

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

3
4 SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG
5 ELECTRONICS AMERICA, INC.,
6 Petitioners,

7 VS.

8 MAXELL, LTD.,
9 Patent Owner.

10 Inter Partes Review No.: IPR2024-00828

11
12
13 ORAL DEPOSITION OF
14 SETH JAMES NIELSON, Ph.D.

15 Austin, Texas

16 January 15, 2025

17 10:06 a.m.

18
19
20 Reported by:

21 Micheal A. Johnson, RDR, CRR

22 Job No. 6786566-001

1 ORAL DEPOSITION OF SETH JAMES NIELSON,
2 Ph.D., produced at the instance of the Patent Owner,
3 in the above-styled and numbered cause on the
4 15th day of January, 2025, at 10:06 a.m., before
5 Micheal A. Johnson, RDR, CRR, Notary Public in and
6 for the State of Texas, reported by realtime
7 stenographic means, at the offices of DLA Piper,
8 LLP, 303 Colorado Street, Suite 3000, Austin, Texas.

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January 15, 2025

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DEPOSITION EXHIBITS
SETH JAMES NIELSON, Ph.D.
January 15, 2025

NUMBER	DESCRIPTION	MARKED
Exhibit 1001	U.S. Patent 8,982,086	50
Exhibit 1003	Declaration of Seth James Nielson, Ph.D., in Support of Petition for Inter Partes Review of U.S. Patent 8,982,086	8
Exhibit 1006	U.S. Patent 8,683,582	46
Exhibit 1007	U.S. Patent Application Publication 2007/0097096	98
Exhibit 1010	U.S. Patent 8,477,115	102

1 PROCEEDINGS

2 SETH JAMES NIELSON, Ph.D.,
3 called as a witness, having been duly sworn by a
4 Notary Public, was examined and testified as
5 follows:

6 EXAMINATION

7 BY MR. BRUNEEL:

8 Q. Good morning, my name is Seth Bruneel. I
9 represent Maxell in this case.

10 Please state your name.

11 A. Seth James Nielson.

12 Q. Dr. Nielson, have you been deposed
13 before?

14 A. I have.

15 Q. About how many times?

16 A. Maybe 45.

17 Q. And most recently?

18 A. I think it was a month ago, about.

19 Q. Is there any reason you would not be able
20 to testify truthfully today?

21 A. No.

22 Q. Specific to the IPR deposition, do you

1 understand that you're not permitted to discuss the
2 substance of your testimony with counsel during
3 breaks?

4 A. Yes.

5 Q. Do you agree not to discuss the substance
6 of your testimony with counsel during breaks?

7 A. Yes.

8 Q. This IPR relates to US patent number
9 8,982,086, correct?

10 A. I'll be honest, I don't have the entire
11 number memorized off the top of my head, but that
12 sounds correct.

13 Q. And can we -- if I refer to this as the
14 '086 or '086 patent, will you understand this is the
15 patent I'm referring to?

16 A. Yes.

17 Q. And of course you may do the same.

18 Now, I understand that you've testified
19 or otherwise provided opinions regarding this '086
20 patent in other cases; is that right?

21 A. Yes.

22 Q. Today if I ask you questions about your

1 opinions, your report, your declaration, this case,
2 this matter, can we agree that we're talking about
3 the IPR specifically?

4 A. Yes, with the caveat that my opinions are
5 consistent throughout. So if there's a question
6 that relates to my opinion, I'll express it as it
7 is. I will refer to this case as the IPR case, of
8 course.

9 Q. Okay. Fair enough.
10 So let's turn to your declaration.
11 (Deposition Exhibit 1003 marked for
12 identification.)

13 BY MR. BRUNEEL:

14 Q. So I've handed you a document marked
15 Exhibit 1003. Do you see that?

16 A. I do.

17 Q. And what is this document?

18 A. This appears to be a complete copy,
19 printed copy, of the declaration that I submitted in
20 support of the petition in this IPR, including my CV
21 at the end.

22 Q. And on page 1 of Exhibit 1003, is that

1 your signature?

2 A. It is.

3 Q. And this is dated April 26th, 2024.

4 Do you see that?

5 A. Yes.

6 Q. When did you begin preparing this
7 declaration?

8 A. I don't know.

9 Q. Who asked you to prepare the declaration?

10 A. Well, I was retained by counsel for
11 Samsung as an expert in this IPR and other related
12 matters. I'm sure as part of that process I was
13 asked to prepare this declaration.

14 Q. Did that request come directly from
15 Samsung?

16 A. No, it came from counsel for Samsung.

17 Q. In preparing in declaration, did you
18 speak with anyone from Samsung?

19 A. No.

20 Q. If we turn to paragraph 2, which is on
21 page 13 of the exhibit.

22 A. Oh, page 13 of the exhibit or page --

1 Q. Page 1 of the document.

2 A. I gotcha. I see it, yes. I have it.

3 Q. I'm going to use the exhibit page
4 numbers --

5 A. No problem.

6 Q. -- and paragraph numbers to help us out.
7 So in paragraph 2 you say: I currently
8 hold the opinions set forth in this declaration.

9 Do you see that?

10 A. Yes.

11 Q. Have any of the opinions -- do you still
12 currently hold the opinions set forth in this
13 declaration?

14 A. Yes.

15 Q. Have any of the opinions changed since --

16 A. None that I'm aware of. I don't believe
17 so.

18 Q. And then in paragraph 5, you state: I am
19 a subject matter expert in cybersecurity, computer
20 networks, and software engineering.

21 Do you see that?

22 A. I do.

1 Q. Which of those, cybersecurity, computer
2 networks or software engineering, would you say that
3 the '086 patent is related to?

4 A. I think throughout the '086 patent,
5 including the specification and embodiments
6 described therein, you will see elements of
7 cybersecurity and software engineering for certain.
8 Computer networks are often related or associated.

9 Q. On the next page, page 14 of the exhibit,
10 looking at paragraph 9, there you state as part of
11 your background: During my work as a software
12 engineer at Quallaby, Metrowerks and Google, I
13 created, tested and/or maintained hundreds of
14 thousands of lines of source code in a wide range of
15 computer programming languages.

16 Do you see that?

17 A. I do.

18 Q. Were any of those lines of codes related
19 to biometrics?

20 A. No.

21 Q. Were any of those lines of code related
22 to fingerprints?

1 A. Although I don't think that's necessarily
2 relevant to what the '086 is about, no.

3 Q. And then paragraph 9 continuing onto
4 page 15, you say: This included components related
5 to computer networking, graphical user interfaces,
6 operating system build/configuration, web
7 communications, automated deployment of software,
8 virtual machines and secure communications.

9 Do you see that?

10 A. I do.

11 Q. Are any of the -- do any of these -- are
12 all of these software-based components, would you
13 say?

14 A. It's primarily software. There are
15 portions of this that are also related to hardware
16 such as the operating system build config and that's
17 related to work I did at Metrowerks and also some of
18 the automated deployment of software. I don't
19 recall if there was a specific hardware component in
20 the virtual machine work that I did. Off the top of
21 my head, I don't remember. There may have been.

22 Q. So what type of hardware components were

1 involved with the operation system build config?

2 A. Sure. So when I worked at
3 Metrowerks -- I list Metrowerks, it was the last
4 entity of -- originally it was Lineo, L-i-n-e-o,
5 which was an embedded Linux company. And "embedded"
6 means we were putting Linux onto -- these days you
7 might call them IoT, but back then they were just
8 called embedded devices. It could be anything from
9 a pocket-type computer -- they weren't really using
10 smartphones in 2002, but they were using -- they
11 were using -- they called them pocket PCs, but they
12 were, like, small, kind of looked like a smartphone,
13 but they didn't have a phone. PalmPilots and the
14 iPAQ and some of these kind of things.

15 So we were putting Linux on those. We
16 were putting Linux on other types of embedded
17 devices, traffic controllers, all kinds of systems.
18 These systems had a wider range of hardware than
19 your typical laptop. They had different types of
20 processors, they had different types of specialized
21 processors. And so in terms of deploying Linux to
22 those systems, you had to -- you had to do the right

1 configuration in order to get Linux correctly
2 deployed to that type of hardware.

3 Q. So it sounds like you're -- retrofitting
4 might not be the right word, but retrofitting the
5 software onto the spectrum of devices, the hardware?

6 A. Another way of thinking about it is all
7 software has to hit hardware at some level. And how
8 that works -- for a lot of laptops that you see
9 around, they have a very standard kind of interface.
10 So it's kind of standardized. You can configure the
11 software, and it's going to work on most of the
12 laptops, right.

13 When you have custom hardware, the
14 processor might have unique instruction sets. The
15 memory might have a different configuration. The
16 way that the board uses memory, like the way it
17 accesses memory, can be extremely custom. And so
18 you have to set up the thing that converts all your
19 instructions, all of your programming language, all
20 of your components, all of those pieces have to be
21 built in a way that they're going to work with that
22 custom hardware.

1 Q. I see. Were you designing the hardware?

2 A. I was not designing hardware myself. I
3 had to be able to work with hardware designs in
4 terms of understanding their operations, sometimes
5 at a hardware level. So one very specific example
6 of that that may be relevant to this kind of
7 conversation is the way biometrics today are
8 typically secured is they're done on a secure chip
9 or in a secure enclave or some -- so that the
10 fingerprints are not accessible to other programs on
11 the system. It's like a -- it's like a -- kind of
12 like a lockbox.

13 In 2002 we weren't really using secure
14 processors like that, but some of the early concepts
15 were already in existence. So you would have on a
16 processor a special mode that would get used for
17 certain types of security operations and it was a
18 very early form of the secure enclave. So knowing
19 how those commands to the processor -- like it was
20 a -- you had to signal the processor to have the
21 processor switch into that mode was part of the sort
22 of work that I was dealing with.

1 Q. Okay. In paragraph 17, which is on
2 page 17 of Exhibit 1003, you list some of the work
3 you've done at Harvard Labs and Crimson Vista. One
4 that caught my eye was video game systems.

5 A. Yes.

6 Q. Can you tell me a little bit about the
7 work you did with video game systems?

8 A. I'd have to go back and look through my
9 notes. It was most likely a source code review,
10 either likely for a trade secret dispute or it may
11 have been a patent dispute. I'd have to go back to
12 look.

13 Q. Is that listed in -- was this a -- we'll
14 get to your CV in a minute, but was this a
15 litigation matter?

16 A. It was probably related to litigation. I
17 don't believe it was one in which I was offering
18 testimony. I believe I was just a consultant.

19 Q. Can you tell me what the system was?

20 A. I don't remember. It was probably in
21 2012 maybe, so my memory is a little fuzzy. I'd
22 have to go back and dig up my notes.

1 Q. Purely a curiosity. I'm going to rule
2 you out as a gamer, then.

3 A. I do play Hearts of Iron IV,
4 Civilization. Those are my types of games.
5 Sometimes with my kids I play Halo.

6 Q. That's a good one. So then if we do turn
7 to page -- it's page -- I think it's 121 of
8 Exhibit 1003, this is labeled Exhibit A.

9 On the next page, this is your CV,
10 correct?

11 A. Apparently as of March 2024, yes.

12 Q. You beat me to it. So is that -- do you
13 have any changes or supplements since March 2024
14 that could be relevant to this proceeding?

15 A. Relevant to this proceeding. Let me
16 think for a minute. I do list my testifying and as
17 I mentioned there was a deposition that was related
18 to this case, another -- not this case, not the IPR.
19 Related litigation, which is now on my current and
20 up-to-date CV.

21 I do work on a number of
22 biometric-related projects. I'm trying to think if

1 there's anything specific about those. Some of them
2 are related to litigation, just completely other
3 matters. I'm trying to think if there's been a
4 deposition since March. I'd have to -- I'd have to
5 go look.

6 Q. Are these related to smartphones?

7 A. At least one of them is. And actually
8 now that I can think of it, yes, I had a deposition
9 for a case where I'm -- on behalf of Apple that's
10 related to biometrics. That deposition, I believe,
11 happened after March. That's obviously -- well,
12 it's not just smartphone. No, that's smartphone,
13 tablets and laptops, actually. So it would include
14 all of those.

15 That's the only one that's jumping to the
16 top of mind. Of course I still teach about the
17 topic in my class, which is ongoing. I sometimes
18 cover it when I teach a seminar in terms of -- I
19 talk a lot about what is useful with the multifactor
20 authentication. That's where you use two types of
21 authentication, like a fingerprint and a password,
22 some of the limitations of that. So I have another

1 semester of teaching that that would be on the CV
2 now.

3 That's probably the main things. I'd
4 have to look to be sure there isn't anything else.

5 Q. Okay. Looking at the page 123 of
6 Exhibit 1003 under the heading Subject Matter
7 Expertise and Selected Projects, about four down
8 there's investigation of server, laptop and hard
9 drives for indicia of tampering.

10 Do you see that?

11 A. I do.

12 Q. What type of tampering would you have
13 been looking for?

14 A. There were accusations that a former
15 employee had actually caused physical damage to the
16 hardware, and so we were investigating that.

17 Q. Do you ever do investigations -- so that
18 would be an example of physical tampering?

19 A. Yes.

20 Q. Do you do also -- and you also do
21 investigations for digital tampering?

22 A. Correct.

1 Q. Have you done analysis of tampering
2 related to biometric security?

3 A. I'm not entirely sure what you mean by
4 that.

5 Q. Let's say bypassing -- or somehow
6 tampering with the authentication of an individual
7 using biometrics.

8 A. I see what you're saying now. I haven't
9 had any specific requests from a client to do that.
10 I do try to keep abreast of the research so that
11 it's something I can talk about with my class or if
12 I did have a client who came to me with that issue,
13 I'd be prepared to deal with it.

14 Q. You mentioned research. Do you do any
15 research?

16 A. I do not do research at the university.
17 I'm an adjunct professor. I teach. I did research
18 while I was at Johns Hopkins as a -- I was -- I was
19 adjunct there as well, but I had a secondary
20 position as the director of advanced research
21 projects in the Information Security Institute. But
22 since leaving Johns Hopkins in 2019, I've not been

1 doing research at a university.

2 We do do research projects at Crimson
3 Vista and with other partners as part of our
4 industry work.

5 Q. On the next page under the
6 heading -- subheading Applied Cryptography, I think
7 the third one down says: Simulated implementation
8 of vehicle-to-vehicle authentication.

9 Do you see that?

10 A. Yes.

11 Q. Can you tell me a little bit about what
12 the vehicle-to-vehicle authentication was?

13 A. Yes. So I was working with a company
14 called OnBoard Security. This came initially out of
15 Johns Hopkins, but then we were doing some work
16 separately through Crimson Vista, which is why I
17 list it there as a Crimson Vista project.

18 Basically as part of, like, safety
19 measures, vehicles are developing various forms of
20 vehicle-to-vehicle communication. So if a vehicle
21 can communicate over a shortwave radio
22 communication, something like even a WiFi or a

1 Bluetooth or something that can be picked up quickly
2 enough, then two cars who are coming in range of
3 each other can communicate to each other their
4 speed, direction, heading and other information.
5 And then they can both use that to calculate if
6 there's a risk of collision.

7 At Johns Hopkins we actually tested this
8 with drones because there is an actual protocol for
9 airplanes. The protocol is unsecured. That means
10 that if somebody wanted to mess with a plane, they
11 can transmit a signal saying, I'm a plane coming at
12 you at a very fast speed, and some systems might be
13 automated and respond to that throwing passengers
14 around, causing damages. We, and the students I
15 worked with, implemented a secure version that we
16 demoed with drones.

17 This is kind of a related project, only
18 it was with ground vehicles, cars. And there are
19 some standard protocols for the vehicle-to-vehicle
20 communication. We were creating a simulation of
21 that and then showing where you would insert, like,
22 public key certificates to allow cars to make sure

1 it was a real transmission from an authorized system
2 and not somebody standing on the street trying to
3 mess with a car.

4 Q. I find that fascinating.

5 So if we flip to page 131 of your -- of
6 Exhibit 1003, this is still in your CV. On the
7 bottom of that page you have a section referring to
8 expert testimony. And if we -- and my question is
9 comparing to the subject matter expertise and
10 selected project section we looked at earlier, do
11 those overlap?

12 A. Yes.

13 Q. Okay. So in either one, can you point to
14 an example where you provided expert testimony
15 related to authentication of user actions in mobile
16 devices?

17 A. So if you look down at -- I think it's
18 the fifth one down here, State of Texas versus
19 Google. This was analysis of location tracking, but
20 user authentication was also a component in the
21 location tracking.

22 Q. Was that a patent case?

1 A. No. That was the State of Texas alleging
2 fraudulent representations of -- from Google to
3 customers. And so I was evaluating how Google's
4 location tracking worked and describing that in a
5 report in support of that litigation.

6 Q. I'd point you to another one. On the
7 bottom of page 133, it says: On behalf of Lenovo,
8 Motorola Mobility.

9 Do you see that one?

10 A. I do.

11 Q. Goes on to the next page. You said
12 counsel was Kirkland & Ellis?

13 A. Yes.

14 Q. Was that the case?

15 MR. MINUTOLI: Objection, form.

16 A. I'm pretty sure.

17 BY MR. BRUNEEL:

18 Q. And was that action also related to the
19 '086 patent?

20 A. I don't believe so.

21 Q. Okay.

22 A. I could be wrong. So part of what I'm

1 trying to remember here -- oh, this does say Maxell.
2 I wonder if I've -- so I had a project that involved
3 IPRs. I wonder if I've -- I wonder if I've got a
4 typo here.

5 Is there another Maxell one that you've
6 noted in the list?

7 Q. I didn't see one.

8 A. Okay. Then this is most likely I've had
9 some kind of splurging of two together I think is
10 what's happened here. I had a -- I had a project
11 with Kirkland & Ellis, I think it was IPR, and it
12 related to some -- either that or I've just got a
13 mistake here, which is also possible. I'd have to
14 go through and see what the case is, but, yes, this
15 is incorrect in terms of the counsel.

16 Q. So if this is referring to the ITC case
17 where it's Maxell versus Lenovo and the '086 patent,
18 do you remember who was counsel there?

19 A. I believe it was still DLA Piper.

20 Did you want me to continue looking
21 for --

22 Q. Please.

1 A. -- ones related to authentication of
2 users on mobile devices?

3 Q. Yes.

4 A. Okay. While we're on this page, on
5 page 134, you can see there's one that is Samsung
6 versus Proxense. I actually usually put the
7 plaintiff first so that should say Proxense versus
8 Samsung, but that dealt with mobile devices and user
9 authentication for financial transactions, including
10 biometric authentication.

11 Q. And that was a patent case?

12 A. Yes. Let me back up. We went a couple
13 of pages in. Let me see if I've missed any other
14 ones.

15 Do you include tablets in mobile devices?

16 Q. Sure.

17 A. In the Dominion Voting Systems versus Fox
18 News, which is on page 133 towards the bottom,
19 second-to-last full section, we did a full forensic
20 investigation of voting machines, including the
21 Android-based tablets that are used for people to
22 mark their ballots. We analyzed the authentication

1 that is typically done using smart cards and
2 iButtons, as well as machine-to-machine
3 authentication.

4 There were other parts of that, but
5 that's the part related to authentication.

6 Q. I understand.

7 A. This one that is Estch versus Public
8 Storage just below it had some kind of device
9 authentication. I don't recall all the details. I
10 know that the patent, to me, appeared to deal more
11 with machine-to-machine-type systems, but some of
12 the infringement allegations, if I recall, were
13 dealing with your softphone software on your device.
14 I don't remember all the different ways
15 authentication played out, but there was some aspect
16 of that. That was also a patent case.

17 If you look at the one down from the
18 Maxell case, it's on page 134, there's Twitter
19 versus Elon Musk. I was evaluating security issues
20 at Twitter at a wide level. That also included an
21 analysis of how you identify user accounts, bots and
22 so forth in terms of how the accounts were managed

1 and handled, as well as some of the security systems
2 in place within Twitter that included two-factor
3 authentication.

4 I don't -- I mean, that's involving
5 usually some kind of mobile device and
6 authentication in that. That was not a patent case.
7 That was the one where Musk was trying to back out
8 from buying Twitter.

9 Let's see. The case that is Arizona
10 versus Google at the top of 135 is a mirror case to
11 the one that I mentioned for Texas. Same issues, a
12 lot of the same investigation. There was new
13 information available as well, but -- in the Texas
14 case, which came later, but same investigation of
15 hardware components, internal systems,
16 authentication of the systems, et cetera.

17 If you turn to page 137, the
18 second-to-the-last full reference there is
19 Asghari-Kamrani versus United Services Automobile
20 Association. This IPR case dealt with
21 authentication that, if I recall, was related to
22 financial transactions in some way, if I recall

1 correctly.

2 Q. Is that separate from the -- perhaps the
3 mobile app?

4 A. I would have to go back and review these
5 IPRs to remember exactly what they covered. It's
6 entirely possible that there was a user
7 authentication component to them. I would just have
8 to go back and look. I think it's at least
9 possible.

10 The one just a couple down, Leon Stambler
11 versus Mastercard. To my recollection, this didn't
12 involve biometrics, but there was authentication
13 from the device to the financial company. I don't
14 recall if there was a specific user authentication
15 on that one.

16 Those are the ones that I believe are
17 relevant up to March 2024. I'd have to review in
18 more detail to be 100 percent certain, but
19 that's -- that's the best I can give you at this
20 point.

21 Q. Good enough for me. So across the list
22 you had for expert testimony for the matters

1 relating to patents, do any of -- for any of these
2 were you retained by the patent owner?

3 (Witness reviews document.)

4 A. In the cases where I have offered
5 testimony that are listed here that are related to
6 biometrics, I don't believe any of them were ones
7 where I was retained by the patent owner.

8 BY MR. BRUNEEL:

9 Q. I think the question was slightly
10 different.

11 A. Sorry.

12 Q. For any of the cases related to just
13 patents.

14 A. Oh, just patents?

15 Q. Yeah, just patents, the broader category
16 of patents.

17 A. So across my experience with working for
18 both plaintiffs and defendants that have gone to
19 providing testimony, I think most of the ones that
20 have gotten that far have been on the defense, but
21 some of that is just a function of cases where I've
22 worked for a plaintiff settling. So there's that.

1 And on the IPR side, I have represented
2 both the patent owner and the petitioner.

3 Q. For the IPRs, how often would you say
4 you've represented the patent owner?

5 A. It's probably between 30 and 40 percent.
6 There's a -- there is a little bit more towards the
7 petitioner, but I've represented patent owners on
8 multiple occasions.

9 Q. Previously you said your experience
10 working for both plaintiffs and defendants that have
11 gone to providing testimony.

12 Do you include reports in providing
13 testimony?

14 A. I do.

15 Q. So have you provided testimony where it
16 was your opinion that a product was infringing a
17 patent?

18 A. Yes.

19 Q. Can you point me to that case or cases?

20 A. Sure. At the very end, page 139, the
21 last two, Via Vadis versus Skype, was a patent case
22 where I represented the patent owner. And I can't

1 remember if we got as far along as a report. I had
2 an affidavit that was covering some aspect of that.

3 For the Rmail and Rpost versus Amazon, I
4 did put in a report on both infringement and
5 validity. It's a little bit backwards here because
6 it wasn't a true patent case, but in the Afiliias
7 versus Architelos and Alexa Raad, which is starting
8 at the bottom of 138, there was a trade secret
9 dispute in which former employees left and then got
10 a patent, and I did an analysis showing that the
11 patent covered what was already at the company
12 before they left to indicate that that was
13 technology that was taken by the departing
14 employees. It's kind of a reverse infringement kind
15 of analysis.

16 Okay. This is also a weird one.
17 Fortinet versus Sophos, the next one up from the
18 Afiliias one, had both directions. So I was on
19 both -- on one -- so I was dealing with some defense
20 and some -- some counterclaims. To be 100 percent
21 honest, I don't remember if I was dealing with
22 infringement on the counterclaims or validity. So I

1 would have to go back and look, but I worked on both
2 defensive and offensive in that project.

3 Leon Stambler versus Mastercard IPR. Oh,
4 that's not an infringement case. Okay. I was on
5 the patent owner for that one, but that wasn't an
6 infringement case. I'll keep moving on here.

7 I was on the side of the patent owner in
8 the one above that, WTS Paradigm. That one is so
9 long ago, I'm struggling to remember the details. I
10 know I did a source code review. So that makes me
11 think I did an infringement analysis. I'd have to
12 go back and check that one as well.

13 Okay. If we go up from there -- if we go
14 up to the one that's Twilio v TeleSign, this one's
15 another one where there was multiple directions. So
16 you'll see I've listed their IPRs. So I was on
17 behalf of TeleSign.

18 In the IPR cases I was defending the
19 patent owners -- or I was retained by the patent
20 owner to provide support for that, and I believe I
21 did the infringement in the district case,
22 infringement of Twilio as asserted by TeleSign.

1 Q. Okay. I see.

2 A. In -- on page 134, Bissell -- it's the
3 second full one from the top, Bissell versus Tineco.
4 This was an ITC case. I only did the source code
5 part of the evaluation. I was not the ultimate
6 expert on infringement, but it was in support of the
7 infringement case.

8 In the Motorola -- sorry, backing up.
9 Page 132, second one from the top, Motorola
10 Solutions versus Hytera. I was not the testifying
11 expert for this one either, but I did the source
12 code evaluation for patent infringement and they did
13 actually have me testify related to -- it's kind of
14 a long story. I'll just shorten it.

15 There were a long -- there were a long
16 series of cases between these two going back to 2017
17 and I've been providing source code analysis
18 throughout. In one of the more recent cases they
19 needed some testimony specifically about source
20 code, and so I provided that testimony. That's it
21 for ones -- I didn't include IPRs. There were a
22 couple of IPRs that were for the patent owner in

1 there. I passed those. And there are some this
2 last year since the March date, but that kind of
3 covers what we went through here.

4 Q. All right. That was thorough. Thank
5 you.

6 If we flip to page 126 of Exhibit 1003,
7 you have a section for publications.

8 Do you see that?

9 A. Yes.

10 Q. And I see about seven articles and two
11 books; is that right?

12 A. Seven refereed publications and two
13 books.

14 Q. Do any of your publications relate
15 specifically to biometrics and user authentication
16 functions of computing and mobile devices?

17 A. None of the refereed publications relate
18 to that. My book does, the Discovering
19 Cybersecurity book.

20 Q. And who's the target audience for the
21 cyber -- for your Discovering Cybersecurity book?

22 A. So as the title says, it is A Technical

1 Introduction For the Absolute Beginner.

2 Q. Sounds like I should read it.

3 A. I was designed for my course at UT. The
4 law school asked a person from the computer science
5 department to come over and prepare a technical
6 course for law students with no engineering
7 background. They wanted it to be as technically
8 deep as possible, but assuming they're coming in
9 starting from just about zero.

10 Q. So was that based -- and you wrote the
11 book, right?

12 A. Yes.

13 Q. Was that based on any research or more
14 experience?

15 A. Both.

16 Q. Let's flip back to the meat of the
17 declaration, specifically page 13. Page 13 of
18 Exhibit 1003.

19 A. Yes, I have it.

20 Q. Sorry, I wrote it wrong. Confused
21 myself. It's page 13 of the declaration, so page 25
22 of the exhibit.

1 A. Now I won't feel bad if I get confused.

2 Q. And if you flip again, you see this is in
3 the part of your declaration related to relevant
4 patent law and legal standards; is that right?

5 I'm looking at paragraph 39.

6 A. I apologize.

7 Q. I'll be more precise.

8 A. See, I went wrong now.

9 Yes, I'm in the legal section now. Thank
10 you.

11 Q. And here, among the other standards, you
12 say: I also understand that when considering the
13 obviousness of a patent claim, one should consider
14 whether a teaching, suggestion, or motivation to
15 combine the references exists so as to avoid
16 impermissibly applying hindsight when combining or
17 modifying the prior art.

18 Do you see that?

19 A. I do.

20 Q. So when you say impermissibly applying
21 hindsight, is there a circumstance that would be
22 permissibly applying hindsight?

1 A. Well, I think that there's a legal term
2 for hindsight, and I'm not enough of a lawyer to
3 know exactly where that begins and ends. But
4 clearly what we're doing here is all trying to look
5 back and say what would a person of skill in the art
6 have understood and whatever else.

7 I believe that is different from the
8 legal concept of hindsight here, but what I
9 understand is impermissible is to take the patent
10 and then use it to go back and assemble references
11 that there's no motivation, there's no reason they
12 would ever be combined and be like, Ah, there's the
13 prior art.

14 Q. If we flip a few pages to page 31 of the
15 exhibit, Exhibit 1003, I point you to paragraph 52.

16 A. Yes.

17 Q. Let me know when you see that.

18 A. I do.

19 Q. And this is related to the reexamination
20 of the '086 patent.

21 Did you review the reexam file history
22 for the '086 patent?

1 A. I have reviewed that before in previous
2 matters. This time I probably more skimmed it than
3 truly reviewed it new, but there was nothing in
4 there that caught my eye that I had misunderstood or
5 missed from my previous times looking at it.

6 Q. Okay. I'm going to try to do it without
7 having to get it out.

8 Do you remember looking at a declaration
9 there from Dr. Jacob Wobbrock?

10 I'll ask the question better.

11 Do you remember if the reexam file
12 history for the '086 patent includes a declaration
13 from a Dr. Jacob Wobbrock?

14 A. I have looked at a declaration of
15 Dr. Wobbrock in the file history. I cannot remember
16 if it's part of the reexam.

17 Q. Did you look at the references cited by
18 the examiner during the reexamination of the '086
19 patent?

20 A. I have done that at some point. I don't
21 remember how recently.

22 Q. Was there anything in the -- starting

1 over.

2 Did you -- do you remember reviewing the
3 arguments made by the -- by Maxell during the
4 reexamination of the '086 patent?

5 A. I have reviewed those. If we wanted to
6 review any right now, I'd be happy to give you my
7 thoughts on them or how they relate to my opinions,
8 but I don't remember the details of my previous
9 review.

10 Q. Maybe I can put a bow on it. Did any of
11 the arguments -- are any -- were any of Maxell's
12 arguments presented during the reexam the basis of
13 your opinions in this declaration?

14 A. I have referred to the reexam here in
15 this section. I don't remember off the top of my
16 head if I cite to it anywhere else in my report.

17 With that said, I have used all the
18 information available to me to reach my conclusions.

19 MR. BRUNEEL: I think this is a good
20 spot for a break.

21 THE WITNESS: Sure.

22 MR. BRUNEEL: Let's do ten minutes.

1 THE WITNESS: Sure.

2 (Recess taken from 11:02 a.m. to
3 11:15 a.m.)

4 BY MR. BRUNEEL:

5 Q. Dr. Nielson, let's turn to -- I'm going
6 to verify -- page 34 of Exhibit 1003 and look at
7 some of the prior art reference -- you have a
8 section called Overview of the Prior Art.

9 Do you see that?

10 A. I do.

11 Q. And the first prior art reference you
12 identify is Rogers.

13 Do you see that?

14 A. Yes.

15 Q. When did you first become aware of the
16 Rogers reference?

17 A. I don't know.

18 Q. How did you first become aware of the
19 Rogers reference?

20 A. It was in a prior matter. Again, that's
21 a little while ago. I don't remember the details.

22 Q. You didn't conduct a prior art search,

1 did you?

2 A. I don't remember if I did or not. I know
3 that I have been involved at multiple times with
4 discussing prior art and -- prior art-related
5 issues.

6 I don't remember to what extent I found
7 references.

8 Q. For cases where you do provide opinions
9 of invalidity, do you typically do your own prior
10 art searching?

11 A. It really does depend. It just depends
12 on whether or not -- so, for example, if counsel
13 says to me, What do you think of this reference, and
14 I think it's a good reference, then that may be the
15 end of it.

16 If I feel like there's something missing,
17 I may be like, Well, this isn't sufficient so let's
18 search for some other things. Sometimes that's
19 where I'll look to try and fill holes. I don't
20 remember to what extent I did any of that with
21 these, but that's generally my approach.

22 Q. Do you have any different recollection

1 for the other references such as Rosenberg,
2 Miyazawa, Rekimoto?

3 A. I don't.

4 Q. Let's go to page 48 of Exhibit 1003. And
5 here, this starts here your opinions related to
6 Ground 1; is that right?

7 A. Yes.

8 Q. And we start with -- you start with a
9 subsection, Motivation to Combine Rogers with
10 Rosenberg.

11 Do you see that?

12 A. I do.

13 Q. And does Rogers relate to computer
14 security?

15 A. Rogers involves computer security
16 components.

17 Q. I have all these references if you want
18 them. Does Rosenberg involve computer security
19 components?

20 A. Rosenberg deals with some different modes
21 of operation, some different modes that are based on
22 whether you've got a finger pad or a fingertip, and

1 how those are used with a graphical user interface.

2 Rogers has a graphical user password.

3 And so you can see from the combination of these
4 that there's a clear application of user interface
5 technology to security components.

6 Q. With the security components coming from
7 Rogers?

8 A. I'm sorry, I didn't say that very
9 clearly. What I'm trying to express is that
10 although Rogers is primarily directed at user
11 interface, the embodiments tend to be directed
12 towards user interface, user interface components
13 are -- have broad application, including computer
14 security functions.

15 Q. Flipping ahead to page 57 of your
16 declaration, on the bottom of page 57 you have a
17 subsection relating to claim element 1C.

18 Do you see that?

19 A. Yes.

20 Q. And that claim element is a first
21 controller configured to control the information
22 processing apparatus to operate in two operating

1 modes.

2 Continuing on the next page: At least an
3 identification mode and a registering mode, as the
4 operation -- operating mode thereof; is that right?

5 A. Yes.

6 Q. In looking at paragraph 100, you identify
7 the processor 71 from Rogers as the claimed first
8 controller; is that right?

9 A. Yes.

10 Q. And processor 71 is part of Rogers'
11 electronic device 70; is that right?

12 A. Part of is not a particularly precise
13 term, but it is certainly within the diagram
14 component identified as 70 in the figure from the
15 Rogers patent.

16 Q. Is there a more precise term you would
17 use?

18 A. Well, I mean, even in my report, I state
19 here in paragraph 100: Rogers discloses a processor
20 71 which is a controller that controls electronic
21 device 70 to operate in two operating modes.

22 That's just more precise in terms of

1 describing the relationship.

2 Q. The relationship between the processor
3 and the electronic device?

4 A. Yes.

5 Q. So I'm going to hand you Exhibit 1006.

6 (Deposition Exhibit 1006 marked for
7 identification.)

8 BY MR. BRUNEEL:

9 Q. And I've handed you a document marked
10 Exhibit 1006. Do you recognize this document?

11 A. Yes. This appears to be the Rogers
12 reference, a printed version of it.

13 Q. And this is the Rogers reference that
14 you're discussing in your declaration, for example,
15 at paragraph 100?

16 A. Yes.

17 Q. And below paragraph 100 you've reproduced
18 Figure 1 from Rogers; is that right?

19 A. Yes, with an annotation.

20 Q. Thank you. And referring to Figure 1,
21 what other hardware elements of electronic device 70
22 does Rogers identify?

1 A. Are you asking me to itemize the hardware
2 components from Figure 1?

3 Q. Sure.

4 A. Okay. From column 5 of the Rogers
5 reference starting around line 6 it says: Figure 1
6 depicts typical components of electronic -- excuse
7 me, of a electronic device 70 capable of supporting
8 the various embodiments. The electronic device 70
9 has a processor 71, a computer-readable memory 72, a
10 radio communications transceiver 75, a key pad 76, a
11 navigation pad 77, an antenna 74, a clock 78, and a
12 touchscreen display 40.

13 Q. Does Rogers identify any other possible
14 hardware components that could be included?

15 A. Not by name, but by expanded description
16 perhaps. If you look at column 14 starting at line
17 41, those of skill in the art would appreciate that
18 the various illustrative logical blocks, modules,
19 circuits and algorithm steps described in connection
20 with the embodiments disclosed herein may be
21 implemented as electronic hardware, computer
22 software or a combination of both. To clearly

1 illustrate this interchangeability of hardware and
2 software, various illustrative components; blocks,
3 modules, circuits and steps have been described
4 above generally in terms of their functionality.
5 Whether such functionality is implemented as
6 hardware or software depends on the particular
7 application and design constraints imposed on the
8 overall system.

9 I'll stop there. The key point is that
10 any of the functionality that's described in Rogers
11 is envisioned to be implementable either as hardware
12 or software or both.

13 Q. So from Rogers -- looking at the language
14 of the claim limitation, what in Rogers do you
15 identify as disclosing the claimed identification
16 mode?

17 A. So in paragraph 101 I identify the
18 identification mode as the process disclosed in
19 Rogers for a identification mode for using graphical
20 passcodes to gain access to an electronic device.

21 Q. And similarly, what in Rogers do you
22 identify as disclosing the claimed registering mode?

1 A. So as I discuss in paragraph 103 of my
2 report, which is on exhibit page 60, the claimed
3 registration mode is satisfied by the process
4 disclosed by Rogers Figure 4, which -- I'm no longer
5 quoting from my report, but just to summarize,
6 allows the device to create and store a template
7 graphical passcode.

8 Q. So what's the difference between the two
9 claimed modes?

10 A. Sure. So...

11 Q. And I'm referring to the identification
12 mode and registering mode.

13 A. I understand that. I'm -- the word
14 "mode" gets used a couple of different ways and I'm
15 just making sure I can keep things clear. So one
16 moment and I will answer your question.

17 Yes. Okay. Thank you. I am just
18 confirming.

19 So the difference between the two modes
20 is that the template where it creates and stores a
21 graphical template is creating what it refers to as
22 the graphical password. The identification mode is

1 a user re-creating that graphical passcode which is
2 then compared to one or more templates.

3 Q. So what is the understanding of mode that
4 you're applying here?

5 A. Well, I don't know that my view of mode
6 is all that dissimilar from some of the things
7 Dr. Wobbrock has said, the aforementioned report in
8 the file history.

9 Q. Okay.

10 A. He defines a mode where it's a setting,
11 and depending on a setting the same action leads to
12 a different outcome in some way or another. And
13 then the setting represents the mode.

14 The only thing I think is a little bit
15 lacking from that definition is if you look at the
16 '086 patent -- actually, could you hand me the '086
17 patent? Thank you.

18 (Deposition Exhibit 1001 marked for
19 identification.)

20 A. There's -- I'm sorry, do you need to
21 identify it on the record?

22

1 BY MR. BRUNEEL:

2 Q. Let's do that. So I've handed you a
3 document marked Exhibit 1001. Do you recognize this
4 document?

5 A. Yes. This appears to be a printed copy
6 of the '086 patent.

7 Q. Thank you. Okay. Continue.

8 A. So --

9 Q. You had said, "The only thing I think is
10 a little bit lacking from that definition is if you
11 look at the '086 patent."

12 A. Yes. "Mode" is also a word used not just
13 before a setting but also at a detection level. So
14 let me show you where they use that here. If you
15 look at the password registration, Figure 14 is a
16 figure of this and the narrative, I believe, here is
17 at column 7. And so if we look at column 7 starting
18 at lines 12 through about 37, though I don't plan to
19 read the entire thing, it says: As can be seen in
20 Figure 14, the control unit 3 displays a password
21 cancel screen including a ten-key pad with a
22 plurality of numerals in order to prompt the user to

1 input a numeral. At the same time, the control
2 unit 3 performs initial settings such as counter
3 reset. The control unit 3 waits until a user inputs
4 a numeral. Upon the user touching the touch
5 panel 1, the control unit 3 specifies the number
6 according to a position of the contact. The contact
7 range of the contact is compared with a threshold
8 value to thereby determine whether the input is a
9 fingertip input or a finger pad input. The control
10 unit 3 stores the numeral input and the input method
11 used.

12 Let me just see if I want to read any
13 other part of this. Yes. If you look down just a
14 little bit further, it's around line 32: Meanwhile,
15 in cases where the number of input and a password do
16 not match, or in cases where the number of input and
17 a password match but their input methods do not
18 match, the control unit 3 displays a message to
19 inform the password or input method is wrong.

20 So inputting by a pad or inputting by a
21 tip are two different modes of inputting
22 information, but there's not a setting, there is a

1 detection of whether or not the input is a mode like
2 this or a mode like this.

3 So mode can refer to having a setting and
4 you see that with the registration mode versus the
5 identification mode. And it can also be a detection
6 of input modes in which it's based on detecting the
7 parameters to determine what mode of input is being
8 used.

9 Q. So paring what you've said, it can also
10 be a detection of input modes. With the passage in
11 column 7, are you using input mode as synonymous
12 with input method?

13 A. That is certainly how it's being used in
14 this patent where when you do the comparison with
15 the claim language, you have, like, a PIN number,
16 but it's not just the number anymore. You now
17 compare the mode of input. Did they input the 9
18 with the pad of their finger or the tip of their
19 finger. And so that mode is also used as part of
20 the determination as to whether or not they get
21 access.

22 Q. So for the distinction between

1 the -- looking at Rogers, the registration mode with
2 the identification mode, is that based on a
3 determination -- sorry, trying to use your words.
4 Of the input being with the pad of the finger or the
5 tip of the finger?

6 A. Well, no, that's what I was looking up
7 earlier just to make sure I could point you to if we
8 had this question come up.

9 But if you look further along in the
10 report at exhibit page 68, it says -- this includes
11 the claim limitation 1[f] that says: In said
12 registering mode there are provided a first
13 registering mode for inputting input information by
14 a pad of the finger and a second registering mode
15 for inputting information by an end of the finger.

16 And so there's two splits here. There's
17 a split between the registering mode and the
18 identifying mode and there's a split between a first
19 registering mode and a second registering mode.

20 In my report I have identified both of
21 these splits. The registering mode is where you are
22 recording the graphical password template. The

1 identifying mode is where you then compare against
2 that to identify an authorized user.

3 In terms of the splits between the two
4 registering modes, I provide two different examples.
5 But let me stop there and we can come to those
6 examples when we get to that part.

7 Q. We will. So for the distinction between
8 the registering mode and the identifying mode, I
9 can't remember if you wrote it or said it, but are
10 the -- are you distinguishing these as separate
11 processes and therefore different modes?

12 A. I mean, it seems kind of self-apparent to
13 me that they're different modes. One is for -- one
14 is for creating the information that will
15 subsequently be used to identify. So, I mean, the
16 basic example is when you first go to a website, you
17 have to register and you have to put in your user
18 name and password. That's one mode. And then every
19 time you log in thereafter, you put in your password
20 to see if it matches. That's an identifying mode.

21 Q. And in that example, why is it a mode,
22 not a process?

1 A. Well, even using Dr. Wobbrock's
2 definition, you do the same thing but you get a
3 different result. In both cases you're putting in
4 your password, but in one case you're being
5 registered and in one case you're being identified.

6 Q. And by "do the same thing," you mean the
7 same input results in a different response from the
8 website?

9 A. There's different outcomes, I think, was
10 literally what his definition said, although I'd
11 have to check to be sure. But basically, yes, in
12 one case you get registered to a website and in
13 another case you get access to a website. So the
14 password -- it's the same password, but different
15 outcomes.

16 Q. Okay. So if we jump to claim element
17 1[f] --

18 A. Sure.

19 Q. -- which starts on page 68 of your -- of
20 Exhibit 1003, your declaration.

21 A. Yes.

22 Q. Can we shoehorn the website analogy for

1 the first registering mode and the second
2 registering mode?

3 A. No. But we can shoehorn the embodiment
4 in the '086 patent. They're almost -- for the -- I
5 have two examples. One of them is almost identical
6 to exactly what is being describe in the '086. In
7 the '086 you are recognizing two different modes of
8 pressing the digit for the PIN. You could be
9 pressing it with your finger --

10 Q. The digit is the number?

11 A. I see where you're -- I see your
12 confusion. Let me back up.

13 It describes it -- I can go back to pull
14 the language, but it describes it as a PIN with
15 digits, human readable 1 through 9, zero through 9
16 digits. So you might have a four-digit code, like
17 if we're -- Spaceballs we're going to have 1111.
18 Right. But the patent, the '086 patent, describes
19 an embodiment in which that's not the only thing
20 that identifies you. If you did the first one with
21 the flat and then the second one with the tip and
22 then the flat and then the tip, when -- that would

1 be the registering mode because it's setting up
2 a -- it's going to record that.

3 There were two different registering
4 modes used, the pad and the tip, and each one of
5 those registering modes is recorded with the number
6 pressed. So your PIN is not just 1111, it's 1 flat
7 1 tip 1 flat 1 tip. So that is exactly what we're
8 seeing with Rogers where you might make the same
9 swipe, but is the swipe broad or narrow and it's
10 using the same kind of analysis from what's
11 described in the '086 patent, how big is the contact
12 range to determine which mode of input is being
13 used.

14 Q. You lost me there at the end a little
15 bit. How big is the contact range to determine
16 which mode of input is being used. Which -- maybe
17 you can explain how there's multiple registering
18 modes for Rogers.

19 A. Sure. But again, because I'm showing
20 some analogy to embodiments in the '086, let me
21 point to another description here to help explain
22 this.

1 Q. This is in the '086 patent?

2 A. Yes. Yes. Let me just find my best
3 reference here. Okay. Let's look on column 6 and
4 let's look at lines 52 through 64. The user selects
5 and touches any numbers among numbers 0 through 9
6 displayed on a touch panel 1 by either the fingertip
7 input or the finger pad input. The selected numbers
8 are registered as input numerals. Then, the control
9 unit 3 compares the contact range with the threshold
10 value.

11 I'm going to pause there. The contact
12 range is how much area is taken up on the touch area
13 for the finger. This is depicted previously in
14 Figures 5A, 5B, 6A, 6 -- well, let's not go to 6.
15 It's got the flick.

16 5A and 5B. As you can see in this image,
17 it's divided it up into squares.

18 Q. Pointing to 5A and 5B?

19 A. Yes. What did I say was "it"?

20 Q. I'm just --

21 A. It's fine. Let's get clear. Starting
22 over.

1 In the '086 patent in Figures 5A and 5B
2 it illustrates a sensor for touch. And the sensor
3 is divided up into detection squares in a grid. And
4 using the contact range that is approximated here by
5 the area of the sensor being touched, it identifies
6 whether it's the finger pad or the fingertip.

7 So that same concept is being referred to
8 here in column 6 when it says when the number is
9 pushed as it says on lines 55 and 56: The control
10 unit 3 compares the contact range with the threshold
11 value.

12 Continuing on: When the contact range is
13 equal to or smaller than the threshold value, the
14 control unit 3 stores the input numeral in
15 association with the fingertip input.

16 I'm skipping ahead a sentence. I'm on
17 line 61 now: When the contact range is larger than
18 the threshold value, the control unit 3 stores the
19 input numeral in association with the finger pad
20 input.

21 So this is both a number that's being
22 pushed on the touch screen, the number 9, for

1 example, and then a contact range that the control
2 unit uses to identify as either big and it's a pad
3 or small and it's a tip. And then that's
4 stored -- that determination is stored.

5 So if you look at what I'm describing
6 here for Rogers, Rogers describes -- and this is in
7 my report at exhibit page 69. It's halfway through
8 paragraph 116. The graphical passcode is
9 essentially a series of touches, swipes and/or taps
10 on a touch surface that are inputted with one or
11 more measurable parameters, e.g., timing, speed,
12 pressure, force, line thickness, contact area or
13 location.

14 Let me continue on here, paragraph 117:
15 Alternatively or additionally, Rogers discloses that
16 the inputted graphical password may employ a
17 measurement of size, i.e., area of the object or
18 fingertip applied to the touch surface, allowing the
19 touch surface, for example, to discriminate between
20 a large fingertip and a small stylus tip. Rogers
21 discloses that authentication may require a measured
22 contact area greater than or less than a certain

1 size or within a certain size range.

2 So that's almost one-to-one analogous
3 between the embodiment described in the '086 patent
4 and what Rogers is describing for the different
5 registering modes.

6 Q. So the different registering modes are
7 the capture -- yeah, because we're in registering.
8 Different -- are capturing different -- I think
9 Rogers uses the word "parameters"?

10 A. Yes. And specifically I've called out
11 here a size parameter. And that is used to
12 differentiate -- it uses the differentiation between
13 an even greater difference, like a finger versus a
14 stylus. But I think one who's skilled in the art
15 would recognize that if you're capturing the
16 parameters of size -- so let's say that your
17 graphical password has a finger pad swipe and a
18 fingertip swipe and that's your graphical password.
19 So the area that's recorded is going to -- sorry,
20 that's me.

21 Q. Doesn't bother me.

22 A. Is going to represent a registering mode

1 where there was a finger pad and a registering mode
2 where there was a fingertip that goes into the
3 password.

4 Q. Does it -- I think Rogers calls
5 the -- I'll ask you. What does Rogers call the
6 result of the registration process?

7 (Witness reviews document.)

8 A. I'm not quite sure what you're getting at
9 here.

10 BY MR. BRUNEEL:

11 Q. I can point you to paragraph 103 of your
12 exhibit on page 61. And here -- let me know when
13 you see that. You're quoting from Rogers where you
14 say -- this is the last sentence: The passcode
15 template and its acceptable envelope values are used
16 by the processor.

17 Do you see that?

18 A. Yes.

19 Q. So is the -- just for the discussion
20 here, how would you refer to kind of the end of that
21 registration process? Is it the templates created
22 or is it the envelope or does it need to be both?

1 MR. MINUTOLI: Objection, form.

2 A. So basically what we have here is it
3 describes it as a template where there is -- the
4 template captures these independent registration
5 modes in an example where that's used as separate
6 elements that have to be individually satisfied.
7 The template and the envelope define those elements
8 and the parameters of satisfying those elements.

9 BY MR. BRUNEEL:

10 Q. So to satisfy -- using your example of a
11 swipe with a pad and a swipe with the end of the
12 finger, does the system described by Rogers need to
13 identify that it is a pad and then separately that
14 it is a tip of a finger?

15 A. Well, in my opinion it would be obvious
16 to a person of skill in the art that that is the
17 import of the contact area that it does record and
18 does need to identify. But to the extent that that
19 is not sufficiently explicit, that is why I've
20 pointed to the combination with Rosenberg where
21 Rosenberg describes finger pad and fingertip as two
22 separate modes. And so a person of skill in the art

1 would readily recognize that what is already in
2 Rogers could be identified as modes for use in
3 recording this graphical passcode to the extent it
4 wasn't already obvious.

5 Q. So using your example of -- again, of the
6 pad swipe and the tip swipe, would Rogers
7 authenticate an input of a pad swipe and then a
8 stylus swipe?

9 A. That would depend on the configuration in
10 terms of how tightly it is identifying that contact
11 range, but that would be the same thing that you
12 would see in the '086 patent with how the embodiment
13 describes using contact ranges to identify pad
14 versus tip.

15 If you had a stylus with
16 approximately -- in fact, it actually said it's not
17 even checking a minimum size, it's checking a
18 threshold size. And if it's less than that, it says
19 it's a tip. So that would be the same level of
20 sensitivity that you would see in Rogers.

21 Again, I think it would be abundantly
22 clear to a person of skill in the art that that

1 would be useful for identifying pad versus tip
2 registration. But again, to the extent that it's
3 not, Rogers in view of Rosenberg would make that
4 clear.

5 Do you mind if I silence my phone? I had
6 it silenced earlier. I don't know when it turned
7 back on. Okay. It says it's silenced. I'm not
8 sure how it's beeping at me, so I apologize for
9 that.

10 Q. Quite all right. So if we turn back to
11 paragraph 103.

12 A. Yes, I have that.

13 Q. This is in the context of claim element
14 1C with two operating modes, being identification
15 and a registering mode. You also have a discussion
16 of -- maybe it's not here. Oh, you do. On the top
17 of page 61, a training session. What is a training
18 session in the context of Rogers?

19 A. The training session is used as part of
20 the registration process. That's all.

21 Q. And in the registration process, is it
22 the same input from the user? Is the same input

1 from the user repeated?

2 A. So it can be repeated in order to
3 identify a range of inputs that could represent the
4 same registration mode. But let me give you a
5 counterexample to help -- there's a difference here
6 that's kind of important.

7 So I assume that on your smartphone
8 you've registered a fingerprint?

9 Q. No.

10 A. Never?

11 Q. I'm familiar with the process.

12 A. In the process internally what's
13 happening is it's being aggregated into a single
14 template from which all other inputs will be
15 compared. So if it asks you to touch it multiple
16 times, it's trying to get a more accurate and
17 complete image of the fingerprint so that when you
18 touch it, it doesn't have to be exactly like you
19 touched it before.

20 That's different from what's described
21 both in the '086 and here in Rogers where we do need
22 to be able to distinguish between a wide and a

1 narrow, if that's how the graphical passcode is
2 inputted. So there is a single template here as
3 it's described in Rogers, but that single template
4 has multiple independent pieces that need to be
5 identified, just like in the '086 you might have
6 multiple digits in a passcode that need to be
7 identified with individual registration information.

8 So the training session is trying to do
9 multiple takes of the same registration mode in
10 order to have a more accurate or more -- "flexible"
11 is probably a better word. A more flexible password
12 entry process, but that's different from the two
13 registration modes where you can have a thick and a
14 thin.

15 Q. I see. So staying on just the training
16 session for a moment, are you -- in the context of
17 your declaration, is the training session a
18 registration mode or part of -- part of the process?

19 MR. MINUTOLI: Objection, form.

20 A. Yeah, it's part of the process. Part of
21 the -- part of the complication here is the way the
22 claim language is awkwardly using mode for two

1 different concepts. It's easier to understand that
2 there is an identification mode and that there is a
3 registering mode. Okay. That's not too difficult.

4 Within registering mode the patent
5 discusses different ways of registering, different
6 inputs that can go into registering as different
7 registration modes. So the training is to try and
8 get a flexible record of a particular registration
9 mode as the claim language requires it. So if
10 you're registering your finger pad, for example, you
11 may have, the way Rogers describes it, multiple
12 entries of the pad so that there's a good
13 recognition of pad when you go to identify.

14 Similarly, when you're putting in tip,
15 there may be multiple entries of tip to get a good
16 recognition of tip so that when you go to enter
17 that, it's identifiable.

18 BY MR. BRUNEEL:

19 Q. And the multiple entries, is the goal
20 there that they should be the same entry?

21 A. Not for training, no. If you see -- the
22 '086 is approaching at a little bit brittle where

1 it's just going to have a threshold and it's a fixed
2 threshold and greater than is finger pad and less
3 than is fingertip, as I read out of the narrative
4 from the embodiment.

5 Rogers has a training mode where we're
6 going to input the same broad finger pad swipe
7 multiple times so that it collects an envelope that
8 represents that mode more granularly. And by that,
9 I just mean, for example, that you could have a
10 minimum size or a maximum size which, again, for the
11 '086 embodiment it just described a single dividing
12 value. So it allows identifying that finger pad or
13 fingertip to be a little bit more accurate and maybe
14 more customized per user. So if you have a person
15 with a bigger finger pad, it would not be
16 recognizable from a person with a smaller finger
17 pad. That's what the training session is about.

18 Q. And then is the output -- what is
19 the -- I think you said it, but what is the output
20 of the training session or the result?

21 A. So like it says here in this
22 paragraph 103 from my declaration where I'm citing

1 to Rogers, it has an acceptable envelope values that
2 it uses to identify these modes that have been
3 inputted.

4 Q. And is that -- okay. Is the acceptable
5 envelope value also the result of the registration
6 process?

7 A. So the overall registration process will
8 capture within a single template potentially
9 multiple registration modes as it's used by the
10 claim language from the '086. The envelope would
11 contain the parameters for being able to identify
12 those internal registration modes. And to bring it
13 back to the context of the claim language, that is
14 necessary for being able to do what limitation 1E
15 says where it refers to a second controller
16 configured to execute a specified process when said
17 first information and said second information are
18 coincident within said identification mode. These
19 parameters would enable it to be -- to determine
20 whether you're coincident within the mode.

21 Q. In Rogers, are there any inputs that
22 don't result in this template being created?

1 A. I'm sorry, could you ask that one more
2 time?

3 Q. In Rogers, during the registration
4 process, would there be any input that doesn't
5 result in creating a template for a graphical
6 passcode?

7 A. Is there -- is there a specific part of
8 my report that you're thinking about? It seems --
9 I'm not quite tracking the question to see if it
10 relates to my opinions.

11 Q. It's a broader question of what isn't in
12 Rogers, if this isn't in Rogers. So in your reading
13 of Rogers, do you remember any inputs that are
14 rejected during the registration process?

15 A. Well, off the top of my head, no, but I
16 can look through my report. I may have -- I may
17 have one that I'm not just remembering or I can look
18 through the Rogers reference. It wouldn't be
19 uncommon to have inputs that can be rejected, but
20 I'm not -- none are jumping to top of mind.

21 Q. Maybe using the website analogy where
22 you're registering the user name and a password,

1 there's -- some websites will say this is a weak
2 password, this is a strong password.

3 Is there any feedback like that during
4 Rogers registration process?

5 A. I'm happy to -- I'm happy to look through
6 it.

7 Q. You have that in front of you, right?

8 A. Yes, I have Rogers.

9 (Witness reviews document.)

10 A. So I'm in Rogers, I'm in columns 8 and 9
11 where it's describing the Figure 4 that I refer to
12 for registration. I'm -- I'm not seeing -- I'm not
13 seeing a rejection described here.

14 BY MR. BRUNEEL:

15 Q. So let me ask about what might be in
16 Rogers. Is there -- I think one of the parameters
17 you mentioned is that it captures width of a
18 graphical passcode. Is there a minimum width or
19 maximum width for a graphical passcode?

20 MR. MINUTOLI: Objection, form.

21 A. Well, because the graphical passcode is
22 capturing in a registration mode, at least with

1 respect to what's described here for Figure 4, I'm
2 not seeing that.

3 Now, there would be a minimum and maximum
4 when you take that template and go to identification
5 mode, but I'm not seeing it describing, at least
6 within these two paragraphs here for the Figure 4
7 which depicts the registration mode, I'm not seeing
8 a rejection.

9 BY MR. BRUNEEL:

10 Q. So to tie this one off, I would -- in
11 column 1 --

12 A. Of?

13 Q. Sorry, column 3 of Rogers. Starting on
14 line 32 it says -- I'll wait. You see that?
15 Line 32 in column 3.

16 A. Yes.

17 Q. Graphical passcode is a figure, drawing,
18 letter, shape. I won't read the whole thing. But
19 is there any limitation on what could be a graphical
20 passcode?

21 A. Well, I mean it's -- I guess it's limited
22 to a figure, drawing, letter or shape input on a

1 touch surface such as by a user's finger or stylus
2 which also contains varying pressure, speed and
3 position. And as we see later, it can include
4 things like size and width and some other things as
5 well.

6 Q. So using Rogers' description of graphical
7 passcode which includes measuring the width, it
8 could be a tiny -- almost, say, a single point could
9 be a graphical passcode in Rogers at one extreme?

10 A. While it doesn't rule that out explicitly
11 as I can see here, I think there is certainly an
12 implication one of skill in the art would understand
13 that you'd need to have a sufficient amount of data,
14 but I don't see Rogers explicitly defining those
15 boundaries.

16 Q. And the other extreme would be, say,
17 covering the entire screen. Would that also
18 register as a graphical passcode in Rogers?

19 A. Well, I think maybe it has to be more
20 than that, at least using this description here.
21 Because it is essentially a series of touches,
22 swipes and/or taps with varying pressures, speed and

1 position.

2 Q. Okay.

3 MR. BRUNEEL: Let's take a break for
4 I guess lunch.

5 THE WITNESS: Works for me.

6 MR. MINUTOLI: It should be here.

7 (Recess taken from 12:20 p.m. to
8 1:00 p.m.)

9 MR. BRUNEEL: Back on the record.

10 BY MR. BRUNEEL:

11 Q. Dr. Nielson, let's look to paragraph 105
12 of your declaration. This is on page 62 of
13 Exhibit 1003.

14 A. Yes, I have that.

15 Q. And this relates to claim element 1D,
16 memory that is configured to store second
17 information relating to the identification of the
18 user which is stored in advance; is that right?

19 A. Yes.

20 Q. And here you say in paragraph 105, this
21 is in the middle, this graphical passcode is the
22 claimed second information.

1 Do you see that?

2 A. Yes.

3 Q. Don't you also identify the graphical
4 passcode as the claimed first information?

5 A. There is a graphical passcode that is
6 stored as part of the registration process and a
7 graphical passcode that is inputted as part of the
8 identification process. The passcode that is coming
9 out of the registration process is stored and then
10 compared against the graphical password that is
11 inputted as the identification process.

12 Q. Let's turn over to page 64 of
13 Exhibit 1003. And here the limitation refers to a
14 second controller configured to execute a specified
15 process when said first information and said second
16 information are coincident with the -- within,
17 excuse me, said second -- I tried to read it.

18 This is the second controller limitation,
19 right?

20 A. Yes.

21 Q. And in this section, do you identify a
22 second controller as disclosed by Rogers?

1 A. So as I explained in paragraph 108,
2 I -- it is my opinion that Rogers discloses or
3 renders obvious this limitation. Rogers discloses
4 the processor 71 can be implemented in hardware as
5 processing elements, plural, and Rogers also as I
6 referenced earlier implement -- explains that
7 functionality can be implemented in hardware,
8 software or both.

9 So to the extent that processing
10 elements, plural, is not having an explicit second
11 controller, Rogers states that these functions could
12 be implemented in hardware which would also be a
13 second controller.

14 Q. So would the second controller be -- I'm
15 looking at the passage you cite in paragraph 109.
16 Is the second controller implemented as electronic
17 hardware, computer software or a combination of
18 both?

19 A. So this paragraph is saying that the
20 functions described in this entire patent can be
21 implemented in hardware, software or combinations of
22 both. I read a more full version that explained

1 that that's even why it identifies things by
2 function rather than by specific implementations.

3 So the function of comparing the
4 graphical passcode to the stored graphical passcode,
5 or graphical passcode template if that's a better
6 differentiator, according to Rogers can be
7 implemented as electronic hardware, software or
8 combinations of both.

9 Q. So for the claimed second controller,
10 would it be hardware -- electronic hardware,
11 computer software or a combination?

12 (Witness reviews document.)

13 A. So it is my opinion that the module is a
14 controller and that could be either software or
15 hardware or a combination of both.

16 BY MR. BRUNEEL:

17 Q. So you said for the quotation from Rogers
18 in paragraph 109 it's saying that the functions
19 described in this patent can be implemented in
20 hardware, software or combinations of both.

21 For the quotation from Rogers in
22 paragraph 108, it describes the hardware

1 used -- well, it says: The hardware used to
2 implement the foregoing embodiments may be
3 processing elements and you -- I think it's here
4 that you -- or somewhere you say that it discloses
5 plural processing elements?

6 A. Yes.

7 MR. MINUTOLI: Objection, form.

8 BY MR. BRUNEEL:

9 Q. Remember earlier we looked at the
10 components of Rogers electronic device 70? Do you
11 remember that?

12 A. Yes.

13 Q. Were any of those other components
14 processing elements? It is Figure 1 if you need to
15 look back at it.

16 A. You're asking whether any of them are
17 which elements? Did you say processing elements?

18 Q. Processing elements, yes.

19 (Witness reviews document.)

20 A. At least in the description that I'm
21 seeing here in column 5 that describes Figure 1, I
22 only see one reference to a processor and I don't

1 believe there is reference to something else that is
2 providing processing. Even if there were, though, I
3 think that this description about the hardware used
4 to implement the foregoing embodiments, maybe
5 processing elements and memory elements would be
6 understood by a person of skill in the art to apply
7 to the processor 71 and that they would understand
8 that processor 71 could be split into multiple
9 components.

10 BY MR. BRUNEEL:

11 Q. On paragraph 111 of your declaration, you
12 say: It is also my opinion that a POSITA would have
13 understood that Rogers discloses that the separate
14 processes performed by processor 71 are disclosed as
15 being performed by separate processing elements.

16 What are the separate processing elements
17 you're referring to?

18 A. Well, I mean, that's -- that's what I'm
19 referring to here is that there are separate
20 processes, right, for registration and for
21 identification and that a POSITA would understand
22 that those are performed by separate processing

1 elements.

2 Q. And why the emphasis on separate
3 processing elements in paragraph 111? This is on
4 the top of page 66.

5 A. I mean, I -- I think that is the emphasis
6 of the sentence, that you have two separate
7 processes in the world described by Rogers where you
8 have functions that can be implemented in hardware,
9 software or a combination of both. A user would --
10 a user. Sorry. A person of skill in the art would
11 recognize that those are separate functions and
12 therefore from the perspective of Rogers they are
13 being performed by separate processing elements.

14 Q. Could they be performed by the same
15 processing element?

16 A. Well, again, Rogers is explicit that the
17 whole point for describing things in separate
18 functions is so that it's understandable that they
19 can be implemented separately. That of course does
20 not prevent them from being implemented together,
21 but it would also be an embodiment to have them
22 implemented separately.

1 Q. So in this vein in paragraph 114 towards
2 the very bottom of page 67, you see the sentence
3 that starts with, Moreover?

4 A. Yes.

5 Q. There you say: Moreover, it is my
6 opinion that a POSITA would have been motivated to
7 make this change to improve device security by
8 separating the processor functions of the device
9 that were responsible for authenticating a user via
10 stored data from other generalized device functions
11 such as selecting applications or programs/processes
12 that do not implicate these security features.

13 When you say make this change, are you
14 referring to using the separate processing elements?

15 A. It's to what I am referring to here in
16 paragraph 114 where I'm making an explicit -- it's
17 only a modification in a hypothetical, right. If
18 the hypothetical is that we don't -- if patent owner
19 argues that Rogers is not explicitly disclosing a
20 second controller, then we -- then there's an
21 obvious combination to have a modification to that.
22 And a POSITA as I say here would have found it

1 obvious to modify Rogers to have a second controller
2 configured to execute the specified process of this
3 limitation.

4 Q. And is -- and is that -- is that opinion
5 based on anything in Rogers?

6 A. Well, yes. I explain here that Rogers,
7 even if -- even if the language I've already cited
8 doesn't explicitly disclose having multiple
9 components, it certainly explains that it's a simple
10 substitution to have multiple components.

11 Q. A more precise question would have been
12 does Rogers -- does anything in Rogers provide a
13 motivation to do this to improve device security?

14 A. I have some pages out of order. Just a
15 second.

16 (Witness reviews document.)

17 A. I think it is certainly within the line
18 that I -- I think I read this earlier today, but
19 it's in the paragraph 14 --

20 BY MR. BRUNEEL:

21 Q. Column 14?

22 A. I'm sorry, thank you. Column 14. This

1 is starting at line 49: Whether such functionality
2 is implemented as hardware or software depends upon
3 the particular application and design constraints
4 imposed on the overall system.

5 I think it's well known by ones of skill
6 in the art that you use separate processors for
7 secure applications. So to the extent that that was
8 a design constraint in a system, that would
9 certainly be a very standard type of use of
10 secondary hardware.

11 Q. Let's move back to element 1[f] --

12 A. Yes.

13 Q. -- in the next section.

14 A. I have that.

15 Q. And Section 7, here you've split your
16 analysis into subsections related to first and
17 second registering modes and then another discussing
18 the second information; is that right?

19 A. Yes.

20 Q. And forgive me if I asked this earlier,
21 in paragraph 116 you say: First, Rogers discloses
22 two registering modes that distinguish between

1 inputting two different types of user input.

2 What were the two registering modes?

3 A. The finger pad input and the finger
4 and/or fingertip input.

5 Q. So let's use the example you have here in
6 paragraph 118. You refer to Figure A from -- sorry,
7 6A from Rogers which consists of two simultaneous
8 swipes, for example, made with two fingers, followed
9 by a tap in the middle of the touch surface; is that
10 right?

11 A. Yes.

12 Q. So in this example are you using the
13 registration of this graphical passcode as an
14 example of the first registering mode or the second
15 registering mode?

16 A. Either or both. If you look over on
17 paragraph 119, what you see is that Rogers
18 illustrates using pressure to measure the width as
19 well as the position. So as we've discussed, even
20 though what it's showing here may look like both are
21 identical, that's not -- that's not what the limits
22 of the depiction in this image are directed to.

1 There's two swipes, but one of those could be finger
2 pad and one could be fingertip. It will measure the
3 area and record those parameters as part of the
4 graphical password.

5 Q. So using this example, if -- what did we
6 call them? The two simultaneous swipes. If one was
7 done clearly with a finger pad and one was done
8 clearly with a fingertip --

9 A. Yes.

10 Q. -- that would be an example of the first
11 registering mode and the second registering mode?

12 A. Yes. I explained, if you look at the
13 '086 patent, they record multiple registering modes
14 in a single registration of the user. So if we go
15 back to our number example of 1111 and you have pad,
16 tip, tip, pad, you've had both registering modes,
17 finger pad and fingertip. So that would be a
18 similar example here.

19 Q. Is there a distinction, then, in your
20 mind when the -- I'm trying to use your words. When
21 the input is simultaneous for the pad and the tip?

22 A. I don't know that simultaneous matters.

1 I think the only thing that matters is whether or
2 not we're talking about a single registration of a
3 template. And that's why I've actually kind of
4 divided up my two embodiments to -- where I
5 basically am describing one embodiment where you
6 could see it as having both in one user's
7 registration, right. I've got both a pad and a tip
8 in the same registration. And the other example
9 that I give is where you would look at a single
10 template as being either pad or tip and that's very
11 much the differentiation between two completely
12 separate user registrations.

13 Q. So the -- looking at the claim language,
14 the first registering mode and second registering
15 mode could be simultaneous?

16 A. There could be a recording of the first
17 registering mode and the second registering mode
18 during the overall registering mode, yes.

19 Q. So at the bottom of page 58, this is in
20 paragraph 121 --

21 A. Exhibit page 70?

22 Q. Yes. Thank you.

1 A. No problem.

2 Q. Starting in the middle of the sentence,
3 you say: It is my opinion that a POSITA would have
4 understood that Rogers discloses that the
5 registration of a graphical passcode can
6 discriminate between smaller and larger contact
7 areas of the user's finger.

8 Do you see that?

9 A. Yes.

10 Q. So doesn't the registration just capture
11 the input and create the template with a size
12 associated with the input?

13 A. But there are -- well, okay. Just to be
14 clear, that's one possibility and that's what I
15 describe in my alternate example. So that's -- if
16 you see starting in paragraph 122. So here the idea
17 is that if we look at just the entire training
18 session as capturing one registration mode, then,
19 sure. We have just one registration mode that is
20 either going to have an identification that there's
21 finger pad or an identification that there's
22 fingertip and it's one or the other and that's it.

1 However, again consistent with what I see
2 as embodiments in the '086 patent and how I
3 understand the claim terms, I believe that the '086
4 is describing the ability to identify and record
5 multiple registration modes during the registration
6 process, and that is what I am describing here in
7 121 where Rogers is clearly capable of doing the
8 same thing.

9 Q. Okay. Maybe we'll use one of my
10 examples. So if the example during Rogers'
11 registration process, the graphical passcode I've
12 selected is to draw an X on the screen, and I use my
13 finger pad to create the pattern. In response,
14 Rogers would register or capture the X as the
15 passcode template, right?

16 A. Along with the parameters, which would
17 include size. And just to be clear, for the record,
18 not the size of the X but the size of whatever
19 contact is being made on the screen as in finger pad
20 or fingertip.

21 Q. So the template that's created doesn't
22 say pad or tip, right?

1 A. Again, the template that's created
2 captures parameters. In my opinion, a person of
3 skill in the art would understand that that would
4 represent things like pad and tip. It may represent
5 more. There could be additional registering modes,
6 but it would at least be able to recognize those two
7 things. To the extent that's not obvious to a
8 POSITA, then in light of Rosenberg it certainly
9 would be.

10 Q. But the actual template or envelope,
11 let's try the word "data structure that's stored,"
12 that is going to be -- the parameter that's captured
13 is the width of the contact area of the graphical
14 passcode; isn't that right?

15 A. That's what it describes as the sort of
16 information you would store. But that's the exact
17 same type of information that embodiments in the
18 '086 use to differentiate between pad and tip. So
19 at the end of the day whether you have a -- if you
20 had in the '086 a Boolean value, true or false, that
21 is pad or tip, because they only have two values,
22 all you're really recording is whether it was

1 greater than a threshold or lower than a threshold.

2 The same thing is true here for -- for
3 Rogers. It's important to remember that
4 programs -- and I don't remember this at all
5 ridiculously. Programs aren't sentient. They don't
6 know things. They record things and they report
7 things that we interpret as having meaning. So if a
8 system is recording what is -- what can identify pad
9 and recording what can identify tip, whether it
10 knows that it's pad or tip, because it doesn't
11 actually know anything, is not necessarily relevant.

12 Q. So if we alter the example slightly where
13 we're drawing X -- we're registering a graphical
14 passcode that is an X and we draw one of the lines
15 with the pad and then we switch to the tip for the
16 other one, would that be an example of the first and
17 second registering modes?

18 A. Yes. And, again, as I mentioned earlier,
19 part of the claim requires that you can identify
20 when things are coincident in the identifying mode
21 which would -- which maps to this registering mode.
22 So the idea would be that when you go to put in your

1 graphical passcode, you would have to do the same
2 pad and tip to get access.

3 Q. Does Rogers disclose using multiple
4 graphical passcodes?

5 A. Yes.

6 Q. I guess storing multiple graphical
7 passcode templates?

8 A. Yes.

9 Q. So would Rogers reject the second X as
10 already registered?

11 A. They would certainly be recognized as
12 different. They're not the same passcode. If the
13 system is configured to allow multiple passcodes, it
14 could register them both and you could access the
15 device with both. If it's only allowed to have one
16 graphical passcode, it would either reject it or
17 replace it or somehow else just have one. And then
18 there's actually a reference -- I would have to look
19 for it, but there's a reference in here that
20 different passcodes could access different things.
21 So potentially one passcode is for one thing and one
22 passcode is for another.

1 Q. And when you say "in here," you're
2 referring to the patent or to Rogers?

3 A. To Rogers. I apologize. To Rogers.

4 Q. So let's look at paragraph 123, which is
5 on page 72 of Exhibit 1001. I'm looking at the
6 second and third sentences where you say: Rogers
7 discloses that finger touches are some of the types
8 of user input information, among others, that the
9 disclosed graphical template can distinguish
10 between. As discussed above, "contact area" or
11 "line width" is a detected parameter that Rogers
12 discloses can be distinguished during input
13 measurement of finger touches.

14 Do you see that?

15 A. I do.

16 Q. So this doesn't necessarily mean that
17 Rogers distinguishes between different parts of a
18 finger, just that it captures a width and then I
19 think you were -- I think I'm paraphrasing what you
20 said earlier is that it infers -- or the user tells
21 it to infer that -- based on a comparison about
22 threshold, it would -- there was -- this is a bad

1 question. Start over, Seth. This Seth. We'll skip
2 that.

3 So if we go back to the example of
4 registering an X and we do this using a stylus, and
5 let's assume that the contact area of the stylus is
6 identical to the contact area of a -- of the
7 fingertip. Would Rogers -- would that still be an
8 example of the second registering mode for inputting
9 input information by the -- an end of the finger?

10 MR. MINUTOLI: Objection, form.

11 A. Well, again, keep in mind that there's
12 design and then there's implementation, right. So,
13 again, using the '086 embodiment I referred to a
14 couple of times, the '086 embodiment says we can
15 have a system that can recognize finger pad and
16 fingertip based on contact area. Clearly there are
17 other things that could cause that same contact area
18 other than finger pad or fingertip, like, for
19 example, a stylus. But that's -- that's -- that's
20 an implementation issue. The design is identifying
21 differences that can be measured.

22 Similarly, in Rogers, Rogers is able to

1 identify differences in measurements as a way of
2 differentiating passcodes. And in an embodiment
3 where no stylus is even available, that is
4 essentially finger pad versus fingertip in exactly
5 the same way the '086 describes.

6 Even in an embodiment with a stylus, it's
7 very likely that unless the stylus is built to be
8 the exact same size as the fingertip, that with its
9 much more fine-grained ability to collect a
10 parameter envelope, that it would be able to
11 distinguish between the fingertip and the stylus.

12 BY MR. BRUNEEL:

13 Q. Just to round things out, the other end
14 of the spectrum, the same kind of analysis would
15 follow using -- substituting a nose for a finger
16 pad?

17 A. I'm sure that would work, again, for both
18 of these patents, the '086 and Rogers.

19 That would look pretty funny.

20 Q. Have you ever been skiing?

21 A. Yeah.

22 Q. It works. So for this element 1[f]

1 you've mentioned a few times that you also rely on
2 Rosenberg; is that right?

3 A. Yes.

4 Q. For element 1[e], do you rely on
5 Rosenberg?

6 A. I don't explicitly reference it here.
7 For the -- checking whether things are coincident, I
8 don't think there's any need to pull from Rosenberg
9 in terms of the actual comparing of information.
10 The only difference that we really get out of adding
11 in Rosenberg is maybe an explicit identification
12 that that information could be used for a finger pad
13 or fingertip, but it doesn't actually change the
14 operation of Rogers. So the comparison step would
15 operate the same.

16 Q. And you're not importing the processor or
17 controller from Rosenberg into Rogers, are you?

18 A. That is not in the opinion I've expressed
19 here.

20 Q. And I have Rosenberg available if you
21 want it. Does Rosenberg provide an example of
22 different responses to an input from a pad versus an

1 input from a fingertip?

2 A. It does.

3 Q. Do you cite that in here? Or do you
4 remember the example it gives?

5 A. I do remember the example that it gives.

6 Q. I'll hand you Rosenberg.

7 (Deposition Exhibit 1007 marked for
8 identification.)

9 BY MR. BRUNEEL:

10 Q. So I've given you a document marked
11 Exhibit 1007. Do you have that in front of you?

12 A. I do.

13 Q. Do you recognize this document?

14 A. Yes. This appears to be a printed copy
15 of the Rosenberg reference.

16 Q. And can you point me to the example --

17 A. Sure.

18 Q. -- you had in mind?

19 A. So let me just start with the abstract
20 first and then I'll -- it introduces some terms that
21 I'll come to in the example here. I'll start on the
22 third sentence: The processor determines, based on

1 at least one of a size, a shape, and an orientation
2 of the detected area of finger interaction, whether
3 a current finger interaction is one of a fingertip
4 interaction type and a finger pad interaction type.
5 The processor also selects and implements, based on
6 a determined interaction type, one of two different
7 targeting modes, including a first targeting mode
8 selected and implemented in response to a determined
9 fingertip interaction type and a second targeting
10 mode selected and implemented in response to a
11 determined finger pad interaction type.

12 So to summarize -- well, actually, the
13 next line is important. I'll read that too.

14 In a preferred embodiment, the first
15 targeting mode is a direct-targeting mode and the
16 second targeting mode is an offset-targeting mode.

17 So basically using the finger pad or
18 fingertip, it will determine a direct-targeting mode
19 or an offset-targeting mode as one possibility.

20 And the example is expanded just a little
21 bit further in here where it explains what the
22 direct and the offset. So if you look at paragraph

1 29, I think we just need the last two sentences
2 here: Thus, the traditional way in which a
3 graphical user interface is implemented using a
4 touch screen interface is such that a user must
5 select a graphical element at a desired target
6 location by directly touching that target location
7 upon the screen. This process is referred to herein
8 as direct targeting.

9 Now let me skip ahead to indirect
10 targeting -- or offset targeting. This is
11 paragraph 31. Well, let me see. Actually maybe I
12 want paragraph 33. Yes, paragraph 33. Let's
13 start -- let's start at the -- I think it's the
14 second sentence that says, more specifically: More
15 specifically, the target location used by the GUI is
16 a location upon the screen that is directly ahead of
17 the user's finger, i.e., a location upon the screen
18 that is an offset distance forward of tip of the
19 user's finger. The distance between the center of
20 the finger contact area, i.e., the traditional
21 target location used by touch screen GUI interfaces,
22 and the location -- sorry. The target location used

1 by the interaction mode is referred to herein as the
2 offset distance.

3 So the two examples are basically if you
4 use your pad, it detects that mode and gives you
5 direct targeting. And if you use your tip, it
6 detects that mode and gives you offset targeting.

7 Q. I see. Let's turn back to your
8 declaration starting on page 102 of Exhibit 1003.

9 A. I believe I have that.

10 Q. And this is the portion of your report
11 related to Ground 3; is that right?

12 A. It starts here, yes.

13 Q. And this is the combination of Rogers and
14 Rekimoto?

15 A. Yes.

16 Q. And here in Subsection A you have a
17 motivation to combine Rogers with Rekimoto; is that
18 right?

19 A. Yes.

20 Q. Does Rekimoto relate to computer
21 security?

22 (Witness reviews document.)

1 A. Can I see Rekimoto for just a moment?

2 BY MR. BRUNEEL:

3 Q. Yeah.

4 (Deposition Exhibit 1010 marked for
5 identification.)

6 BY MR. BRUNEEL:

7 Q. So I've handed you a document marked
8 Exhibit 1010. Do you recognize this document?

9 A. Yes. This appears to be a printout of
10 the Rekimoto reference.

11 Q. And the earlier question was does
12 Rekimoto relate to computer security?

13 (Witness reviews document.)

14 A. So I don't see any explicit references in
15 Rekimoto to security operations. However, the
16 technology is described very generically as being
17 able to provide different signals based on different
18 types of inputs. So that user interface would be
19 applicable to many areas including computer
20 security.

21 BY MR. BRUNEEL:

22 Q. Now, for Ground 3 I am looking at

1 page 106 of Exhibit 1003.

2 A. Yes.

3 Q. For most of the -- or all the claim
4 elements except 1[f] you refer back to the analysis
5 provided with respect to Rogers in Ground 1; is that
6 right?

7 A. That is correct.

8 Q. So you don't rely on Rekimoto as
9 disclosing a registering mode, do you?

10 A. Well, Rekimoto discloses the finger pad
11 and fingertip registration modes that are required
12 in limitation 1[f], which interface with the overall
13 registration process that is discussed in Rogers.

14 Q. And you don't rely on Rekimoto as
15 disclosing a second processor, do you?

16 A. No.

17 Q. And do you identify any difference in
18 what is disclosed by Rekimoto for Ground 3 versus
19 what Rosenberg discloses for Ground 1?

20 A. I disclose a different motivation for the
21 combination. I think there's different reasons why
22 a user would turn to Rekimoto. So that is -- that

1 is unique. The combination itself is very similar.

2 Q. During any of the breaks did you discuss
3 the substance of your testimony with counsel?

4 A. No.

5 MR. BRUNEEL: I'll pass the witness.

6 MR. MINUTOLI: No questions. We're
7 done.

8 MR. BRUNEEL: Nothing further from
9 me. With that, we'll go off the record.

10 MR. MINUTOLI: So this came up last
11 time.

12 MR. BRUNEEL: Can we just --

13 MR. MINUTOLI: No. I just want to
14 reserve the right for him to read and sign before
15 any notary. It's unclear if we have to do that
16 anymore, but I just want to get it on the record.

17 MR. BRUNEEL: I guess on the record,
18 we are requesting an expedited copy.

19 MR. MINUTOLI: We don't need it.

20 MR. BRUNEEL: Then we're off the
21 record.

22 (Deposition concluded at 1:56 p.m.)

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CHANGES AND SIGNATURE

SETH JAMES NIELSON, Ph.D.

WEDNESDAY, JANUARY 15, 2025

PAGE/LINE	CHANGE	REASON

1 I, SETH JAMES NIELSON, Ph.D., have read the
2 foregoing deposition and hereby affix my signature
3 that same is true and correct except as noted
4 herein.

5

6

SETH JAMES NIELSON, Ph.D.

7

8

9 STATE OF _____)

10 COUNTY OF _____)

11

12

13 Subscribed and sworn to before me by the
14 said witness, SETH JAMES NIELSON, Ph.D., on this the
15 _____ day of _____, 2025.

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NOTARY PUBLIC IN AND FOR
THE STATE OF _____

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21

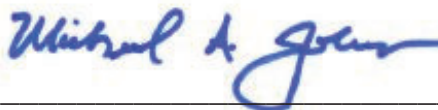
22 My Commission Expires: _____

REPORTER'S CERTIFICATION

I, Micheal A. Johnson, Registered Diplomate
Reporter, Certified Realtime Reporter and Notary
Public in and for the State of Texas, certify that
on the 15th day of January, 2025, I reported the
Oral Deposition of SETH JAMES NIELSON, Ph.D., after
the witness had first been duly cautioned and sworn
to testify under oath; said deposition was
subsequently transcribed by me and under my
supervision and contains a full, true and complete
transcription of the proceedings had at said time
and place.

I further certify that I am neither counsel
for nor related to any party in this cause and am
not financially interested in its outcome.

GIVEN UNDER MY HAND AND SEAL of office on
this 19th day of January, 2025.



MICHEAL A. JOHNSON, RDR, CRR, CLR
NCRA Registered Diplomate Reporter
NCRA Certified Realtime Reporter
Notary Public in and for the
State of Texas
My Commission Expires: 8/8/2028

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