustic waves travel
22 through the air. Right?

23 A. Yes. They do.

24 Q. Now, Meisel uses the throat microphone to
25 determine whether you have a stop consonant. Is

1 that correct?

2 ATTORNEY YANG: Objection.

3 Mischaracterizes the document.

4 THE WITNESS: No. Not -- I should say,
5 the throat microphone is used for things in addition
6 to detecting things. But it does not -- its purpose
7 is not to detect the existence of a stop consonant.

8 It's to detect the existence of voicing.

9 BY ATTORNEY COWELL:

10 Q. Let's look at Figure 13 of Meisel.

11 A. Okay.

12 Q. And so, we see the throat microphone 20 is
13 at the very bottom of the figure. Correct?

14 A. Yes.

15 Q. And that's an input into ADCI number 62.
16 Correct?

17 A. Number 58.

18 Q. Oh, I'm sorry. Yes. The signal is coming
19 out of 62. Let me re-ask that correctly.

20 The throat microphone is an input into
21 ADCI number 58. Correct?

22 A. Yes.

23 Q. Okay. And the other input to ADCI 58 is
24 the side mouth microphone number 18. Correct?

25 ATTORNEY YANG: Objection.

1 Mischaracterizes the document.

2 THE WITNESS: Sorry. Could you re-ask the
3 question?

4 BY ATTORNEY COWELL:

5 Q. The only other input to ADCI 58 is the
6 side mouth microphone which is number 18. Correct?

7 ATTORNEY YANG: Same objection.

8 THE WITNESS: Yes.

9 BY ATTORNEY COWELL:

10 Q. And the ADCI compares the amplitude of the
11 side mouth microphone signal and the throat mouth
12 microphone signal. Correct?

13 A. The ADCI is comparing the amplitude of the
14 side mouth microphone to the throat microphone.

15 Q. And the output of ADCI 58 is signal 62,
16 which is a one over zero. Correct?

17 A. Yes.

18 Q. And that outputs to one if the amplitude
19 of -- let me make sure I get to correct.

20 Under what circumstances will the ADCI's
21 58 output to one?

22 A. I've done that analysis in my declaration.
23 Let's just turn there.

24 Q. If you can just let me know what page you
25 are on when you find what you are looking for?

1 A. Right now, I'm in the vicinity of page 34.

2 [Witness reviewed document.]

3 A. Okay. I'm now looking at page 40.

4 Q. And what paragraph is that?

5 A. Fifty-eight.

6 "Meisel explains that the first mouth
7 microphone, 18, and the throat microphone, 20, are
8 both connected to ADCI unit 58, which is part of the
9 signal preprocessor two.

10 The output 62, from the ADCI unit 58,
11 'will become logically true when a voiced stop sound
12 is being pronounced.'

13 In other words, if the output of the ADCI
14 unit, 58, the comparison of the throat signal and
15 the side mouth signal is non-zero, then the signal
16 preprocessor two determines that a voiced -- that a
17 voiced speech is present."

18 Q. So is the output 62 logically true when
19 the throat microphone signal amplitude is greater
20 than that of the side mouth microphone?

21 ATTORNEY YANG: Objection to the extent
22 the question mischaracterizes the document.

23 [Witness reviewed document.]

24 THE WITNESS: Can you ask your question
25 again?

1 BY ATTORNEY COWELL:

2 Q. Is the output 62 logically true when the
3 throat microphone signal amplitude is greater than
4 that of the side mouth microphone?

5 ATTORNEY YANG: Same objection.

6 THE WITNESS: Yes.

7 BY ATTORNEY COWELL:

8 Q. And according to Meisel, that means a
9 voiced stop sound is being pronounced. Correct?

10 THE WITNESS: Meisel indicates that when a
11 voice stopped sound is being pronounced, it is
12 logically true.

13 BY ATTORNEY COWELL:

14 Q. And if a voiced stop sound is not being
15 pronounced, the output 62 is not logically true.
16 Correct?

17 A. That does not follow.

18 Q. Where does Meisel disclose that the output
19 62 to be logically true, when a voiced stop sound is
20 not being pronounced?

21 A. Meisel uses that as an example, when you
22 have to show that his system works well, even in the
23 very difficult case of stop signals.

24 One of ordinary skill in the art would
25 find it very obvious that when you have voicing

1 information coming from the throat, that you have a
2 voice signal. Whether that's a stop consonant or
3 another voice signal.

4 Meisel goes on to say that when there is a
5 voiced stop -- stop signal, the output would be
6 logically true. He does not say that that is the
7 only time. And one of ordinary skill in the art
8 would understand that it is not the only time.

9 Q. Output 62 will be logically false if the
10 side mouth microphone amplitude is greater than that
11 of the throat mouth -- excuse me -- the throat
12 microphone. Correct?

13 ATTORNEY YANG: Objection.
14 Mischaracterizes the document.

15 THE WITNESS: If the side mouth signal is
16 larger -- consistently larger than the throat
17 signal, then the output will be false.

18 BY ATTORNEY COWELL:

19 Q. Right. There is only two possibilities
20 for that output. True or false. Correct?

21 A. Yes.

22 Q. And then if side mouth is less than throat
23 signal, true. Right?

24 A. I've answered that.

25 Q. You can still --

1 A. Yes.

2 Q. -- answer it. Okay?

3 A. Yes. That is true.

4 Q. And if side mouth is greater than the
5 throat signal, output is false. Right?

6 A. If the side mouth is lower than the throat
7 signal, it identifies voice speech. Otherwise, it
8 labels it as unvoiced speech, or it indicates -- it
9 doesn't label it as speech.

10 It just does not indicate the presence of
11 voice speech.

12 Q. I'm sorry. I don't think that answered my
13 question. I said -- I just want to make sure we are
14 on the same page as to how this particular component
15 works.

16 If the side mouth signal is greater than
17 the throat signal, the output 62 would be false.
18 Correct?

19 ATTORNEY YANG: Objection. Asked and
20 answered.

21 THE WITNESS: If the side mouth signal is
22 greater than the throat signal, and it's integrated,
23 so it's looking average over a period of time, then
24 the output would be false or logically zero.

25 ATTORNEY COWELL: Let's take a 10-minute

1 break.

2 (Short break.)

3 ATTORNEY COWELL: Welcome back from the
4 break.

5 THE WITNESS: Thank you.

6 BY ATTORNEY COWELL:

7 Q. So, I wanted to talk a little bit about
8 Kaneda. And you opined that a person skilled in the
9 art would have combined Meisel with Kaneda.
10 Correct?

11 A. Yes.

12 Q. Where would you -- where would Kaneda go
13 in Meisel?

14 ATTORNEY YANG: Objection. Vague.

15 THE WITNESS: Kaneda discloses using the
16 power of two microphones that are differently spaced
17 from the output and pairing the power difference to
18 determine whether or not there is speech or sound
19 emanating from the mouth.

20 Kaneda could use the mouth microphones or
21 other microphones there disclosed by Meisel and
22 generate a signal that determines whether or not
23 speech is present.

24 BY ATTORNEY COWELL:

25 Q. That wasn't my question, though. My

1 question was, where would a person of ordinary skill
2 in the art who wanted to combine Kaneda with Meisel
3 put the Kaneda system?

4 A. Maybe I didn't understand. Are you saying
5 physically put, logically tie into the signals?

6 Q. Yeah. Where would it fit, logically?

7 A. It would take signals from two of the
8 microphones, and it would output a decision about
9 whether or not speech is present.

10 Q. And where would that output of whether or
11 not speech is present -- where would that go in
12 Meisel?

13 ATTORNEY YANG: Objection. Vague.

14 THE WITNESS: So one of ordinary skill in
15 the art could select to put it in several places.
16 One obvious place would be the determination in
17 Meisel of whether or not speech is present. Which
18 is determined in several places.

19 For example, the output of 90, or 88, in
20 Figure 13, is indicative of the presence of speech.
21 Also, interior to the ADCIs, when performing
22 integration, there is a determination of whether or
23 not a signal is noise, as disclosed in my
24 declaration.

25 Or whether or not to integrate and compare

1 against speech thresholds. It could have been there
2 as well. Or, I imagine that one of ordinary skill
3 in the art could have put it in both places.

4 BY ATTORNEY COWELL:

5 Q. Well, in your opinion, where would one of
6 skill in the art pull the signal coming out of
7 Kaneda?

8 ATTORNEY YANG: Objection. Vague.
9 Outside the scope.

10 THE WITNESS: So, I just answered that, I
11 guess. Are you looking for a different answer? Or
12 another answer.

13 BY ATTORNEY COWELL:

14 Q. I'm looking for a specific answer. You
15 told me many places it could go. I want to know if
16 someone of skill in the art were motivated to create
17 a Kaneda/Meisel system, where would they put that
18 system coming out of Kaneda?

19 ATTORNEY YANG: Objection. Vague. Asked
20 and answered.

21 THE WITNESS: I state in my declaration
22 that:

23 "Incorporating the result of Kaneda's
24 conventional speech detection with the Meisel system
25 would be trivial to a POSITA because Meisel already

1 discloses a set of signals that conveys the detected
2 characteristics of the speech to a processor for
3 speech recognition.

4 Furthermore, Kaneda discloses that
5 correctly identifying speech periods and noise
6 periods in a speech recognition system is important
7 for improving accuracy."

8 So, based on what Meisel has disclosed
9 there, the output of Kaneda's system would be
10 transmitted along with the other binary information
11 to the speech recognition subsystem.

12 BY ATTORNEY COWELL:

13 Q. Can you tell me what paragraph you were
14 just reading?

15 A. It's my declaration. Paragraph 95.

16 Q. And can you tell me where -- where, in any
17 figure of Meisel, would be where you said that
18 output of Kaneda's system would be transmitted to,
19 just so I can follow along.

20 A. For example, Figure 1. Where it shows
21 coming out of block two, the digital signals
22 identifying codes.

23 Q. Okay. So the digital signals identifying
24 codes would also have a line from the Kaneda system
25 in the hypothetical device proposal?

1 ATTORNEY YANG: Objection. Vague.

2 THE WITNESS: The Kaneda system would be
3 incorporated into the signal preprocessor.

4 BY ATTORNEY COWELL:

5 Q. That wasn't my question, though. My
6 question was just trying to understand your
7 testimony.

8 The line that says "digital signals
9 identifying codes" would also include a signal
10 coming from a Kaneda system in your hypothetical
11 device.

12 Is that correct?

13 ATTORNEY YANG: Objection. Asked and
14 answered.

15 THE WITNESS: Yes.

16 BY ATTORNEY COWELL:

17 Q. Which two microphones would your
18 hypothetical Kaneda system use?

19 ATTORNEY YANG: Objection. Vague.

20 THE WITNESS: I disclose in my declaration
21 that the Kaneda processing could use one of the two
22 acoustic microphones. I list the noise microphone;
23 the first mouth microphone; and the second mouth
24 microphone.

25 And then I give a discussion of it using

1 the two mouth microphones.

2 BY ATTORNEY COWELL:

3 Q. Sorry. What -- what paragraph are you
4 looking at?

5 A. Ninety-six.

6 Q. So it's your opinion that a person of
7 skill in the art would use the two mouth microphones
8 as inputs to Kaneda?

9 Is that correct?

10 ATTORNEY YANG: Objection, to the extent
11 that the question mischaracterizes the witness'
12 prior testimony.

13 THE WITNESS: So I -- I say that there are
14 three from which to choose. The nose; the mouth;
15 and the second mouth. And then I give a discussion
16 of how one could use -- would use the two mouth
17 microphones. And why that would be effective.

18 BY ATTORNEY COWELL:

19 Q. So I'm just asking if a person of skill in
20 the art were motivated to create the Kaneda/Meisel
21 device you propose here, which two microphones would
22 they use?

23 ATTORNEY YANG: Objection. Asked and
24 answered.

25 THE WITNESS: A person of ordinary skill

1 in the art would have to choose two acoustic
2 microphones in the vicinity of the mouth.

3 A person of ordinary skill in the art
4 would know that as their microphones are laid out or
5 spaced, or placed, you could use, for example, the
6 two mouth microphones; or the mouth and the nose
7 microphone; or the nose and another mouth
8 microphone.

9 These would be easy decisions based on
10 other design constraints. So, for me to -- I feel
11 like you're asking if I could predict which choice
12 one would make. I have given one choice or analyzed
13 one choice. But any of them would work.

14 BY ATTORNEY COWELL:

15 Q. So, sitting here right now, you just don't
16 have an opinion on which two a person of skill in
17 the art would choose if they are implementing the
18 device you proposed?

19 ATTORNEY YANG: Objection.
20 Mischaracterizes the witness' prior testimony.

21 THE WITNESS: Can you ask that again?

22 BY ATTORNEY COWELL:

23 Q. Sitting here right now, do you have an
24 opinion on which two microphones a person of skill
25 in the art would choose if they were implementing

1 the Kaneda/Meisel device that you've proposed?

2 ATTORNEY YANG: Same objection.

3 THE WITNESS: In my declaration, I
4 explained how the two mouth microphones could be
5 used in the Kaneda system.

6 Sitting here today, I also explained to
7 you, as alluded to in my declaration, that one of
8 ordinary skill in the art could equally choose any
9 two of the acoustic microphones in the vicinity of
10 the mouth.

11 BY ATTORNEY COWELL:

12 Q. Which two would they choose, though?

13 ATTORNEY YANG: Objection. Asked and
14 answered.

15 BY ATTORNEY COWELL:

16 Q. You said they could choose multiple
17 combinations. I just want to know which two, in
18 your opinion, a person of skill in the art would
19 choose?

20 ATTORNEY YANG: Objection. Argumentative.

21 THE WITNESS: I've already answered that.
22 It depends on what the design constraints are. But
23 I have given a very likely example of what they
24 might choose. Any of them would work.

25 I mentioned three acoustic microphones in

1 my declaration. I choose two of them to discuss how
2 that would work. If you want to fixate on a single
3 one, you can fixate on that, because I've described
4 it.

5 But I'm also telling you that one of
6 ordinary skill in the art, of the system that has
7 various other constraints, would know that they
8 could choose among those acoustic microphones,
9 according to the teachings in Kaneda and Meisel, and
10 expect success.

11 BY ATTORNEY COWELL:

12 Q. What's the intended use of the combination
13 device that you've proposed in your declaration?

14 ATTORNEY YANG: Objection. Outside the
15 scope. Vague.

16 THE WITNESS: When you say the intended
17 use, you mean the intended purpose for adding
18 Kaneda? Or when this device is all complete, what
19 would we use it for?

20 BY ATTORNEY COWELL:

21 Q. I mean the latter.

22 A. The latter.

23 ATTORNEY YANG: Same objections.

24 THE WITNESS: I suppose that I couldn't
25 anticipate all the things that it may be used for.

1 But, at the very least, it could be used for the
2 purpose that Meisel states for his invention, as
3 used in a speech recognition system.

4 BY ATTORNEY COWELL:

5 Q. Do you have an opinion on what one would
6 use the combination device you proposed for?

7 ATTORNEY YANG: Objection. Outside the
8 scope. Speculation. Vague.

9 THE WITNESS: I do express an opinion on
10 the matter. And in my declaration, that echoes what
11 I just said. That Meisel describes the speech
12 recognition system that would benefit from this
13 combination.

14 BY ATTORNEY COWELL:

15 Q. And by "this combination," just to button
16 everything up, what do you mean by that? In what
17 paragraph are you looking at?

18 A. I'm looking --

19 Q. Let me break that down. That was three
20 questions. First, what paragraph are you looking
21 at?

22 A. One hundred. And that the pages around
23 one hundred.

24 Q. Okay. And when you say that Meisel's
25 speech recognition would benefit from this

1 combination, what precisely are you referring to?

2 A. Adding Kaneda's conventional signal
3 processing technique for detecting noise.

4 ATTORNEY COWELL: Let's go off the record.
5 Give me 10 minutes to look at my notes, but then I
6 think we're probably done.

7 THE WITNESS: Okay.

8 (Off the record.)

9 ATTORNEY COWELL: I have no further
10 questions for the witness.

11 THE WITNESS: Thank you.

12 ATTORNEY YANG: No questions from me
13 either.

14 ATTORNEY COWELL: That's it.

15 COURT REPORTER: May I have the orders,
16 please?

17 Ms. Yang?

18 ATTORNEY YANG: Thank you. I don't need
19 it.

20 ATTORNEY COWELL: I'll take the rough and
21 you have our order for the final.

22 (Whereupon, the deposition adjourned at
23 11:07 a.m.)

C E R T I F I C A T E

I, Giselle Mitchell-Margerum, RPR, CRI, CCR, LCR, ACCR, CSR Certified Court Reporter, Georgia, do hereby certify that the witness was first duly sworn by me and that I was authorized to and did report said proceedings.

I further certify that the foregoing transcript is a true and correct record of the proceedings; that said proceedings were taken by me stenographically and thereafter reduced to typewriting under my supervision; that reading and signing was not requested; and that I am neither attorney nor counsel for, nor related to or employed by, any of the parties to the action in which this deposition was taken; and that I have no interest, financial or otherwise, in this case.

I further certify that counsel for Google LLC was present at the deposition; that the deposition took place at 271 17th Street Northwest, Suite 1400, Atlanta, Georgia; and that the deposition began on Friday, February 3, 2023 at 9:00 a.m. and ended at 11:07 a.m.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of February 2023.

GISELLE MITCHELL-MARGERUM, RPR, CRI, CCR, LCR, CSR

1 DISCLOSURE

2 STATE OF GEORGIA:

3 Deposition of DAVID J. ANDERSON

4
5 Pursuant to Article 8.B of the Rules and
6 Regulations of the Board of Court Reporting of the
7 Judicial Council of Georgia, I make the following
8 disclosure:

9 I am a Georgia Certified Court Reporter. I am
10 here as a representative of TRANSPERFECT LEGAL
11 SOLUTIONS.

12 I was contacted by TRANSPERFECT LEGAL SOLUTIONS to
13 provide court reporting services for this Deposition.
14 I will not be taking this Deposition under any contract
15 that is prohibited by O.C.G.A. 15-14-37 (a) and (b).

16 I have no contract/agreement to provide reporting
17 services with any party to the case, any counsel in the
18 case, or any reporter or reporting agency from whom a
19 referral might have been made to cover this Deposition.
20 I will charge my usual and customary rates to all
21 parties in the case and a financial discount will not
22 be given to any party to this litigation.

23 This, the 6th day of February, 2023.

24 GISELLE MITCHELL-MARGERUM, RPR, CRI, CCR, LCR, ACCR,
25 CSR

CERTIFICATE OF DEPONENT

I, DAVID J. ANDERSON, hereby certify that I have read the foregoing pages, numbered 1 through 66, of my deposition of testimony taken in these proceedings on Friday, February 3, 2023 and, with the exception of the changes listed on the next page and/or corrections, if any, find them to be a true and accurate transcription thereof.

Signed:

Name: DAVID J. ANDERSON

Date:

1 ERRATA SHEET

2 Case Name: Google v. Jawbone

3 Witness Name: DAVID J. ANDERSON

4 Date:

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20 ____/____

21

22 Subscribed and sworn to before

23 me this date ____ day of month ____, 2023.

24

25 DAVID J. ANDERSON

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