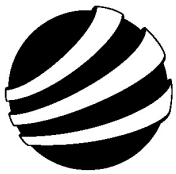
In the Matter Of:

WHATFIX vs WALKME LTD.

HOMAYOON BEIGI, PHD

June 25, 2024

IPR2024-00065
WHATFIX INC. v. WALKME LTD.
WALKME LTD. EXHIBIT 2003
1 of 389



ESQUIRE
DEPOSITION SOLUTIONS

800.211.DEPO (3376)
EsquireSolutions.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX, INC.,

Petitioner,

v.

WALKME LTD.,

Patent Owner.

VOLUME I

VIDEO-RECORDED DEPOSITION OF
HOMAYOON BEIGI, PHD

THE CHRYSLER BUILDING
AMSTER ROTHSTEIN & EBENSTEIN, LLP
405 Lexington Avenue
48th Floor
New York, NY
06/25/2024
9:36 a.m. (EDT)

REPORTED BY: AMANDA GORRONO, CLR
CLR NO. 052005-01
JOB NO. J11386269

06/25/2024

9:36 a.m.(EDT)

VIDEO-RECORDED DEPOSITION OF HOMAYOON BEIGI, PhD, held at 405 Lexington Avenue, 48th Floor, New York, New York, before Amanda Gorrono, Certified Live Note Reporter, and Notary Public of the State of New York.

A P P E A R A N C E S:

ON BEHALF OF PETITIONER WHATFIX, INC.:

Charles R. Macedo, Esquire
Amster Rothstein & Ebenstein, LLP
405 Lexington Avenue - 48th Floor
New York City, New York 10174
PHONE: (212) 336-8074
E-MAIL: Cmacedo@arelaw.com

-AND-

Thomas Hart, Esquire
Amster Rothstein & Ebenstein, LLP
405 Lexington Avenue - 48th Floor
New York City, New York 10174
PHONE: (212) 336-8107
E-MAIL: Thart@arelaw.com

ON BEHALF OF PATENT OWNER WALKME LTD.

Jean Nguyen, Esquire
Morrison & Foerster
707 Wilshire Boulevard - Suite 6000
Los Angeles, California 90017
PHONE: (213) 892-5295
E-MAIL: Jnguyen@mofo.com

-AND-

Mehran Arjomand, Esquire
Morrison & Foerster
707 Wilshire Boulevard Suite 6000
Los Angeles, California 90017
PHONE: (213) 892-5630
E-MAIL: Marjomand@mofo.com

ALSO PRESENT:
Ziv Glazberg, Esquire - Prosecution Counsel - WalkMe
Lilach Danzig , Esquire - Prosecution Counsel - WalkMe
Bryamz Villanueva, Videographer - Esquire Deposition Solutions
Ivan Zatkovich, expert
Joshea Jacobsen, summer associate

I N D E X

WITNESS	EXAMINATION BY	PAGE
HOMAYOON BEIGI, PhD	MR. MACEDO	10

E X H I B I T S

EXHIBIT	DESCRIPTION	PAGE
Beigi Exhibit 1	Notice of Deposition of Dr. Homayoon Beigi.....	7
Beigi Exhibit 2	Notice of Deposition of Dr. Homayoon Beigi.....	7
Beigi Exhibit 3	Notice of Deposition of Dr. Homayoon Beigi.....	7
Beigi Exhibit 4	Declaration of Dr. Homayoon Beigi.....	7
Beigi Exhibit 5	Declaration of Dr. Homayoon Beigi.....	7
Beigi Exhibit 6	Declaration of Dr. Homayoon Beigi.....	7
Beigi Exhibit 7	Declaration of Dr. Homayoon Beigi.....	7
Beigi	US Patent No. 10,819,664.....	7

Exhibit 8
Beigi 8
Exhibit 9 US Patent No. 11,258,732.....
Beigi 8
Exhibit 10 US Patent No. 11,558,317.....
Beigi 48
Exhibit 11 US Patent No. 7,983,997.....
Beigi 51
Exhibit 12 US Patent No. 10,838,699.....
Beigi Symons declaration in IPR 108
Exhibit 13 2023-1368.....
Beigi English translation Whatfix 127
Exhibit 14 Exhibit 1006.....
Beigi Decision granting institution of 158
Exhibit 15 inter partes review in Patent
10,819,664.....
Beigi Decision denying institution of 158
Exhibit 16 inter partes review in Patent
10,819,664.....
Beigi Decision granting institution of 158
Exhibit 17 inter partes review in Patent
11,258,732.....
Beigi Decision granting institution of 158
Exhibit 18 inter partes review in Patent ....

11,558,317.....
Exhibit 19 Article from Expert Insights on 191
August 29, 2019, "Different
Types of Chatbots: Rule-based
vs. NLP".....
Beigi 266
Exhibit 20 US Patent No. 10,503,627.....
Beigi US Patent Application No. 293
Exhibit 21 2017/0250930.....

R E Q U E S T S

DESCRIPTION	PAGE
Read and sign	25
Instruction not to answer	169

08:52
08:52

HOMAYOON BEIGI, PhD

MR. MACEDO: Premark these please. 09:20

(Whereupon, Beigi Exhibit 1, Notice of Deposition of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 2, Notice of Deposition of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 3, Notice of Deposition of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 4, Declaration of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 5, Declaration of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 6, Declaration of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 7, Declaration of Dr. Homayoon Beigi, was marked for identification.) 09:20

(Whereupon, Beigi Exhibit 8, US 09:20

HOMAYOON BEIGI, PhD
Patent No. 10,819,664, was marked for identification.) 09:20
(Whereupon, Beigi Exhibit 9, US Patent No. 11,258,732, was marked for identification.) 09:20
(Whereupon, Beigi Exhibit 10, US Patent No. 11,558,317, was marked for identification.) 09:20
THE VIDEOGRAPHER: We are now on the record. The time is 9:36 a.m. This begins Media No. 1 to the videotaped deposition of Homayoon Beigi taken in the matter of Whatfix versus WalkMe Ltd. 09:23
My name is Brayamz Villanueva. I am your videographer today. The court reporter is Amanda Gorrono. We are representing Esquire Deposition Solutions. 09:35
Counsel, will you please introduce yourselves and affiliations. And the witness will be sworn. 09:35
MR. MACEDO: Thank you. My name is Charley Macedo, and I am a partner 09:36

HOMAYOON BEIGI, PhD

with Amster Rothstein & Ebenstein LLP. 09:36
We represent the patent owner WalkMe 09:36
Ltd., which I'll refer to as patent 09:36
owner in three IPRs, IPR 2023-01379, 09:36
IPR 2023-01368, and IPR 2024-0065. 09:36
And I have with me my colleague Thomas 09:36
Hart who is backup counsel. 09:36
MS. NGUYEN: Jean Nguyen. And 09:36
with me is my colleague Mehran 09:36
Arjomand of Morrison & Foerster on 09:36
behalf of petitioner Whatfix and 09:36
Dr. Beigi, the expert. 09:36
HOMAYOON BEIGI, PhD, called as a witness, 09:36
having been first duly sworn by a Notary 09:36
Public of the State of New York, was 09:36
examined and testified as follows: 09:37
THE WITNESS: I do. 09:37
THE COURT REPORTER. Thank you. 09:37
Can you please state your name and 09:37
address for the record. 09:37
THE WITNESS: With my home 09:37
address? Homayoon Beigi, 49 Bouton 09:37
Road, South Salem, New York 10590. 09:37
EXAMINATION 09:37

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 09:37

Q. Good morning, Dr. Beigi. 09:37

A. Good morning. 09:37

Q. Did I say that correctly? 09:37

A. Yes. 09:37

Q. Good. Please forgive me if I mispronounce it. There's no ill intent. It's just I'm bad with pronouncing names, so. 09:37

As you heard, my name is Charley Macedo; and I am representing WalkMe Ltd., which is a patent owner in three IPR proceedings. 09:37

Are you aware of these IPR proceedings, inter partes review proceedings? 09:37

A. Yes. 09:37

Q. Okay. In front of you, you'll see we premarked as Exhibits 1, 2 and 3 three deposition notices. If you could take a look, we marked as Exhibit 1 for the record, the notice of deposition of Dr. Homayoon -- it's the top three. We'll get to the others in a second. 09:37 09:38

HOMAYOON BEIGI, PhD

A. Okay. 09:38

Q. We marked as Beigi -- Beigi Exhibit 1 the notice of deposition of Dr. Homayoon Beigi in IPR 2023-01368 dated May 16, 2024. We marked as Exhibit 2 the notice of deposition of Dr. Homayoon Beigi in IPR 2023-01379. And we marked as Exhibit 3 the notice of deposition of Dr. Homayoon Beigi in IPR 2024-0065. 09:38

When you are done looking at them, let me know. 09:38

A. Yes. 09:39

Q. Great. 09:39

Have you seen Exhibit 1 before? 09:39

A. Yes, I have. 09:39

Q. Have you seen Exhibit 2 before? 09:39

A. Yes, I have. 09:39

Q. Have you seen Exhibit 3 before? 09:39

A. Yes, I have. 09:39

Q. Okay. You understand that you are testifying today pursuant to the deposition notices that we've marked as Exhibit 1 through 3 with respect to all three IPRs, correct? 09:39

HOMAYOON BEIGI, PhD

A. Yes. 09:39

Q. And so if I refer to the 1368 IPR, will you know that I'm referring to the IPR 2023-01368 that is referred to in Deposition Notice 1? 09:39

A. Yes, I would have to refer to the paper because I know them by the patent number, but not by the IPR numbers. 09:39

Q. Okay. 09:39

A. But I can always go and check, yes. 09:39

Q. Would you prefer me to refer to it as the '664 patent? 09:39

A. I do. 09:40

Q. Okay. So if you look in front of you, you will see that we have premarked at the bottom of that pile as Exhibit 8 the '664 patent. 09:40

Yeah, you want to keep those in that order, perfect. 09:40

So if you look, you'll see marked as Exhibit 8 is US Patent No. 10,819,664. And you look at it and tell me if you recognize it. 09:40

HOMAYOON BEIGI, PhD

A. Yes, I do. 09:41

Q. Okay. And so when we were referring to IPR 2023-01368 in the Deposition Notice 1, that is with respect to what we have marked as Exhibit 8 as the '664 patent, correct? 09:41

A. Yes. 09:41

Q. And so when we refer to that IPR, we'll refer to it as the first '664 patent IPR, okay? 09:41

A. Yes. 09:41

Q. Okay. So if you look underneath what we marked as Exhibit 8, we've marked as Exhibit 9 US Patent No. 11,258,732. 09:41

A. Yes. 09:42

Q. And your understanding is that the notice of deposition we marked as Exhibit 2 IPR for 2023-01379 is with respect to US Patent No. 11,258,732 that we marked as Exhibit 9? 09:42

A. Yes. 09:42

Q. Okay. Okay. And we'll refer to that one as the '732 IPR. 09:42

A. Yes. 09:43

HOMAYOON BEIGI, PhD

Q. Okay. And now, if you look underneath that, there's marked as Exhibit 10 US Patent No. 11,558,317. And if you could look at that please. 09:43

A. Yes. 09:44

Q. Okay. And so with respect to your Exhibit 3 which is IPR 2024-0065, you understand that that is with reference to the US Patent 11,558,317 that we have marked as Exhibit 10, right? 09:44

A. Yes, just a correction. There are three zeros, but I understand, yes. 09:44

Q. Okay. Thank you. 09:44

So to make it clear, you understand that the notice of deposition that we've marked as Exhibit 3 with respect to IPR 2024-00065 is with respect to US Patent No. 11,558,317 that we've marked as Exhibit 10? 09:44

A. Yes. 09:44

Q. And we can refer to that as the '317 IPR? 09:44

A. Yes. 09:44

Q. Okay. Great. I find it easier 09:44

HOMAYOON BEIGI, PhD

to define things upfront in language that we all understand so no one gets confused. 09:44 09:44

A. Thank you. 09:45

Q. Okay. So I noticed that with respect to each of the patents that we marked as 8, 9, and 10, you paged through to make sure that they were the complete patent, correct? 09:45 09:45 09:45 09:45 09:45

A. Yes. 09:45

Q. And as far as you can tell sitting here today, Exhibit 8, 9, and 10 are the three patents that you studied for the declarations that you submitted in the '664 IPR, '732 IPR, and '371 IPR? 09:45 09:45 09:45 09:45 09:45

A. They seemed like it. I flipped very quickly. But, yes, they seemed like it. 09:45 09:45 09:45

Q. Okay. And if afterwards, you see anything that's wrong with them, please let us know and certainly counsel can let us know. But they should be complete copies, okay? 09:45 09:45 09:45 09:45 09:45

A. Will do. 09:45

Q. Thank you. 09:45

HOMAYOON BEIGI, PhD

Okay. Now, we've given you three deposition notices; and we've given you three patents. How many inter partes review proceedings did you work on that involve Whatfix and WalkMe? 09:45 09:45 09:45 09:45 09:46

A. There were four declarations all together. I would still categorize them as three IPRs. I'm not sure if that was under a different IPR number or not, but there is a second declaration for the '664. So I'm not quite sure if that went under the same IPR number or not. If it went under the same IPR number, there were four declarations but three IPRs associated with the three patents. 09:46 09:46 09:46 09:46 09:46 09:46 09:46 09:46 09:46 09:46

Q. Okay. Why were there two declarations with respect to the '664 patent? 09:46 09:46 09:46

A. There was a second declaration that I made that was not instituted, and I was advised it wasn't instituted. So I left it at that. There was some extra material that -- that I wrote. 09:46 09:46 09:46 09:46 09:47

Q. I appreciate that. 09:47

HOMAYOON BEIGI, PhD

But my question is: Why did you make a second declaration? Why didn't you just include it in the first declaration, whatever you put in there? 09:47

A. It was just an afterthought to include some more information, yes, in the second declaration. 09:47

Q. The second -- okay. You said that the second declaration was an afterthought. Was it your afterthought, or was it someone else's afterthought? 09:47

A. Mine in combination with the counsel to -- to produce more information. It was very quick but -- I don't remember exactly the time, but it was after the first declaration. The main declaration was for the '664 is the one that was the main one. 09:47

And the second one, as far as I'm concerned, was not instituted. So I -- the last time I looked at it was the last time I signed it, which was months ago. 09:48

Q. Okay. So we premarked as 09:48

HOMAYOON BEIGI, PhD

Exhibits 4 through 7 -- 09:48

A. Yes. 09:48

Q. -- the four declarations that you submitted and the four IPRs that were filed. So if you open up the top one, you will see that that's Exhibit 4. 09:48

A. Okay. So you are saying that there were four actual IPR numbers associated with them? 09:48

Q. I will have you confirm it, but you will see it in a minute. 09:48

A. Because I know my declarations, but not necessarily what the IPR numbers are. 09:48

Q. That's okay because they are on the cover of the declaration that you signed so that will make it easy. 09:48

A. Yes. 09:48

Q. So if you look at what we premarked as Exhibit 4 as the declaration of Homayoon Beigi in IPR 2023-01368 which we've been referring to as the first '664 IPR, is that your declaration that you were referring to as the instituted IPR 09:48

HOMAYOON BEIGI, PhD

for the '664? 09:48

A. Seems like it. It's many pages, 09:49

but it seems like it. 09:49

Q. I understand that you're not 09:49

going to proofread every page right now as 09:49

you sit here. I appreciate the way you 09:49

described that. If you do find anything 09:49

missing, we will supplement and make sure 09:49

you have everything that you need. 09:49

A. Thank you. 09:49

Q. Now, the declaration that we've 09:49

marked as Exhibit 4 was marked as 09:49

exhibit -- as Exhibit 1003 in the IPR 09:49

number 2023-01368 which is the '664 09:49

patent. I know it doesn't have the IPR. 09:50

A. Yes, it's missing the IPR number 09:50

on the declaration. 09:50

Q. It is. That's the way it was 09:50

filed so that's the way we gave to you. 09:50

A. That's why I didn't know if it 09:50

was different IPR or same IPR. 09:50

Q. If it will assist you, I will 09:50

give you a pen and you can write the IPR 09:50

number on it so you don't get confused. 09:50

HOMAYOON BEIGI, PhD

A. Thank you. (Witness writing on exhibit.) 09:50

Q. Okay. And so for your ease, Deposition Notice 1, Exhibit 4 and Exhibit 8 are all for the '664 patent? 09:50

A. Yes. 09:50

Q. So feel free to organize these in whatever way makes your life easiest. This is not a memory test. This is meant to get the truth. 09:50

A. Thank you. I'll put all of them together. 09:51

Q. Right. We're going to go through each of those and make your life easy. 09:51

A. Thank you. 09:51

Q. Now, the next thing you're going to see is what we marked as Exhibit 5 which is the other '664 declaration, and you might want to write at the top IPR 2023-01443. 09:51

And if you could spend a minute and look and tell me whether Exhibit 4, the declaration of Dr. Homayoon Beigi in 09:51

HOMAYOON BEIGI, PhD

IPR 2023-01443 marked as Exhibit 1003, is the second '664 declaration that you were thinking of? 09:51

A. I think you misspoke. I think it's Exhibit 5. You said marked as Exhibit 4. 09:51

Q. I'm sorry. It is Exhibit 5, so let me rephrase that. 09:52

I want you to look at Exhibit 5, which we have now marked as Exhibit 5 as the declaration of Dr. Homayoon Beigi from IPR 2023-01443 which was submitted as Exhibit 1003 and confirm whether that is the declaration that you said you submitted in the IPR that was not instituted. 09:52

A. It seems like it, though I haven't seen it for a long time. 09:52

Q. Okay. If it helps you, if you turn to Page 25 of Exhibit 5, and it has under analysis and opinions, the heading A, claims 10 and 24 are obvious over Symons, William, and Ben-Itzhak. 09:53

Do you see that? 09:53

HOMAYOON BEIGI, PhD

A. Yes. 09:53

Q. Does that help refresh your recollection that's with respect to the second '664 IPR that was not instituted? 09:53

A. It does. 09:53

Q. Okay. You're welcome to put that with the other '664 if it's easier for you. 09:53

A. Do you mind if I write "not instituted" on the top of that? 09:53

Q. Write whatever you want on it, whatever helps you. 09:53

A. Because I want to remember which is which. 09:53

Q. Absolutely. These exhibits are there for you to use and they are for the record to reflect whatever you need us to reflect. Okay? 09:54

A. Thank you. 09:54

Q. Okay. Now we move on to Exhibit 6, which is the next black binder in front of you, and this was your declaration of Dr. Homayoon Beigi with respect to Patent No. 11,258,732 and this 09:54

HOMAYOON BEIGI, PhD

one actually has on the cover IPR number 2023-01379. 09:54

And I want you to look at it and see if that is the declaration that you prepared for the '732 IPR. 09:54

A. Yes, it seems like it. 09:55

Q. And you can coordinate that with Deposition Notice 2 and the '732 patent, Exhibit 9. Okay. You already anticipated where we are going. That's great. 09:55

Okay. So now we're looking at what we previously marked as Exhibit 7, which is the declaration of Dr. Homayoon Beigi from inter partes review, IPR 2024-00065 for US Patent No. 11,558,317 and ask if you recognize Exhibit 7 as your declaration for the '317 IPR associated the '317 patent that we marked as Exhibit 10. 09:55

A. Yes, it seems like it is. 09:56

Q. Okay. If you want to put them together to make your life easy, feel free. Put any notes on anything that you want. That's why I gave you a pen. Okay? 09:56

HOMAYOON BEIGI, PhD

Okay. So, Dr. Beigi, just so you understand, today is not meant to be a memory test. Today is meant to be a search for truth. As you know, you've been sworn in by the court reporter, right? 09:56 09:56 09:56 09:56 09:57 09:57

A. Yes. 09:57

Q. And you've been deposed before a couple of times? 09:57 09:57

A. Yes. 09:57

Q. You were deposed more than two decades ago over some fee dispute for one of your companies, I believe? 09:57 09:57 09:57

A. Yes. 09:57

Q. And then you were deposed -- 09:57

A. That wasn't -- I'm sorry. That wasn't -- that deposition. It was being on stand in the court. 09:57 09:57 09:57

Q. I'm sorry. You were a live witness? 09:57 09:57

A. Live witness, yes. 09:57

Q. Okay. Sorry. And then you were deposed in some IPRs that you've done in the past for other parties? 09:57 09:57 09:57

HOMAYOON BEIGI, PhD

A. Yes. 09:57

Q. Okay. So you know generally how a deposition works, but I'll go through some of the rules for today's deposition, okay? 09:57

A. Yes. 09:57

Q. Okay. If at any point, you don't understand something being asked, please let me know. Otherwise, the record will reflect that you understood the question and asked [sic] the question as answered, okay? 09:57

A. I will. 09:57

Q. Okay. Do you want to review and sign the transcript after we complete the deposition? 09:57

A. Yes. 09:58

(Whereupon, a request for Read and sign, was made.) 09:58

BY MR. MACEDO: 09:58

Q. Okay. Perfectly fine. I do ask that you do it promptly because there is a very short window for us to submit the deposition with our patent owner 09:58

HOMAYOON BEIGI, PhD

responses. You understand that? 09:58

A. Yes, as long as it's organized 09:58

with the counsel properly, I would do 09:58

that. 09:58

Q. Of course, of course. 09:58

Also under the practice of 09:58

depositions in inter partes review 09:58

proceedings before the PTAB, all 09:58

objections except as to form are going to 09:58

be reserved. So therefore, counsel and I 09:58

have stipulated that the only objections 09:58

she will provide is to form or if there is 09:58

an issue as to privilege. 09:58

Do you understand that? 09:58

A. Yes. 09:58

MR. MACEDO: And, Counsel, 09:58

you've agreed to that, correct? I'm 09:58

sorry. You have to speak up. 09:59

MS. NGUYEN: Correct. 09:59

MR. MACEDO: Okay. Thank you. 09:59

BY MR. MACEDO: 09:59

Q. If at any time you want a break, 09:59

that's fine. But I'm going to ask unless 09:59

it involves a question of privilege that 09:59

HOMAYOON BEIGI, PhD

you answer the pending question before we go on break, okay? 09:59

A. I will. 09:59

Q. Okay. Is there any reason why you're not capable of testifying truthfully and to the best of your ability today? 09:59

A. No. 09:59

Q. You're not taking any medications which would interfere with that ability? 09:59

A. No. 09:59

Q. Okay. You understand that today's deposition is being transcribed by the court reporter? 09:59

A. Yes. 09:59

Q. And she's sitting right next to you so it's easy to see? 09:59

A. Yes. 09:59

Q. And we also are videotaping this deposition by the videographer down at the other end of the table? 09:59

A. Yes. 09:59

Q. Okay. At times there may be 09:59

HOMAYOON BEIGI, PhD

things that are difficult for the court reporter to understand or the videographer to hear. So they may interrupt us to clarify that for the record. 09:59 09:59 09:59 10:00

And do you understand that we should try and clarify it for them so the record is correct? 10:00 10:00 10:00

A. Yes. 10:00

Q. Okay. If there is anything that is difficult to spell or to make sure we understand it's the right word, feel free to spell it out for the court reporter so that way the record is clear. 10:00 10:00 10:00 10:00 10:00

A. I will. 10:00

Q. Okay. Okay. You've been really good at this. One of the most important things is that only one person speak at a time. So let me finish my question. If counsel has an objection, she'll state it. And then you should answer your question, okay? 10:00 10:00 10:00 10:00 10:00 10:00 10:00

A. Yes. 10:00

Q. And I will try not to cut you off; but if you are not answering the 10:00 10:00

HOMAYOON BEIGI, PhD

right question, I may interrupt to advise you of that to try and get us back on the right track, okay? 10:00 10:00 10:00

A. Yes. 10:01

Q. Okay. Are you being represented by counsel here today? 10:01 10:01

A. Yes. 10:01

Q. And who is that? 10:01

A. It's Morrison & Foerster. 10:01

Q. The two people sitting at the table? 10:01 10:01

A. Yes. 10:01

Q. Okay. And are they representing you, or are they representing the petitioner as far as you understand? 10:01 10:01 10:01

A. My understanding is both. 10:01

Q. Okay. And do you have any questions about the procedure as we just discussed it? 10:01 10:01 10:01

A. No. 10:01

Q. Excellent. In your declaration, you say that you're being compensated at your normal rate plus reimbursement for expenses for my analysis and that your 10:01 10:01 10:01 10:01

HOMAYOON BEIGI, PhD

compensation does not depend upon the content of any opinions or outcomes of this proceeding. If you want to look, it's Paragraph 2; but I'm just giving that to you as a foundation because I'm going to ask you what's your normal compensation. I believe you have the same paragraph in all the IPRs. 10:01 10:02 10:02 10:02 10:02 10:02 10:02

A. Yes, and the question? I'm sorry. 10:02 10:02

Q. So what's your normal compensation? 10:02 10:02

A. I'm doing this specific -- these IPRs through a third-party agent. So I'm not sure if I should divulge my actual rates because I don't know what they would charge the -- the counsel. 10:02 10:02 10:02 10:02 10:02

Q. I would strongly suggest that you do divulge your actual rate because it goes to the credibility of you as a witness on how much you're being paid. 10:02 10:02 10:02 10:02

MS. NGUYEN: Objection. Form. 10:02

A. It will be opposing the NDA that I've -- that I've signed with the agent 10:02 10:03

HOMAYOON BEIGI, PhD

that is representing me with the counsel and so I will -- I bill them and they will bill the counsel. So if I -- that's privileged information. I cannot divulge that. If I do, then I'm going against that NDA that I've signed with -- with that agent. 10:03

BY MR. MACEDO:

Q. So you understand, you have testified that you're being compensated at your normal rate? 10:03

A. Yes. 10:03

Q. If you don't tell us what your normal rate is, that's going to be a problem; and we'll have to call the PTAB. 10:03

A. I can tell you what my normal rate is. 10:03

Q. That's the first thing I asked. 10:03

A. But I cannot tell you specifically in this IPR what I'm charging because that would be against my NDA with the -- with the representing agent. 10:03

Q. Okay. So -- 10:03

A. My normal rate is -- 10:03

HOMAYOON BEIGI, PhD

Q. Thank you. 10:03

A. -- between 400 to $500 an hour. 10:03

Q. And when you say your normal 10:04
rate, that's what you get paid in your 10:04
position at Recognition Intervoice -- 10:04
what's the name of your start-up? 10:04

A. It's not a start-up. 10:04

Q. Oh, your company? 10:04

A. It's 21 years old. It's 10:04
Recognition Technologies. 10:04

Q. Right. 10:04

A. No. That is the fee that I 10:04
charge for consultation. 10:04

Q. And what is it that you get paid 10:04
an hour working for Recognition 10:04
Technologies? 10:04

A. I am a cofounder so -- so 10:04
basically Recognition Technologies gets 10:04
paid and it just goes into the company. 10:04
So our company, I am a cofounder of and 10:04
part owner, charges between 400 to $500 10:04
for my services for consultation. 10:04

Q. And there's another company you 10:05
work for, right? 10:05

HOMAYOON BEIGI, PhD

A. Internet Server Connections. 10:05

Q. Yes. 10:05

A. Yes. 10:05

Q. And how much does that company charge for your service? 10:05

A. I don't do consultation through them. 10:05

Q. Okay. Now, when you get paid by Recognition Technologies which is your company, how much of the 400 to $500 an hour that it charges for consultation do you take home? 10:05

A. It's an S corporation so it goes as a pass-through basically. It's as if it's going to me. 10:05

Q. Okay. And you also are an adjunct professor at Columbia, correct? 10:05

A. Yes. 10:05

Q. So how much does Columbia pay you per hour approximately for your adjunct professor services? 10:05

A. I can tell you per semester because it's not per hour, and I can tell you just the average number of hours. 10:06

HOMAYOON BEIGI, PhD

Q. That's fine. 10:06

A. I get paid between 18 to $21,000 per semester per course. And there are 13 sessions of two hours, two and a half hours each. 10:06

Q. But your time is not just the 13 sessions, right? 10:06

A. Yes. 10:06

Q. You have to prepare for it? 10:06

A. Yes. 10:06

Q. You write extensive lesson plans, right? 10:06

A. I've been teaching for a long time, so a lot of it is auto. 10:06

Q. It's easier today than it was 20 years ago? 10:06

A. Than 30 years ago. 10:06

Q. But you still have to spend time preparing because time -- technology changes? 10:06

A. I do spend time preparing, but my job isn't the same -- along the same lines which means that I'm always prepared. I'm always at the forefront. 10:06

HOMAYOON BEIGI, PhD

But yes, I do spend office hours with students as well, two hours a week. 10:06 10:06

Q. Would you say that you spend at least 40 hours a semester for each course? 10:07 10:07

A. May be the case, yes. 10:07

Q. Okay. Now, you said your -- your normal rate is 4 to 500 per hour; but there is a third-party service between you and counsel? 10:07 10:07 10:07 10:07

A. Yes. 10:07

Q. So your understanding is that you're taking home 4 to 500 per hour in this case, or IMS, the third-party service is getting paid that? 10:07 10:07 10:07 10:07

A. I am taking home that much. 10:07

Q. And then the third-party service may be charging more, for all you know? 10:07 10:07

A. I have no idea. 10:07

Q. Okay. Am I correct, is it IMS the service or is it a different service? 10:07 10:07

A. Yes, it is. 10:07

Q. Okay. 10:07

A. And like I said, because there's an NDA, I didn't say specifically for this 10:07 10:07

HOMAYOON BEIGI, PhD

case. I just told you what my normal -- 10:08
normal hourly rates are. I cannot say 10:08
exactly what it is, but the ballpark is 10:08
right. I will be going against my NDA if 10:08
I did that. 10:08

Q. I understand. I'm just trying 10:08
to get a general understanding as best as 10:08
you can provide it to me. 10:08

A. 4 to $500 an hour, my fee. That 10:08
should get to me regardless of what's in 10:08
between. 10:08

Q. Okay. So when you first started 10:08
testifying as an expert witness, that was 10:08
in the Global Tech -- Tel Link case, 10:08
right? 10:08

A. I believe. 10:08

Q. And at that time, your rate of 10:08
compensation was somewhere between 250 and 10:08
350, or was it 175, maybe 125? 10:08

A. No, no. It was the first -- 10:08
first numbers that you said. It's between 10:09
250 and 350. 10:09

Q. Right. 10:09

A. And I have -- I always have two 10:09

HOMAYOON BEIGI, PhD

different rates. One for consultation, one for stand or deposition, which is usually $100 higher. 10:09

Q. So you're charging $100 more to sit here today than when you worked on the report? 10:09

A. Yes. 10:09

Q. Okay. And that's the same thing you did when you did the Global Tel Link case? 10:09

A. Yes. 10:09

Q. And -- and that was six years ago? 10:09

A. I don't recall. I think I have it as an -- in my documentation. If you don't mind, I can pull out the dates. 10:09

Q. Absolutely. Your résumé is in the back of it. I tried to give you the full thing as you submitted it. 10:09

A. Well, the dates aren't here unfortunately but -- 10:09

Q. Well, the IPR numbers give you a hint because they are the year. 10:09

A. I see. Yes. Well, 2000 -- 10:09

HOMAYOON BEIGI, PhD

well -- 10:10

Q. Like 2015 and '16? 10:10

A. 2015 and '16, so that would be about nine, ten years ago. 10:10

Q. Okay. And so you raised your -- your rate from somewhere around 250 to somewhere around 400 over nine years? 10:10

A. Yes. 10:10

Q. And then you raised your 350 rate for testimony to somewhere around 500 over those same nine years? 10:10

A. That's right, yes. 10:10

Q. Okay. Is there anything besides time which justified raising your rate by that much? 10:10

A. Yes, it's how busy I am with other things. As you noticed, I have many things that I work on. So my time is valuable. It's valued more when I have more on my plate. 10:10

Q. And do you have a lot on your plate now? 10:10

A. Yes, I do. 10:10

Q. Okay. In your last deposition 10:10

HOMAYOON BEIGI, PhD

that I saw, you spent about 50 hours preparing one declaration. How many hours did you spend preparing all four of these declarations? 10:10 10:11 10:11 10:11

A. The original preparation of the declarations? 10:11 10:11

Q. Yes, just the declarations themselves. If you need to break them down by declaration, that's fine. Whatever is the easiest way for you to recall. 10:11 10:11 10:11 10:11 10:11

A. That would be even harder. I would -- let me think -- I believe it was something in the order of between 90 to 100 hours for all four of them. And I'm just guessing because it was over nine months, I believe. 10:11 10:11 10:11 10:11 10:11 10:11 10:11

Q. It was over nine months, you said? 10:11 10:12

A. I think so. I think it was. Don't quote me on this one because I believe we -- the submission was around the end of August. You can correct me if I'm wrong. I think you have the dates 10:12 10:12 10:12 10:12 10:12

HOMAYOON BEIGI, PhD

more readily available to you. 10:12

Q. The declarations are in front of you. They are signed. 10:12

A. No, no -- yes, the signature. 10:12

Q. You have the signature page. 10:12

A. Thank you so much. Thank you for letting me -- yes. Oh, October -- so this one is October 2003. 10:12

Q. I think the first one would be the '664 deposition -- declaration. 10:12

A. Yes. That's the last one I just looked at that which was October. So I think that was end of August, if I remember; but let me look please. 10:12

September 20th, 2023 so -- oh, I'm sorry. That's '732 again. '664, which is the first one was -- yes, I was right -- August 30, 2023. 10:13

Q. I believe you're looking at Exhibit 4, right? 10:13

A. I'm looking at Exhibit 4, yes. 10:13

Q. Earlier you referred to the second '664 patent as an afterthought, that one. 10:13

HOMAYOON BEIGI, PhD

What was the date of the declaration that was submitted for Exhibit 5, the afterthought IPR? 10:13

A. September 21st of 2023. 10:14

Q. So Exhibit 5, which was the afterthought declaration, was signed September 21st of 2023. And Exhibit 4, which was your primary declaration for the '664 patent, was dated August 30, 2023, right? 10:14

A. I believe I said 23rd, but let me check. You said 21st but maybe I said 21st. I'm not sure. 10:14

Q. It's all right. I may not have it right in my notes. 10:14

A. Yes, 21st. I'm sorry, I miss -- 10:14

Q. Feel free to use Post-its if it helps you. 10:14

A. Thank you. Yeah, September 21st. 10:14

Q. They were both dated September 21st? 10:14

A. No, this first one was August 30th. 10:14

HOMAYOON BEIGI, PhD

Q. Right. August 30th is the date that you signed Exhibit 4 for the instituted '664 patent IPR. And September 21st was the date you submitted Exhibit 5 which was the afterthought '664 IPR? 10:14 10:15 10:15 10:15 10:15 10:15

A. That's correct. 10:15

Q. Okay. So did you begin working on the afterthought IPR Exhibit 5 declaration before or after you submitted Exhibit 4 to the PTAB? 10:15 10:15 10:15 10:15

A. It was after. I worked on it afterwards. 10:15 10:15

Q. Okay. And the additional prior art that is referenced in Exhibit 5, is it referenced in any other IPRs? 10:15 10:15 10:15

A. Yes. Can you tell me which reference you're referring to, please? 10:15 10:16

Q. The one that we read to the record before. If you look in Exhibit 5 at Page 25, I believe. 10:16 10:16 10:16

A. Yes, I remember the one that you said, Ben-Itzhak, yes. 10:16 10:16

Q. Right. 10:16

HOMAYOON BEIGI, PhD

A. Yes, Ben-Itzhak was in another declaration as well, yes. 10:16

Q. Okay. Was it in the Exhibit 4 declaration for the '664 patent? 10:16

To help you, you've marked it as Exhibit 1034 in declarations where you've used it, I believe. 10:17

A. Thank you, I was looking for that. Yes. 10:17

No, it was not in the first declaration. 10:18

Q. Okay. If you look at the '732 declaration, which we have marked as Exhibit 6, was Ben-Itzhak Exhibit 1034 one of the exhibits you -- one of the pieces of prior art you considered? 10:18

A. Yes, it was. 10:18

Q. And that declaration you dated on September 10th, the day before you signed the declaration Exhibit 5, right? 10:18

A. September 20th. 10:18

Q. I'm sorry. September 20th, correct? 10:18

A. Yes. 10:18

HOMAYOON BEIGI, PhD

Q. So Exhibit 6 which is the declaration that you signed with respect to the '732 IPR, that included as Exhibit 1034 the Ben-Itzhak prior art was signed on September 20th, right? 10:18 10:18 10:18 10:18 10:19

A. Yes. 10:19

Q. And the afterthought declaration was signed on September 21st, right? 10:19 10:19

A. Yes. 10:19

Q. Okay. And did you consider Ben-Itzhak for any other IPR? 10:19 10:19

A. I don't believe so. 10:19

Q. Who found Ben-Itzhak? 10:19

A. The counsel found it. 10:19

Q. Who found Symons? 10:19

A. That, I can't recall because there are few references that I found; few references that the counsel has found; and I don't recall which one -- which one of us actually found Symons. 10:19 10:19 10:20 10:20 10:20

Q. Well, let me ask you a different question then. 10:20 10:20

A. Yes. 10:20

Q. Which references do you recall 10:20

HOMAYOON BEIGI, PhD

that you found in contrast to counsel finding? 10:20

A. Do I definitely recall having found myself? Because -- 10:20

Q. Best of your recollection is all I can ask for. 10:20

A. Like I said, I'm not clear about Symons. Arya, I believe I found. Le Clair, most likely Bornet. Ferscht for sure. I'm not sure about Melendez. It's possible. That's as much I can recall. 10:20

Q. And none of the ones that you just mentioned were actually the primary reference you're relying on for the invalidity arguments in any of the IPRs? 10:21

MS. NGUYEN: Objection. Form. 10:21

A. Would you please let me know what "primary" means? 10:21

BY MR. MACEDO: 10:21

Q. Sure. 10:21

You have a ground that certain claims are obvious in view of Allen, right? 10:21

A. Yes. 10:22

HOMAYOON BEIGI, PhD

Q. And that's the only reference you're relying on for that ground? 10:22

A. That's not true. 10:22

Q. Okay. 10:22

A. I specifically talk about -- for example, the Allen example that you gave, I specifically talk about Allen. But I've spoken about the -- in the body of the declaration, about other references, which I spoke about, which formed my opinion, to then specifically point to what is going on, for example. So they all collectively form my opinion. 10:22

Q. So go to the '664 declaration that we've marked as Exhibit 4, and let's go to your analysis of Allen. 10:22

A. Yes. 10:22

Q. And I want you to identify in the context of your analysis of Allen where you talk about some other piece of prior art besides Allen. And to help guide you, I believe that your analysis of Allen begins on Page 78 where it says claims 1-8, 12-16, 18-23, 25, 26, 28-31 10:23

HOMAYOON BEIGI, PhD

and 33 are obvious over Allen. Page 78 as you numbered them, Page 82 as the exhibits are marked. 10:23

Let's make sure you're looking at the right exhibit. 10:23

A. Exhibit 4. 10:23

Q. This should be the one that we marked as Exhibit 4. 10:23

A. Yes. 10:23

Q. Correct. Okay. Yes, you're looking at the right page. 10:23

Do you see where the B heading is? 10:23

A. Yes. 10:23

Q. Can you read the B heading into the record? 10:23

A. Claims 1-8, 12-16, 18-23, 25, 26, 28-31, and 33 are obvious over Allen. 10:24

Q. Is that a fair summary of the grounds that you were advancing in Section B? 10:24

A. Yes. 10:24

Q. And again, we're looking at Exhibit 4. And you only identify Allen 10:24

HOMAYOON BEIGI, PhD

which is the Allen patent, right? 10:24

MR. MACEDO: This is going to be 10:24

11. 10:24

(Whereupon, Beigi Exhibit 11, US 10:24

Patent No. 7,983,997, was marked for 10:24

identification.) 10:24

BY MR. MACEDO: 10:24

Q. And for your convenience, we'll 10:24

mark as Exhibit 11 the Allen patent which 10:25

is US Patent No. 7,983,997 B2. It was 10:25

included as Whatfix Exhibit 1014. 10:25

A. Thank you. 10:25

Q. Before you continue reviewing 10:25

the deck, just look at Exhibit 11 and make 10:25

sure we're talking about the same Allen 10:25

document. 10:25

A. Yes, it is the same document. 10:26

Q. So now you're reviewing 10:26

Exhibit 4, starting at Page 78, where you 10:26

put forth your obviousness grounds with 10:26

respect to Allen, and you're confirming 10:26

whether there's any other art that you're 10:26

relying on with respect to portion B 10:26

analysis? 10:26

HOMAYOON BEIGI, PhD

A. Yes. By the way -- yes, I am reviewing it, yes. 10:26

Q. Yes, absolutely. And take whatever time you need. 10:26

A. (Witness reviewing document.) 10:28

Q. I want you to take your time, but can you tell us how far you've gotten? 10:29

A. I'm on Paragraph 202. 10:29

Q. So you're up to claim 18? 10:29

A. 19 at this point. 10:29

Q. Okay. And have you gotten to 129 now? Not quite. Okay. 10:29

A. I'm sorry. 129? 10:30

Q. Page 129, Paragraph 230. 10:30

A. Oh, no, I'm on 124 right now, my number. 10:30

Q. Okay. That's fine. And you haven't found any other prior art yet, right? 10:30

A. No, not yet. 10:30

Q. Okay. 10:30

A. So 129 is where you wanted me to -- you were asking me because we did only B at this point. 10:30

HOMAYOON BEIGI, PhD

Q. Well, the ground that relates to claims 1-8, 12-16, 18-23, 25, 26, 28-31 and 33 are obvious over Allen are Paragraphs 150 to 229 of Exhibit 4, correct? 10:30 10:30 10:31 10:31 10:31

A. That's correct. 10:31

Q. And in there, you didn't find any prior art other than Allen, correct? 10:31 10:31

A. I didn't use any prior art directly there. 10:31 10:31

Q. And you didn't indirectly refer to any other prior art? 10:31 10:31

A. No, I didn't. 10:31

Q. And, in fact, if you look at Page 129 when you're talking about claim 9, you specifically identify a second piece of prior art, right? 10:31 10:31 10:31 10:31

A. I do. 10:31

Q. And that is Dayanandan; is that correct? 10:31 10:31

A. I believe it's Dayanandan, but. 10:31

Q. Bless you. 10:31

A. But works for me as well. 10:31

Q. Yeah, Dayanandan. 10:31

HOMAYOON BEIGI, PhD

A. Dayanandan. 10:31

Q. Dayanandan, thank you. Forgive me if I mispronounce it. 10:31

We'll grab Exhibit 1015 so you can look at it and make sure we're talking about the same reference. 10:31

MR. MACEDO: And what number are we up to? 10:32

THE COURT REPORTER: 12. 10:32

(Whereupon, Beigi Exhibit 12, US Patent No. 10,838,699, was marked for identification.) 10:32

BY MR. MACEDO: 10:32

Q. So we're marking as Exhibit 12 US Patent No. 10,838,699 to Dayanandan. And we're going to ask that you confirm that that's the same exhibit that you have been referring to. And it is submitted by Whatfix as Exhibit 1015. Here you go. 10:32

A. Thank you. 10:32

Q. It is a very long patent, I warn you. 10:33

A. It is. I remember this. 10:33

(Witness reviewing document.) Yes. It 10:34

HOMAYOON BEIGI, PhD

seems to be the Dayanandan. 10:34

Q. So if you look back in your declaration at Paragraph 230 through 2 -- through 42, that's where you discuss the combination of Allen and Dayanandan with respect to claim 9, right? 10:34 10:34 10:34 10:35 10:35

A. Yes, to recap, Paragraphs 230 to 242. 10:35 10:35

Q. Right. So if you turn to back to Paragraph 55 in Exhibit 4, you have it under the section prior art, Roman Numeral IX, prior art. It's on Page 24 of the exhibit. 10:35 10:35 10:35 10:35 10:35 10:35

A. Which paragraph? I'm sorry. 10:35

Q. Well, starting on Paragraph 55 under Roman Numeral IX, it says: Prior art. 10:35 10:35 10:36

A. Yes. 10:36

Q. And in 55, can you read that sentence into the record? 10:36 10:36

A. I understand that each of the references discussed herein qualifies as prior art against the '664 patent. 10:36 10:36 10:36

Should I continue? 10:36

HOMAYOON BEIGI, PhD

Q. No, that's enough. So then you list some Symons references referring to the Symons article on 56, correct, bottom of the page? 10:36

A. Yes. 10:36

Q. And then you list some more Symons references referring to a Symons video on Paragraph 57? 10:36

A. That's right. 10:36

Q. And then you refer to a Williams reference in Paragraph 58? 10:36

A. Yes. 10:36

Q. And you refer to the Allen reference that we were talking about earlier in Paragraph 59? 10:36

A. Yes. 10:36

Q. And you refer to the Dayanandan reference that we referred to earlier in Paragraph 60? 10:36

A. That's right. 10:36

Q. And you refer to the Krishnan reference in Paragraph 61? 10:36

A. Yes. 10:36

Q. And you refer to the 10:37

HOMAYOON BEIGI, PhD

Radakrishnan reference in Paragraph 62? 10:37

A. That's right, yes. 10:37

Q. And you refer to none of the references that you personally found in any of the paragraphs between 55 and 62? 10:37

MS. NGUYEN: Objection. Form. 10:37

A. That is not correct. 10:37

BY MR. MACEDO: 10:37

Q. Okay. Which reference did you find? 10:37

A. Well, let me go back please, and take a look. 10:37

MS. NGUYEN: Counsel, we've been going for an hour. 10:37

MR. MACEDO: We can break shortly if that's okay. I'd like to finish this line. 10:37

BY MR. MACEDO: 10:37

Q. Again, I'm looking at the references between 55 and 62 of Exhibit 4. 10:37

A. So I say on Page 6: Materials considered. 10:37

Q. That wasn't my question. 10:38

A. But I'm responding this way 10:38

HOMAYOON BEIGI, PhD

because you said that this is the -- these are the only things you considered. If I misunderstood it please -- 10:38

Q. No, that wasn't my question. 10:38

A. -- please repeat your question. 10:38

Q. My question is: If you look at 55 through 62, are any of the references listed in those paragraphs references which you identified in contrast to counsel? 10:38

A. It is possible that Symons and -- possibly Symons, possibly Williams. I'm not quite sure at this point. 10:38

Q. And how would you be able to confirm whether you or counsel first identified Symons? 10:38

A. I'm not quite sure if I can confirm it at this point. The -- 10:39

Q. Do you know Mr. Symons? 10:39

A. Sorry? 10:39

Q. Go ahead. I didn't mean to cut you off. 10:39

A. It is possible that -- that Williams or Symons may have been 10:39

HOMAYOON BEIGI, PhD

references that I found. Just -- and I'm just basing it on my recollection that I -- I usually tend to look for articles being a researcher, rather than patents. 10:39

Q. And do you know Mr. Symons? 10:39

A. No, I don't. 10:39

Q. Do you know Mr. -- is it Baetens? 10:39

A. No, I don't. 10:39

Q. Do you know Mr. Williams? 10:39

A. I had heard about his name working at IBM, but I don't know him personally. 10:39

Q. Have you ever spoken to any of those three people? 10:39

A. I have not. 10:39

Q. Have you spoken to anyone other than counsel with respect to the work you did on any of these declarations? 10:39

A. No. 10:40

Q. Okay. Counsel asked for a break. Do you need a break? 10:40

A. I would like it. 10:40

MR. MACEDO: Okay. Let's take a 10:40

HOMAYOON BEIGI, PhD

break. Thank you. 10:40

THE VIDEOGRAPHER: We are going off the record. The time is 10:41 a.m. 10:40

(Recess taken.) 10:40

THE VIDEOGRAPHER: We are back on the record. The time is 10:54 a.m. 10:52

BY MR. MACEDO: 10:53

Q. Welcome back, Dr. Beigi. 10:53

A. Thank you. 10:53

Q. You feel competent to continue testifying? 10:53

A. Yes. 10:53

Q. Thank you. And you understand you're still under oath? 10:53

A. Yes. 10:53

Q. Okay. I asked you to pick one of your declarations for us to look at your résumé. Which one are you looking at? 10:53

A. I'm just going to take the last one, 7, Exhibit 7. 10:54

Q. Okay. 10:54

A. Because I'm not sure what the 10:54

HOMAYOON BEIGI, PhD

snapshots mean. 10:54

Q. That's fine. 10:54

So we're looking at Exhibit 7 10:54

which is from the '317 IPR in your 10:54

declaration. And in the back of the 10:54

declaration is your CV and testimony and 10:54

other relevant historical background. 10:54

A. Yes. 10:54

Q. And I want you to have it in 10:54

case you need to refresh your 10:54

recollection. I'm not asking you about 10:54

that document, per se. Okay. I want to 10:54

ask you about you. 10:54

A. Yes. 10:54

Q. And that's why I want you to 10:54

have it available. Okay? 10:54

A. Sure. 10:54

Q. So you understand that all three 10:54

of these IPRs relate to what I'll call 10:54

chatbots? 10:54

A. Yes. 10:54

Q. And automated processes like 10:54

RPAs, right? 10:54

A. Yes. 10:54

HOMAYOON BEIGI, PhD

Q. When I say a chatbot, what do you understand a chatbot to be, in the context of these patents? And you're welcome to look at anything like you are. Just tell us what you're looking at so the record reflects it. 10:54 10:55 10:55 10:55 10:55

A. I don't know yet. I will let you know that. 10:55 10:55

Q. That's fine. 10:55

A. So I'm generally looking at Paragraph 17 of my declaration. Right now I'm using '317 because I think they are very similar to each other. 10:56 10:56 10:56

Q. Sure. 10:56

A. Just on a review of natural language processing because chatbots basically are software -- and I'm not defining it, but I'm explaining that a chatbot is a software that communicates with an individual using natural language processing. 10:56 10:56 10:56 10:56 10:56 10:56

So -- and I would like to read this, which is: Natural language processing refers to the interaction 10:56 10:56 10:56

HOMAYOON BEIGI, PhD

between a computer and a human, using human natural language. 10:56 10:57

So this basically explains what a chatbot is, this one sentence. 10:57 10:57

Q. Okay. You want to read that again out loud, the sentence? 10:57 10:57

A. Yes. Natural language processing refers to the interaction between a computer and a human using human natural language. 10:57 10:57 10:57 10:57

So the software that does that action is a chatbot. 10:57 10:57

Q. Okay. And human natural language, what does that mean? If you're talking -- I would say to your wife but she seems to be expert so I'm not sure that would work, but if you were talking to my wife who does not have a technical degree, how would you explain what human natural language means? 10:57 10:57 10:57 10:57 10:57 10:57 10:57 10:57 10:57

A. It's what we are using right now to communicate, you and I. 10:57 10:57

Q. So would a form where you fill in name, address, telephone number, would 10:57 10:58

HOMAYOON BEIGI, PhD

that be human natural language? 10:58

A. No. 10:58

Q. Okay. Have you heard of like a 10:58

modal box or -- a modal box or, you know, 10:58

where they pop up a box while you're using 10:58

Internet Explorer and it says, can I have 10:58

author -- access to copy this software? 10:58

Is that natural language processing? 10:58

A. When they ask you -- how do they 10:58

ask you? 10:58

Q. Well, you get a little box, it 10:58

pops up and, it says Internet Explorer and 10:58

underneath that it says do you allow 10:58

access to copy and paste, and it says yes 10:58

or no. And you pick yes or no. Is 10:58

that -- is that natural language 10:58

conversation? 10:58

A. The text that is speaking with 10:58

you, telling you a statement, and your 10:58

response could be natural language. 10:59

That's an example of a natural language 10:59

because they're using natural language to 10:59

communicate with a user. 10:59

Q. And that's how you understand 10:59

HOMAYOON BEIGI, PhD

natural language processing is being used in your report to include that type of box with a yes or no button? 10:59

A. No, that's not what I said.

You asked me if that also exemplifies -- I believe you asked me if that also exemplifies natural language, and I said it could. It doesn't limit it to that.

Natural language, as I said, is what we're using to communicate right now. So any language, English is included, is a natural language. It's language between humans. That is something we've come up with, some standard to speak, and that is natural language.

Natural language processing is processing of that natural language.

Q. And is that how people that you work with in a technical sense, like at Recognition Technologies, would use the concept of natural language processing?

MS. NGUYEN: Objection. Form.

A. What --

HOMAYOON BEIGI, PhD

BY MR. MACEDO:

Q. Let me rephrase it since counsel seems to be confused by the question and I don't want to make her confused. 11:00

You work with people at Recognition Technology, right? 11:00

A. Yes. 11:00

Q. And you work with natural language processing with those people? 11:00

A. Yes. 11:00

Q. And you believe you're an expert on natural language processing, I believe? 11:00

A. I do. 11:00

Q. Okay. So when you talk to other people about natural language processing, what is it that you understand it to mean, in your own words, not the expert reports? I just want to know how would you understand that as someone that is a technical person at Recognition Technology talking to other people who you're working on with on natural language processing? 11:00

A. Exactly what you just did. You spoke with me and I processed that 11:01

HOMAYOON BEIGI, PhD

language, which is a natural language, and I responded to it using again natural language. 11:01

What natural language processing in the computer science sense is to mimic that kind of processing using machinery or a software. 11:01

Q. And what would be a natural language interface to the same group of people? 11:01

A. I'm not defining this. I'm just explaining what a natural language interface to -- to us means. A natural language interface is an interface that will allow you to do natural language communication with the software. 11:01

Q. And would that be in the form of, like, text communication from you as the user interacting with whatever bot is on the other side? 11:02

A. Natural language could be text, could be voice, speech like we're doing, as I said. Could be actually typing the text of what we said. These are examples. 11:02

HOMAYOON BEIGI, PhD

Q. And if it's speech, it would be transcribing your words? 11:02

A. That's one way of doing it. 11:02

Q. Like our court reporter sitting next to you, she is transcribing the dialog that you and I are having. 11:02

A. That's one way of allowing natural language processing to use the speech, but not the only way. 11:02

Q. Right. But when we talk about a natural language interface, we're talking about some portal or communication or interface that enables a user like you to interact with the computer using text or voice-to-text-type transcriptions, right? 11:02

A. As far as the user is concerned, either text or voice. 11:02

Q. Right. 11:03

A. The to text part of it would be behind the scenes, so I don't want to -- 11:03

Q. Right. But when the user is using the voice, he understands it would be the equivalent of what he would be typing or she would be typing? 11:03

HOMAYOON BEIGI, PhD

A. That is one way. 11:03

Q. Is there any other way that you understand in 2017, that a natural language interface would have existed to you and your peers when you're talking about an NLP technology? 11:03

A. The interface is the same. I'm not questioning the interface. I was questioning your choice of words for saying the only way is to turn the speech into text and process it. 11:03

Q. Right. But I'm saying from the perspective of the user, when they are speaking, it is something which would be reflected as a conversation in words the way the court reporter is reflecting our conversation? 11:03

MS. NGUYEN: Objection. Form. 11:03

A. So I think I've answered this, where I say the natural language which is the words we are either speaking to each other or we would have texted, let's say, to each other. Just take one of us and turn to us into a machine. Then it would 11:04

HOMAYOON BEIGI, PhD

be a natural language interface the way I would refer to it with my colleagues. 11:04 11:04

BY MR. MACEDO: 11:04

Q. Have you ever -- let me rephrase that. 11:04 11:04

When we were talking about chatbots before, you understand that chatbots usually have some sort of conversation which is defined to guide how that conversation occurs, right? 11:04 11:04 11:04 11:04 11:04 11:04

A. To guide -- 11:04

Q. Well -- 11:04

A. -- is a little loaded, right, to guide the conversation. It's to understand and to respond to the -- in the proper manner, what -- what is expected. 11:04 11:04 11:05 11:05

Q. Okay. So I could have a chatbot where I help with the help center, for example, and I take all the questions that the people that used to answer the calls and I feed it into a chatbot to be able to help guide someone on a website, right? 11:05 11:05 11:05 11:05 11:05 11:05 11:05

A. I don't understand the question. 11:05

Q. Okay. So when I called up and 11:05

HOMAYOON BEIGI, PhD

ask for Apple to repair my phone ten years ago and a human answered, they would have scripts in front of them, right, in a call center typically? 11:05

A. I haven't worked in a call center, but I would presume that they would have some guidelines. Probably not necessarily scripts, I hope not, but guidelines probably. 11:05

Q. You would be shocked to know that they actually use scripts. 11:05

MS. NGUYEN: Objection. 11:05

A. Thank you for the information. 11:05

BY MR. MACEDO: 11:06

Q. Maybe not Apple but that's how call centers work. 11:06

But what -- so have you ever helped define a conversation that would be implemented in a chatbot for a customer? 11:06

A. I have. 11:06

Q. Okay. When you did that, when did you do that? 11:06

A. Our first product came out in 2003. 11:06

HOMAYOON BEIGI, PhD

Q. Okay. And did you define the conversation? 11:06

A. Yes -- well, no, the customer, the client, defined the process. 11:06

Q. And -- 11:06

A. And -- and we made it into something that would work with a machine. 11:06

Q. And -- and when you say "the customer," I'm not trying to get who your customers are. You can say a bank or something like that, but what type of customer are you talking about? 11:06

A. Language testing proficiency. 11:06

Q. Okay. So when they were doing the language testing proficiency, what type of specification of what the chatbot should be asking were you given? 11:06

A. They would be calling. So you would be matched against a rater. You would call in into an IVR system. The IVR system would communicate with you. You would say what your -- what your objective is. It would find the rater that's associated with your test, verify you, 11:07

HOMAYOON BEIGI, PhD

connect you to the rater, record the conversation, and process it. 11:07

Q. Okay. And when you say IVR, just so the -- if you could explain what you mean. 11:07

A. I apologize. Interactive voice response system. 11:07

Q. Okay. And in the context of an interactive voice response system, was there some script to tell you how to program it? 11:07

A. So the client came up with guidelines of how they would like to do it. And we would design how the conversation flows because it had to be, you know, logical. 11:07

Q. And when you designed that, did you program it using like C+ or some software? 11:08

A. C++. 11:08

Q. C++. Okay. 11:08

A. There is no C+ as far as I know, but C++. 11:08

Q. Okay. C++ is fine with me. 11:08

HOMAYOON BEIGI, PhD

Okay. So when you programmed the conversation that would be implemented in this IVR, you use software like C++ to help you program the conversation? 11:08

A. No. 11:08

Q. No. Okay. 11:08

A. We use C++ to program the software that would interpret the conversation. But the conversation flow was actually in a simple script form where the customer could even look at and -- and would even draw diagrams of how the call goes and what sort of questions are asked and things like that. 11:08

Q. Okay. 11:09

A. So that -- so the part that we wrote in C++ is the software, not the actual process, the -- the conversation. 11:09

Q. Right. 11:09

A. The conversation layer is -- usually has to be more lay, because the normal client that uses it is not a programmer. 11:09

Q. Okay. And for the conversation 11:09

HOMAYOON BEIGI, PhD

layer, how would you get the questions that -- and how to respond to answers for the conversation flow from the customer? 11:09

A. In our case, since this is just a very specific case, in our case, we would observe how they did their process of rating and then sit with the client and ask them how would they -- what are the possible scenarios that could happen. And then created some basic version of it, and then allowed them to be able to modify it themselves to fine tune it into what sort of conversation is happening between the -- you know, in the chatbot basically between the caller and the machine. 11:09 11:10

Q. Okay. And the script, I think is what you referred to that as, right? 11:10

A. Yeah, it -- it turns out to be in the form of a script, but we actually had a graphical user interface version of it. 11:10

Q. Okay. But the way that the script was put into the computer, how -- how did the computer know what the line in 11:10

HOMAYOON BEIGI, PhD

the script was? 11:10

A. The script is basically a logic 11:10
flow. Customer calls. In the beginning, 11:10
we usually welcome them. There is a 11:10
welcome script part. And then after that, 11:10
it usually looks like a graph which means 11:10
you start from some node. You end up in 11:10
other nodes. And you can go back and 11:11
forth. You can jump anywhere you want, 11:11
depending on what the conditions are at 11:11
the moment based on the conversation 11:11
that's going back and forth between the 11:11
end user and the client software. By 11:11
client software, I mean the chatbot 11:11
basically in this case or the IVR system. 11:11

Q. Right. So the chatbot when it 11:11
had to make a decision as to what the next 11:11
software step would be, you know, you -- 11:11
you say I would like to generate an e-mail 11:11
signature and it has to now figure out 11:11
what do I do next. How is the 11:11
determination that it's going to say what 11:11
is your name being made by the chatbot 11:11
software? 11:11

HOMAYOON BEIGI, PhD

A. In our case? 11:11

Q. In your case, in your case. 11:11

A. Because you're saying e-mail signature, we didn't do e-mail signatures. 11:11

Q. Well, assuming that you were doing an e-mail signature. 11:11

MS. NGUYEN: Objection. Form. 11:11

BY MR. MACEDO: 11:11

Q. I can rephrase it if you want. 11:11

A. I -- I can't assume what we weren't doing. 11:11

Q. When you -- when you were doing it, you said there was a hello message, right? 11:11

A. (Nods.) 11:12

Q. And then what happened next? 11:12

A. So this case, which is a proficiency rating -- 11:12

Q. Right. 11:12

A. -- there was a data -- database that was set before by the client of who is supposed to take tests because you had to be verified. 11:12

Q. Right. 11:12

HOMAYOON BEIGI, PhD

A. And who is the rater, who are the raters that are available for different languages. 11:12

Q. Okay. 11:12

A. The client user, end user would call them. The client is the company that we, you know, put our chatbot working for them. But then the end user is the person taking the test. 11:12

So the end user would call our system, would get connected to the IVR system, interactive voice response system, which would then converse with the individual and find out what they are trying to do. And based on what -- 11:12

Q. That's where I want you to stop. 11:12

A. Yes, yes. 11:12

Q. Okay. And it's not that I'm trying to cut you off, but I want you to focus on that part. 11:12

A. No -- sure. 11:13

Q. So maybe it says what is your name. What is a question the IVR would ask the user? 11:13

HOMAYOON BEIGI, PhD

A. In the specific scenario, it would say welcome to XYZ since we're not divulging the company's name, XYZ. If you're a rater -- are you a rater or are you a tester or are you a -- are you taking a test -- 11:13

Q. Right -- 11:13

A. -- and then you would respond and say I'm taking a test. And then it would -- 11:13

Q. Okay. Let's stop there. 11:13

A. Yes. 11:13

Q. So when it asks are you a rater, are you a tester, whatever else, how is that physically implemented with software? Was it programmed in C++, ask are you a rater or how -- how did your software know to ask that question? 11:13

MS. NGUYEN: Objection. Form. 11:13

A. It was not -- like I said, the software itself wasn't C++. C++ is a low level language. The client doesn't see a line of C++. It's how we implement the engine itself, the machinery. But the 11:13 11:14 11:14

HOMAYOON BEIGI, PhD

machinery interprets the graph that I was talking about. And the graph defines on what happens at every node if you're in a certain condition. 11:14

In the beginning, you're starting fresh, so you can only have three possible things or hang up. You're either a tester, a rater, or a user. And it determines that. And then based on that, they define those graphs. 11:14

It will then jump into the next node. If it's the rater, it will do something. If it's a tester, it will do something. If it's a caller, it will do something else -- I mean a person taking a test, it will do something else. 11:14

Q. Did you use a rule-based system to guide the IVR to know what that flow was? 11:14

A. Not only rule-based to get to the -- so sort of zoom into the actual condition, that condition there is a rule, but to -- because it is natural language, to get to which condition they are 11:15

HOMAYOON BEIGI, PhD

referring to, so you could phrase this many different ways. 11:15 11:15

I'm here to take a test. I'm a test -- I'm being tested. I'd like to take a test, you know, things like that. 11:15 11:15 11:15

So we did basically the software, the engine doing speech recognition and -- and basically natural language processing would determine which one of these possible scenarios it falls under or maybe none of them. And then it would move them there, and most of the time verify that that is where they want to be. 11:15 11:15 11:15 11:15 11:15 11:15 11:15 11:15 11:15

Q. So let's say you asked them a question in the software and it says are you a rater or whatever and they say, I'm a rater. Your software would then take the natural language processing to determine we should now do something next? 11:15 11:15 11:15 11:15 11:16 11:16

A. Yes. 11:16

Q. And when it determines what to do something next, where does it get the specific scripting that it's going to use 11:16 11:16 11:16

HOMAYOON BEIGI, PhD

to do that? 11:16

A. It parses the graph, which I told you about, which is what to do when you're in different nodes, and the conditions to get to that point are defined by looking for specific traits to get to that point. 11:16

And those are what the natural -- so this is the language that we developed internally that basically says you start from this node, and these are the conditions under the natural language -- that the natural language processing can lead you to that will end up in this location. 11:16

Once you're in that node, of course that is logic. Any computer has to use logic. But to get to that point, you had to make a decision based on natural language. And, of course, you can make mistakes. And that's why we confirmed whether that's what you meant or you said that you're a rater, right, things like that. And we converse with them, and then 11:17

HOMAYOON BEIGI, PhD

we move on to the next node. 11:17

Q. When you say you said that you 11:17

are a rater -- 11:17

A. Yes. 11:17

Q. -- that's the script. I am 11:17

trying to figure out how does it know that 11:17

script, assuming that it knows that 11:17

that's -- that it needs to get to that 11:17

decision point? 11:17

MS. NGUYEN: Objection. Form. 11:17

A. What do you mean by "how does it 11:17

know"? I think I said how it knows 11:17

because it uses natural language 11:17

processing. 11:17

BY MR. MACEDO: 11:17

Q. Right. 11:17

A. Turns the speech into text, 11:17

processes the text, figures out, you know, 11:17

from the text which is the actual NLP. 11:17

Q. Right. 11:17

A. And then decides which one of 11:17

these possible categories it should go to. 11:17

Q. Right. 11:17

A. And those categories are defined 11:17

HOMAYOON BEIGI, PhD

by that graph that I told you. 11:17

Q. But are they defined in a 11:17

script, or are they defined like Allen 11:18

talks about using ontological properties? 11:18

MS. NGUYEN: Objection. Form. 11:18

A. I don't want to refer right now, 11:18

but it is ontological. 11:18

BY MR. MACEDO: 11:18

Q. So when you did these 11:18

ontological properties, you didn't have a 11:18

sentence written out. You had an object 11:18

which you would then use natural language 11:18

processing to generate the text that would 11:18

be part of the conversation; is that 11:18

correct? 11:18

A. Are you talking about the -- 11:18

what part of the conversation? Are you 11:18

talking about the system speaking to the 11:18

user or the user speaking to the system? 11:18

Q. The system speaking to the user. 11:18

A. The system speaking to the user, 11:18

these are, you know, prompts that are 11:18

designed by the client. This is how you 11:18

would respond if they are in that 11:18

HOMAYOON BEIGI, PhD

condition, that position.

For example, if they -- you could go back and say, I'm sorry, I just checked and you don't have an appointment at this time to take a language test, please contact the office, or something like that.

Q. And that script of how the client wants the computer to respond was provided by the client to be implemented by your chatbot?

A. So that was designed by the client with our help, of course, and then it was implemented using the engine, because the engine can parse that script, which is generated from the graphics and then based on that, make a decision.

Q. Okay. So I'm assuming a decision is being made. I'm trying to figure out how we get from the decision being made to the specific scripting words that are part of the natural language processing be -- I'm sorry.

I'm trying to figure out once we

HOMAYOON BEIGI, PhD

know that we need to ask this type of question, how is the language, the scripting of that question generated to be repeated by the IVR to the customer? 11:19 11:19 11:19 11:20

A. That's the response from the chatbot to the client. 11:20 11:20

Q. Correct. 11:20

A. Response from the chatbot to the client is a set of -- in our case, was a set of possible responses that you can give. 11:20 11:20 11:20 11:20

Q. And those were written out entirely as to the proper language? 11:20 11:20

A. Those were designed by the client to sound as human as possible. 11:20 11:20

Q. So the client would define for you the script of what the right selection of responses would be, and then you would implement those responses whenever your software said it's appropriate? 11:20 11:20 11:20 11:20 11:20

A. Yeah, they didn't define it for us. They defined it so that our engine would parse it. So they had an interface. They would graphically say these are all 11:20 11:20 11:20 11:20

HOMAYOON BEIGI, PhD

the possible nodes, this is the way you can go to any one of them, and then our engine interpreted that into a script which it could then process on how to handle different cases. 11:20 11:20 11:20 11:21 11:21

Q. And so when the engine determined that the proper response is you don't have an appointment on Tuesday, would you like one on Tuesday, making that up as the script, where did it get that specific scripting language from? 11:21 11:21 11:21 11:21 11:21

A. It would be in the logic of the graph. 11:21 11:21

Q. And when the logic of the graph was created, was that created by software? Was that handwritten? How was it -- how did the computer access that logic? 11:21 11:21 11:21 11:21

A. I think I responded to that. Basically it was created by the client using graphics and a set of tools we gave them on how to go from one node to another node, what are the possible scenarios that can happen. 11:21 11:21 11:21 11:21 11:21

And then we process the natural 11:21

HOMAYOON BEIGI, PhD

language to fit any one of these possible scenarios or to be an outlier because it could be that it's an outlier. 11:21 11:21 11:22

Q. And so when you got this -- can I call it a flowchart? Is that a fair characterization, the graph that you're referring to? 11:22 11:22 11:22 11:22

A. A flowchart I think would be a -- yeah, I mean, you could call it that. It's not -- I mean, yeah, you can do it in the form of a flowchart. 11:22 11:22 11:22 11:22

Q. Right. And you would generate this using your proprietary editor; is that what it was? 11:22 11:22 11:22

A. Yes. 11:22

Q. And so the proprietary editor would enable the user to generate this flowchart? 11:22 11:22 11:22

A. It would allow them to generate the flowchart by using different elements on the graph and then connect them. And then we -- our engine took that graphic information and -- which, of course, is using our software to do. We use the web 11:22 11:22 11:22 11:22 11:22

HOMAYOON BEIGI, PhD

browser, too, that way. But then it uses that information to create a sort of an underlying script which is now parsable by our engine, which is the engine being written in C++. 11:22 11:22 11:22 11:23 11:23

So now you could even go and edit that script that was generated, or you could go and graphically edit it. Certain things, it was easier to modify the script because -- because they were maybe detailed or something. 11:23 11:23 11:23 11:23 11:23 11:23

Q. And the script was an electronic record which the computer could parse? 11:23 11:23

A. It was mostly human readable, which it's a language that I wrote with a parser that I wrote in C++ that would take you through a graph, so it was a graph interpreter basically. 11:23 11:23 11:23 11:23

Q. Right. But it was an electronic file. It wasn't a piece of paper? 11:23 11:23

A. No, definitely it was an electronic file. 11:23 11:23

Q. And in the electronic file, it would have human readable statements; but 11:23 11:23

HOMAYOON BEIGI, PhD

it may also have logic that you would see more likely in C++? 11:23

A. No, not in C++. That would be going very low level. This would be logic that maybe an office administrator would be able to realize what it means. 11:23 11:24 11:24 11:24

Q. Okay. 11:24

A. With maybe a little training but would be able to tell that this is -- you know, these are the options that I have and this is how I can get it to work. 11:24 11:24 11:24 11:24

Q. And if I choose option A, I go this path, and if I choose option B, I go that path? 11:24 11:24

A. Yes. 11:24

Q. Okay. And then your software would parse this graph or this flowchart to determine how the conversation would evolve and it would use the language that the customer provided in the script as to what the bot would say if it got to the right decision point? 11:24 11:24 11:24 11:24 11:24 11:24 11:24

A. That's a good characterization, yes. 11:24

HOMAYOON BEIGI, PhD

Q. Okay. And so in that context, you in conjunction with the customer defined the script that would be used in a natural language conversation with the IVR? 11:24 11:24 11:24 11:24 11:25

A. The script is an intermediate thing, right, because we started with a GUI. The client started GUI. 11:25 11:25 11:25

Q. Right. 11:25

A. Trying to mimic basically their interactions -- normal interactions with their client -- with their clients. So our client being the person -- you know, the company that's using this, with their clients whether they are raters or testers, they have a normal interaction. And they try to mimic that interaction the best way with a GUI. 11:25 11:25 11:25 11:25 11:25 11:25 11:25 11:25 11:25

And that GUI -- so one level of processing is our engine would process that GUI into a script that it can then parse easier. And that script, we made sure that that also was human readable, so it looked not like C++ but more like a 11:25 11:25 11:25 11:25 11:25

HOMAYOON BEIGI, PhD

scripting -- normal scripting language. 11:25

Q. Like a Hollywood script? 11:25

A. No, not a Hollywood script. A 11:26
scripting language. 11:26

Q. A scripting language? 11:26

A. Yes. 11:26

Q. Okay. And so when you had the 11:26
scripting language and the script was 11:26
approved for this iteration, that script 11:26
would become the input for your software? 11:26

MS. NGUYEN: Objection. Form. 11:26

A. Our engine would then process 11:26
that to handle the conversation. That's 11:26
all it needed in order to be able to 11:26
handle the whole process. 11:26

BY MR. MACEDO: 11:26

Q. Right. It was the input, and 11:26
the output would be the conversation. You 11:26
provide the script to your software as an 11:26
input. The software would run through it. 11:26
It would determine how the conversation 11:26
would flow. And it would interact in the 11:26
IVR using the scripting as its guide on 11:26
how to ask the question and respond to 11:26

HOMAYOON BEIGI, PhD

each answer? 11:26

A. I would rephrase this slightly. 11:26

Q. Yes. 11:26

A. It would load the script -- 11:26

Q. Right. 11:26

A. -- interpret it. We use the 11:26

word "parse it" and turn it into some 11:27

internal structures in the memory and then 11:27

use that internal structure so that when a 11:27

call is coming in, it would know how to 11:27

handle it; how to communicate with the 11:27

caller; how to direct them, how to do, you 11:27

know, the actual process. 11:27

Q. Right. And where I want to 11:27

focus is the conversation flow because 11:27

these patents-in-suit talk about 11:27

conversation flow. 11:27

A. Yes. 11:27

Q. And I'm trying to understand how 11:27

the conversation flow is defined. And it 11:27

sounds to me like what you're saying is 11:27

that using that flowchart that you 11:27

developed with your client and the script 11:27

that resulted and eventually got edited 11:27

HOMAYOON BEIGI, PhD

and approved, that was being used to have your proprietary software determine what to ask, when, and how to respond to each response? 11:27

MS. NGUYEN: Objection. Form. 11:27

BY MR. MACEDO: 11:28

Q. Is that a fair -- a fair summary? 11:28

A. It was used to run -- basically drive the conversation flow. 11:28

Q. Right. 11:28

A. Yes. 11:28

Q. And would the conversation flow always be the same, or would it potentially be different depending on how people responded? 11:28

A. It would be -- like I said, it's a graph. Depending on how they respond, they would end up in different parts of that graph. And -- and a graph is different from a tree, meaning that you could go back and forth. Anything can connect to anything else. You could jump anywhere you want. 11:28

HOMAYOON BEIGI, PhD

Q. Okay. And when was the last time you worked on defining a conversation using that technology, being your technology? 11:28

A. That specific client was our client for 12 years and utilized it for 12 years from 2003 onward. And then they were bought out by another company and that part was -- you know, they weren't using that any more, that specific one that I was talking about. 11:28

We -- our engine does the underlying processing of the natural language for -- and has an API, application program interface, which then allows other clients to do that. 11:29

So we have gone deeper where we do more of -- as a company, we do more of an underlying technology across the board where companies like us would then be able to use our technology to do that kind of thing. 11:29

Q. Okay. I know it's easy to speak about "us" as the company, and I know that 11:29

HOMAYOON BEIGI, PhD

the company is primarily you probably but you have others. I want to focus on you as an individual. 11:29

A. Yes. 11:29

Q. Okay. And what I'm trying to understand is you had the customer that you're referring to from 2002 to 2017? 11:29

A. 2003. 11:29

Q. I'm sorry? 11:30

A. 2003 and they stayed with us for 12 years. 11:30

Q. Okay. So 2015ish? 11:30

A. Yeah. 11:30

Q. Okay. Are there other conversations where you were involved in developing the scripting and implementing the scripting using anything other than the technology you described for that company? 11:30

A. This specific scripting that I was talking about -- 11:30

Q. Correct. 11:30

A. -- was that example that you said -- you asked me where was the first 11:30

HOMAYOON BEIGI, PhD

time you did that. 11:30

Q. Right. 11:30

A. And then I said 2003, and we had the customer for 12 years. 11:30

We then focused on more expansive natural language processing, speech recognition, speaker recognition, face recognition, object detection. And when I say "we," I've written most of the code over the 20 -- past 23 years. 11:30

And 21 years at Recognition Technologies, it is now about 5 million lines of C++ code. In the résumé it shows, I think, a snapshot from many years ago. So it's me. I -- I wrote most of that code. 11:31

Q. And your technical degree is mechanical engineering, not software, right? 11:31

A. I have a bachelor's, master's, and PhD in mechanical engineering, with a concentration on neural network learning was on. My -- my thesis was on neural network learning and I wrote the second 11:31

HOMAYOON BEIGI, PhD

neural network learning paper that came out 1987 or 88ish after -- so I was one of the revivers of neural network in my thesis. 11:31

And I then joined IBM Research and worked on online handwriting recognition and later on speech recognition. And since 1995, I've been teaching in electrical engineering department, in the computer science department, mechanical engineering department. And I have a PhD in civil engineering department. 11:31 11:32

I started coding in C from 1981 which is when Kernighan and Ritchie actually wrote the book on C. I've been coding since the age of 16. And I have written, like I said, just about 5 million lines of C++ code for Recognition Technologies alone. 11:32

Q. Right. But I'm looking at 44 of your deck where you're talking about a person of ordinary skill in the art, and I'm trying to focus on your statement that 11:32

HOMAYOON BEIGI, PhD

it would have a bachelor's degree in engineering or computer science. 11:32 11:32

And I'm trying to drill down on why you say engineering. I mean, I can have a mechanical engineering degree and never touch computer software. 11:32 11:32 11:32 11:32

Does that still make me potentially as someone who could be someone -- a person of skill in the art? 11:33 11:33 11:33

A. That's why I say -- let me read it to you. 11:33 11:33

Q. I understand you have alternative language. I'm just trying to focus on what you mean. 11:33 11:33 11:33

A. No, no, it's actually that specific language, please if you don't mind. 11:33 11:33 11:33

Q. Sure. 11:33

A. I've been informed that the petitioner proposed the petition -- in the petition that a POSITA in the field of -- I'm using the '317 now -- '317 patent in 2017 would have bachelor's degree in engineering or computer science and two 11:33 11:33 11:33 11:33 11:33

HOMAYOON BEIGI, PhD

years of experience working on NLP. 11:33

So what you stated does not 11:33

actually qualify that person if he never 11:33

wrote a line of code which I can't see if 11:33

you're a mechanical engineer not writing a 11:33

line of code. But it doesn't qualify them 11:33

because they would have had to have two 11:33

years of experience doing natural language 11:33

processing or automation processing. 11:34

Q. I have a degree in physics, and 11:34

I took computer science classes. Would I 11:34

meet the bachelor's degree requirements of 11:34

the sentence you just said? 11:34

A. Do you have a degree in computer 11:34

science or engineering? 11:34

Q. I have it in physics. 11:34

A. I asked: Do you have one in 11:34

computer science, sir? 11:34

Q. No. I have a degree in physics 11:34

and took lots of computer science classes. 11:34

Would that make me meet the educational 11:34

background that you say a POSITA would 11:34

have? 11:34

A. If you had experience in natural 11:34

HOMAYOON BEIGI, PhD

language processing and automation processes, then it would. But because at IBM, we had a lot of physicists. It doesn't necessarily mean that you're disqualified. 11:34

But I state here specifically that you have to have experience in those fields. 11:34

Q. I understand. There's two parts of your definition, and then there's an alternative definition. There's a degree you have to have and a work experience you have to have. 11:34

A. Yes. 11:35

Q. I'm testing the degree because I'm trying to say is your definition of the degree a correct and appropriate definition of a degree that someone in 2017 would be expected to have to be a POSITA. Okay. That's -- that's the theory of the questions that I'm asking you right now. 11:35

A. That's what I'm considering -- 11:35

MS. NGUYEN: Objection. Form. 11:35

HOMAYOON BEIGI, PhD

Dr. Beigi, please give me some time to insert my objections. 11:35

BY MR. MACEDO: 11:35

Q. So let me phrase the question I have for you. 11:35

Looking at your definition of the degree, you say a bachelor's degree in engineering and computer science plus two years of experience. And we'll talk about the experience separately. Just focusing on the degree. 11:35

A. I said "or" not "and," I'm sorry. 11:35

Q. No, it says "and." 11:35

A. No. In my copy, it says have a bachelor's degree in engineering or computer science. 11:35

Q. Right. 11:35

A. You stated "and computer science." 11:35

Q. No, I'm sorry. Let me rephrase. 11:35

In your definition of a POSITA. You have two alternative definitions, correct? 11:36

HOMAYOON BEIGI, PhD

A. Yes. 11:36

Q. And it's the same for all three IPRs, right? 11:36

A. I believe so. 11:36

Q. I'll represent to you that you have the same paragraph in all three except for the patents that you're referring to. 11:36

A. Thank you. 11:36

Q. And the one that requires less work experience, the two years' work experience specifically requires either an engineering or a computer science degree? 11:36

A. Yes. 11:36

Q. It doesn't allow for any other degree plus two years of experience to be a POSITA? 11:36

A. I don't state it there for -- with two years of experience because I believe that with the two years of experience, you also need to have certain background that is necessary in order to be able to -- and that's why we have the alternative. You need to have certain 11:36

HOMAYOON BEIGI, PhD

background. 11:36

Taking computer science courses 11:36
is one thing, but it would be -- then 11:36
would be a case-by-case basis. But here 11:36
we are talking about the general person 11:36
who would be a POSITA. I don't think 11:37
we're talking about a specific person. 11:37
You could be a genius and could do a lot 11:37
of stuff, but I think we're talking about 11:37
just the general POSITA. 11:37

Q. When you worked at IBM in 11:37
natural language processing -- you did 11:37
work at IBM in natural language 11:37
processing, right? 11:37

A. In speech recognition. 11:37

Q. Okay. Did you work with people 11:37
that did natural language processing? 11:37

A. I would like to qualify that 11:37
speech recognition is a form of natural 11:37
language processing. 11:37

Q. Okay. So when you were at IBM, 11:37
did you work in the field of natural 11:37
language processing? 11:37

A. I did, yes. 11:37

HOMAYOON BEIGI, PhD

Q. And you had colleagues who worked in the field of natural language processing? 11:37

A. Many of them, yes. 11:37

Q. And what degrees did your colleagues at IBM have, by category, that worked in the field of natural language processing? 11:37

A. If I recall correctly, we were at like 80 somewhat PhDs, so all research, so most everybody had a PhD. And in different engineering disciplines, computer science, we did have people who had a PhD in physics, since that's your interest. But PhDs, we didn't have, as far as I remember, anybody who was below a PhD in IBM Research -- in my department -- I'm sorry. Maybe secretarial or other positions. But the research staff members, which I was, generally had a PhD. 11:37 11:38 11:38 11:38 11:38 11:38 11:38 11:38 11:38

Q. And what about at other -- did you work with other companies when you do a natural language processing? 11:38

A. Other than IBM Research and 11:38

HOMAYOON BEIGI, PhD

Recognition Technologies? 11:38

Q. Yes. 11:38

A. No. 11:38

Q. You didn't work with, like, 11:38

clients or customers? 11:38

A. But that's not working -- maybe 11:38

I'm misunderstanding. What do you mean 11:38

"work with"? I thought you mean work for. 11:38

Maybe that's why I'm -- 11:38

Q. I didn't say "for." I said 11:38

"with." 11:38

A. Oh, yes, I've -- I've worked 11:38

with clients all along -- 11:39

Q. Okay. 11:39

A. -- who -- 11:39

Q. Go ahead. 11:39

A. -- work with natural language 11:39

processing. Go ahead. 11:39

Q. And, again, I don't mean the 11:39

clients that needed your natural language 11:39

expertise. I mean the clients that had 11:39

natural language expertise. 11:39

A. Yes. 11:39

Q. And did they all have PhDs? 11:39

HOMAYOON BEIGI, PhD

A. I can't tell. I don't think so. Not all of them, I'm sure. 11:39

Q. Okay. Did you look up the background of any of the people in the prior art that you rely on? 11:39

A. No, with the exception of Williams, because it is an IBM article. I didn't look at his background. It's just his name actually was familiar. Then I looked at -- in the article, I think he talks about the background. 11:39

Q. So you see in Paragraph 43, a list of items you're supposed to consider to determine who a POSITA is? 11:40

MS. NGUYEN: Objection. Form. 11:40

A. Do I see that? 11:40

BY MR. MACEDO: 11:40

Q. Yes. There's a list, right? 11:40

A. The six items? 11:40

Q. Yeah. 11:40

A. Yes. 11:40

Q. Can you read into the record what the six factors you're supposed to consider to determine who a POSITA was, 11:40

HOMAYOON BEIGI, PhD

according to your expert report? 11:40

A. I am informed and I understand 11:40
that various factors can be considered in 11:40
determining a person of ordinary skill in 11:40
the art, POSITA. I am informed and 11:40
understand that those factors include the 11:40
educational level of the inventors, the 11:41
type of problems encountered in the art, 11:41
prior art solutions to those problems, the 11:41
rapidity with which innovations are made, 11:41
sophistication of the technology, and 11:41
education level of active workers in the 11:41
field. 11:41

Q. So did you -- let's start with 11:41
No. 6, the education level of active 11:41
workers in the field. 11:41

A. Yes. 11:41

Q. You didn't consider your IBM 11:41
colleagues' education level because that 11:41
was much higher than what you identified, 11:41
right? 11:41

A. Yes. 11:41

Q. They had PhDs? 11:41

A. It was, yes. 11:41

HOMAYOON BEIGI, PhD

Q. What active workers in the field did you consider to arrive at the bachelor's degree? 11:41

A. I have managed a lot of people in both IBM and in Recognition Technologies. I've managed interns. I've managed and I have also worked with a lot of clients who -- because they use our engine work in the field of natural language processing, so I understand what their levels are. 11:41 11:41 11:41 11:41 11:42 11:42 11:42 11:42 11:42

Q. Okay. So give me an example in 2017, who you worked with doing natural language processing and what degrees they had. 11:42 11:42 11:42 11:42 11:42

A. May I not name the company? 11:42

Q. I don't need the particular individual. I'm trying to get the prototype of the individual -- 11:42 11:42 11:42

A. An educational system that was developed by one of our clients that goes in the classroom and interprets basically what -- how the teacher interacts with the system, this automated system. And they 11:42 11:42 11:42 11:42 11:42

HOMAYOON BEIGI, PhD

use our engines, but they use their own natural language processing in conjunction with our engine. 11:42 11:42 11:42

Q. Okay. And what type of education and experience did they have doing natural language processing? 11:43 11:43 11:43

A. They had electrical engineers. They had computer scientists. Some with master's, some with bachelor's. Writing code. Some of them -- and the CEO and the CTO -- I don't think CTO, but the CEO had a PhD. But most everybody else didn't. 11:43 11:43 11:43 11:43 11:43

Q. Did you look at what the background that Symons had? 11:43 11:43

A. His background? 11:43

Q. Yeah. 11:43

A. I don't know. 11:43

Q. You had it in the record, right? 11:43

A. Are you asking whether I specifically looked up Mr. Symons, like his background? I don't understand. 11:44 11:44 11:44

Q. I'm going to show you what was marked by Whatfix as Exhibit 1008, which is a declaration by Senne Symons, and this 11:44 11:44 11:45

HOMAYOON BEIGI, PhD

particular one was taken from IPR 2023-1368. 11:45

MR. MACEDO: And this will be Exhibit No. 13. 11:45

(Whereupon, Beigi Exhibit 13, Symons declaration in IPR 2023-1368, was marked for identification.) 11:45

BY MR. MACEDO: 11:45

Q. And first ask, do you recognize it? And the 1368 IPR is the '664 patent. 11:45

A. Okay. So are we going back to the '664? 11:45

Q. It's the same exhibit in all of them. So this just happens to be the copy I have. 11:45

Do you recognize what we've marked as Beigi Exhibit 13 that was submitted as WalkMe Exhibit 1008? 11:46

A. Yes, I do. 11:46

Q. I'm sorry. I said WalkMe exhibit, but it was Whatfix. 11:46

A. I'm just referring to the exhibit number. I wasn't -- 11:46

Q. No, I know. Counsel had asked 11:46

HOMAYOON BEIGI, PhD

me to identify the exhibit numbers from the IPRs. 11:46

A. Okay. 11:46

Q. Let me rephrase this. We're looking at exhibit -- Beigi Exhibit 13 which is from IPR 2023-1368 which involves the '664 patent, and it was marked as Exhibit 1008 by the petitioner. 11:46

And the question is: Do you recognize Exhibit 13? 11:46

A. Yes, I do. 11:46

Q. And in it, Mr. Symons identifies his educational background in Paragraph 2, 3, right? 11:47

A. Yes. 11:47

Q. And what was Mr. Symons's educational background? 11:47

A. He states that he has a professional bachelor's degree in applied informatics. 11:47

Q. Is that a degree in engineering? 11:47

A. It's a computer science degree. 11:47

Q. And when did he get that degree? 11:47

A. He states that he received it in 11:47

HOMAYOON BEIGI, PhD

2017. 11:47

Q. And when did he start working on the project that became the Symons prior art that you rely on? It's attached to this Exhibit 13. 11:47 11:47 11:48 11:48

A. He states: From October 2017 to January 2021, I was a robotic process automation developer and business analyst at RoboRana. RoboRana is a Belgium and Netherlands-based company and that focuses on developing intelligent automation such as robotic process automation. My job responsibilities included communicating with customers and building informatics -- I'm sorry -- automations. Since January 2021, I have been an intelligent automation -- automation solution architect and programmer at RoboRana. 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48 11:48

So 2017 onward, because I don't see the end -- maybe there is. I'll remember if there is an end to it. If it's still active -- 11:48 11:48 11:48 11:49

Q. If you look at Page 6 of the exhibit, it has the article written by 11:49 11:49

HOMAYOON BEIGI, PhD

Mr. Symons that you rely on and it has an October 19, 2017 date. 11:49

A. Yes. 11:49

Q. So if he graduated a bachelor's degree of applied informatics in 2017 and he started working on RPAs in October 2017 and published the article that is the key prior art for your first ground in October 19, 2017, in your professional and expert opinion, how much work experience did he have in either chatbots or NLP or RPAs? 11:49

MS. NGUYEN: Objection. Form. 11:49

A. I can't tell because he only says when he received his bachelor's, but he doesn't say how much experience he had possibly prior to that working on similar things. I -- I don't see that. I'm not sure if he said it, or I don't see it. 11:49

BY MR. MACEDO: 11:50

Q. So sitting here today, you have no idea whether he had more than a few weeks' experience in either NLP or RPA based upon the information that was 11:50

HOMAYOON BEIGI, PhD

provided by this declarant? 11:50

MS. NGUYEN: Objection. Form. 11:50

A. I see the work that he has 11:50
presented, and I see that he had a 11:50
bachelor's in informatics. I am not sure 11:50
about how much experience he had at this 11:50
point when he wrote the article. But I 11:50
was defining a POSITA, not necessarily 11:50
this specific person. 11:50

BY MR. MACEDO: 11:50

Q. He's not a POSITA? 11:50

A. I don't know. But because I'm 11:50
just using this information and deciding 11:50
whether a POSITA -- how a POSITA would 11:51
have seen this information, I'm not saying 11:51
that he is or I'm not saying he's not. I 11:51
don't know if that's relevant. I see his 11:51
work. So the so-called proof is in the 11:51
pudding. I see it. 11:51

Q. Well, is he someone that is an 11:51
active worker in the field that is 11:51
relevant to the patents-in-suit? 11:51

A. He is, yes. 11:51

Q. So when you're determining what 11:51

HOMAYOON BEIGI, PhD

a POSITA is, is he an appropriate milestone for you to compare against to try and define what a POSITA is? 11:51

A. He worked on chatbots and products, basically natural language processing. And he has a bachelor's in computer science which is informatics, being one -- one branch of it. 11:51

I am not sure about the number of years of experience, but I didn't consider the number of years of experience that this gentleman -- or I think it is gentleman, Senne, had, because I'm just looking at the work that he produced. 11:52

And the POSITA that I'm talking about is how a person of ordinary skills in the art at the time would be the proper person to make -- you know, how would their decision-making or how -- how would their interpretation be. 11:52

That's what I mean by POSITA. I didn't necessarily have to say that he's a POSITA as far as I'm concerned. 11:52

Q. And, in fact, if all he worked 11:52

HOMAYOON BEIGI, PhD

was for two weeks on the project and hadn't done anything other than got his bachelor's degree, as far as you're concerned, Mr. Symons wouldn't have been a POSITA in November of 2017? 11:52 11:52 11:52 11:52 11:53

A. But that's a conjecture because I don't know, but I do see his work. So based on that, he seems to have been working on this. I see this, yeah. 11:53 11:53 11:53 11:53

Q. But you could have easily found out because your counsel hired him to write this declaration? 11:53 11:53 11:53

MS. NGUYEN: Objection. Form. 11:53

A. I could have found what out? 11:53

BY MR. MACEDO: 11:53

Q. Read the first sentence in the first paragraph. He was compensated for his time. 11:53 11:53 11:53

Who do you think compensated him for his time? Again, we're looking at Beigi Exhibit 13 Paragraph 1 where he says: I was compensated for my time in preparing this declaration. 11:53 11:53 11:53 11:53

A. Are you asking -- 11:53

HOMAYOON BEIGI, PhD

MS. NGUYEN: Objection. Form. 11:53

BY MR. MACEDO: 11:53

Q. I'm saying you understand that 11:53
Mr. Symons was hired by your client to 11:53
write the declaration, right, that we've 11:53
marked as Beigi Exhibit 13? 11:53

A. I considered this declaration to 11:53
show that this was truthfully the work of 11:53
him. 11:53

Q. Okay. 11:53

A. That's what I considered it as. 11:53

Q. That's not my question. 11:53

My question is: Is it your 11:54
understanding that Mr. Symons was hired by 11:54
your client to prepare the declaration 11:54
that we've marked as Beigi Exhibit 13? 11:54
And it can be yes, no, I don't know, I 11:54
don't recall, I don't have any 11:54
understanding. 11:54

A. He says: While I was 11:54
compensated for my time in preparing this 11:54
declaration, I have no stake in the 11:54
outcome of this proceeding, nor I am being 11:54
compensated for my testimony. 11:54

HOMAYOON BEIGI, PhD

So he's not being compensated for his testimony, but he's being compensated possibly for the time that he had to divulge. So that's my understanding. You asked me -- 11:54

Q. Who is compensating him? 11:54

A. I'm not. I don't know. 11:54

Q. Of course, you're not. You never spoke to him? 11:54

A. Of course. 11:54

Q. But your counsel, you know, must have spoken to him in order to get this declaration? 11:54

A. Are you asking me to make -- make a conjecture on -- on whether my counsel spoke with him and -- 11:54

Q. You're telling me -- 11:54

A. All I go on is this document. 11:55

Q. I want to know: Do you have an understanding of whether or not your counsel engaged Mr. Symons to prepare this declaration that we've marked as Beigi Exhibit 13? It could be yes, I have that understanding; no, I don't have that 11:55

HOMAYOON BEIGI, PhD

understanding; or I don't know because it would be conjecture. Whatever is the right answer is fine, but I just want you to answer the question: Do you have an understanding of whether or not your counsel engaged Mr. Symons to prepare the declaration that was marked as Beigi Exhibit 13? 11:55

A. I was provided this affidavit by the counsel. And I reviewed it to make sure that he was indeed the person behind this. So like I said, I have no idea who compensated him. And it wasn't my business to know who compensated him. 11:55 11:56

Q. Why not? 11:56

MS. NGUYEN: Objection. Form. 11:56

BY MR. MACEDO: 11:56

Q. Why was it not your business to know whether if you're relying on someone's declaration for the truth of being -- of what is being asserted who compensated them and how much he was paid? 11:56

A. Because he specifically says -- and I'm taking his word for it because he 11:56

HOMAYOON BEIGI, PhD

signed it, unless I shouldn't have. I take his word for it where he says: I have no stake in the outcome of the proceedings, and I am being compensated -- I am not -- I'm sorry -- nor am I being compensated for my testimony. That's the only part that I care about. 11:56

Q. But he's being paid to write the declaration? 11:56

MS. NGUYEN: Objection. Form. 11:56

A. I think it -- my understanding is being paid for his time that he had to take away from other things to prepare this. He didn't have to. 11:56

BY MR. MACEDO: 11:56

Q. But the other colleague didn't get paid to write their declaration, right? 11:56

A. Please let me see the declaration. 11:56

Q. You don't know? 11:57

A. I don't recall. 11:57

Q. You don't recall? 11:57

A. No. 11:57

HOMAYOON BEIGI, PhD

Q. Did you -- if you were told hypothetically that Mr. Symons was paid $20 million to write this declaration, would that impact your view of the declaration? 11:57

A. Yes, it would. 11:57

Q. And if you were told that he was paid nothing to write the declaration, would it impact your view of the declaration? 11:57

A. No. 11:57

MS. NGUYEN: Counsel, it's been an hour. 11:57

BY MR. MACEDO: 11:57

Q. At what point -- at what point would the amount of money that Mr. Symons received impact your view of the declaration? 11:57

A. Something reasonable for taking time to write it. And I -- that -- like I'm saying, that administrative part is not my business. 11:57

Q. And do you know whether -- not your counsel, but your client, Whatfix, 11:57

HOMAYOON BEIGI, PhD

has any business relationships with the companies which Mr. Symons is involved? 11:58

A. I have no idea. I've never met Whatfix. I didn't even know about them before this. I only dealt with even just one person from -- from this company, so I don't know at all. 11:58

Q. Did you ever get the view that it was beyond your abilities as a consultant or expert in this case to talk to anyone from Whatfix? 11:58

A. Beyond my abilities? 11:58

Q. Yeah, like counsel said, no, you're not allowed to talk to them? 11:58

A. No, they never told me that. 11:58

Q. I'm sorry? 11:58

MS. NGUYEN: Objection. 11:58

A. They never told me that. 11:58

BY MR. MACEDO: 11:58

Q. Okay. Did you ever have the impression that you weren't allowed to talk to them? 11:58

MS. NGUYEN: Dr. Beigi, I encourage you not to answer with 11:58

HOMAYOON BEIGI, PhD

respect to any attorney-client privileges. 11:58

MR. MACEDO: I'm not asking for a conversation. I'm asking for his impression. 11:58

MS. NGUYEN: Counsel, your question was, were you not allowed to talk to them, were you ever told. 11:58

MR. MACEDO: No, my current question is: Did you have the impression that you weren't allowed to talk to them? He already said the conversation did not exist between you and him. 11:59

THE WITNESS: I never considered it. 11:59

BY MR. MACEDO: 11:59

Q. Okay. 11:59

A. It wasn't part of what I considered at all. 11:59

Q. Were you ever under the view that you were restricted from the ability to talk to any of the witnesses whose declarations you were provided? 11:59

HOMAYOON BEIGI, PhD

A. Rephrase -- say that again, please, the question. 11:59

Q. Were you ever under the view that you were restricted, not allowed, shouldn't talk to any of the witnesses whose declarations you were provided? 11:59

A. That is just something I wouldn't do. I wouldn't --you know, I just wouldn't do that. It's because I'm not -- I'm not here to communicate because it would taint my judgment if I did. It's just -- to me as a professional, it's not proper to communicate with any of these people. 11:59 12:00

MS. NGUYEN: Counsel --

BY MR. MACEDO: 12:00

Q. So your view is it would not be proper to talk to the witnesses whose testimony you're relying on to test whether it was accurate? 12:00

A. To speak with them? 12:00

Q. Yeah. 12:00

A. Yeah, I just wouldn't do that. I wouldn't speak with any one of these 12:00

HOMAYOON BEIGI, PhD

people. 12:00

Q. When you read Exhibit 13 and the articles attached -- 12:00

A. Yes. 12:00

Q. -- was there anything that you didn't know about the Symons system which would have been something if you had a conversation with him you might have asked? 12:00

A. Nothing that I needed to know that I would have wanted to ask him. 12:00

Q. Well, for example, when you look at the attachment, right, they have an article, you see Page 6, "When Chatbots Meet RPA Bots"? 12:01

A. Yes. 12:01

Q. Okay. And in it says: The goal of the showcase is to automate the process of creating an e-mail signature, right? On Page 7 at the bottom underneath the robot. 12:01

A. Yes. 12:01

Q. Do you have an understanding of why that was the process that was being 12:01

HOMAYOON BEIGI, PhD

automated? 12:01

A. What do you mean "why that was the process being automated"? 12:01

Q. Why was Mr. Symons automating the process of creating an e-mail signature? 12:01

A. As it says, at RoboRana, part of the iBizz cluster within the Cronos Group, we focus on delivering RPA technology to a wide spectrum of clients across different sectors. The RPA sector has been growing fast, and we are constantly exploring new possibilities. 12:02

Q. Well, the particular process that he was automating was basically filling out a Cronos e-mail signature generator form, right? If you look, you can see on Page 20 the web page where they show that software. 12:02

A. Can you ask the question again? 12:02

Q. Well, the particular process that they were automating was the Cronos e-mail signature generator, which we can see on Page 20 of what was marked as 12:02

HOMAYOON BEIGI, PhD

Exhibit 1008 in the IPRs and we've marked as Beigi Exhibit 13. 12:02

A. That's right, yes. 12:03

Q. Okay. Have you ever used the Cronos e-mail signature generator? 12:03

A. No. 12:03

Q. Have you ever spoken to anyone that has ever used the Cronos e-mail signature generator? 12:03

A. No, I watched a video. 12:03

MS. NGUYEN: Counsel, it's been over an hour. Can we take a break? 12:03

MR. MACEDO: I'd rather finish my line of questioning, Counsel. 12:03

MS. NGUYEN: How much longer? 12:03

MR. MACEDO: I don't know. Depends when we're done with the line. We don't need to break every 30, 60 minutes. We can go for an hour and a half unless the witness is tired, Counsel. 12:03

MS. NGUYEN: Dr. Beigi, would you like a break? 12:03

THE WITNESS: It's been an hour. 12:03

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 12:03

Q. I'd like to finish this line if you can handle it. 12:03

A. Okay. 12:03

Q. So do you know whether the Cronos e-mail signature generator could do anything other than generate an e-mail signature in October or November of 2017? 12:03

A. It was set out to. It was configured to, yes. 12:03

Q. Configured to what? 12:04

A. To be able to do other things. 12:04

Q. How do you know that? 12:04

A. I'm looking for the English translation. 12:04

Q. We'll grab a copy of that for you. 12:04

MR. MACEDO: We'll mark as Exhibit 14 what was marked Whatfix Exhibit 1006 in the IPRs which was presented as an English language translation that was prepared by someone not Mr. Symons. 12:05

(Whereupon, Beigi Exhibit 14, 12:05

HOMAYOON BEIGI, PhD

English translation Whatfix Exhibit 1006, was marked for identification.) 12:05

THE WITNESS: Thank you. 12:05

BY MR. MACEDO: 12:05

Q. This is Beigi Exhibit 14, the exhibit you were looking for? 12:05

A. Yes. So if you don't mind asking the question again, I have everything now so I can respond. 12:05

MR. MACEDO: Okay. Ms. Court reporter, if you could read back the last question, please. 12:05

(Record read.) 12:06

A. Okay. So I'm referring to two things. One is in the article that we just looked at, which I just read, but I'll read it again. 12:06

At RoboRana, part of iBizz cluster within the Cronos Group, we focus on delivering RPA technology to a wide spectrum of clients across different sectors. 12:06

Then if you look at Page 3 of Exhibit 1006, Whatfix Inc., this is the 12:07

HOMAYOON BEIGI, PhD

exhibit that you just handed to me which is exhibit -- your Exhibit 14, if you look at Page 3 at the bottom on the lower right, the chatbot says: Hi, at this moment you can only use me to create a new Cronos signature. The person responds: I want a new signature. And then the chatbot asks: What is your name? 12:07

Given the fact that they worked in different sectors -- across different sectors and were delivering RPA technology and the fact that it says at this moment you can only use me to create a new Cronos signature, it means that any POSITA would have known that in the future, they are setting it out so that you can do other things as well. So that thing we were talking about, the different condition. 12:07 12:08

Q. Well, again, you're saying that the Cronos e-mail signature generator could do other things which is where my question began. 12:08

What you're referring to is the chatbot saying that it is limited for a 12:08

HOMAYOON BEIGI, PhD

single purpose of generating a signature, and the article said that it only wanted to automate the e-mail generator process. 12:08

Why do you assume that because they work with other clients in other sectors that the e-mail generator software could do anything other than generate an e-mail? 12:08

MS. NGUYEN: Objection. Form. 12:08

A. Well, I'm looking at the, you know, the RNT, RoboRana chatbot. So this chatbot is saying at the moment, I can only create a Cronos signature, which is setting it so that this chatbot -- unless I misunderstood your question -- this chatbot should be capable of doing other things if requested in the future. That's what I meant by setting it out, setting it so that it would be able to. I'm not saying at the moment. 12:08 12:09

BY MR. MACEDO: 12:09

Q. So -- 12:09

A. Sorry, let me finish please. 12:09

At the moment what we're looking 12:09

HOMAYOON BEIGI, PhD

at because that's all is we have is capable of doing a Cronos signature. But the way it's stated at the moment, you can only use me to create a new Cronos signature, makes you understand -- any POSITA understand that they are in the process of extending this or expanding this to do other things as well. 12:09

Q. So your understanding is that this chatbot contemplated that you could use it to build a car because at the moment, it was only doing Cronos signatures but therefore, it could do anything else in the future, right? 12:09 12:10

A. No. Why build a car? It could be anything that's related. It could be anything within that realm. Building a car is a little farfetched. But it could -- it's setting itself out to do other processes than just creating a signature. 12:10

Q. And did it ever do other processes? 12:10

A. I don't know. 12:10

HOMAYOON BEIGI, PhD

Q. Did you look? 12:10
A. I didn't look. 12:10
Q. Did counsel tell you they looked? 12:10
A. No, they didn't tell me. 12:10
Q. Well, they spoke to Mr. Symons. Did they ask him? 12:10
A. You're asking -- 12:10
MS. NGUYEN: Objection. 12:10
BY MR. MACEDO: 12:10
Q. Yeah. Do you know if -- 12:10
MS. NGUYEN: Dr. Beigi, again, any communications between yourself and us are strictly privileged. 12:10
BY MR. MACEDO: 12:10
Q. Okay. So -- 12:10
A. You're asking me what they did. 12:10
Q. -- I'm asking you: Do you know if anyone ever asked Mr. Symons, who was paid to prepare this declaration, whether the chatbot that was being shown actually implemented any other process besides generating an e-mail signature? 12:10
A. I don't know. 12:11

HOMAYOON BEIGI, PhD

Q. Do you know whether the e-mail -- the Cronos e-mail generator was ever deployed so someone other than the chatbot in this demonstration, in this showcase could use it? 12:11

A. I don't know.

Q. What is "a showcase" to someone of skill in the art in 2017?

A. A showcase is a demonstration.

Q. And does the demonstration mean the software is actually built, or could it just show what the software is intended to do?

A. It usually means that you've built a system and you're showing its capabilities. That's what we usually -- a showcase is you're showcasing the capabilities of the software.

So making conjectures on you can go to the moon, you know, stuff like that is not -- it's -- it's a showcase, showcasing the capabilities of the software. 12:12

Q. So have you ever heard of a

HOMAYOON BEIGI, PhD

showcase in the 2017 period which would demonstrate a conversation that may have not been actually programmed using natural language processing? 12:12

A. A showcase? 12:12

Q. Yes. 12:12

A. No. 12:12

Q. Never? 12:12

A. No, I haven't. 12:12

Q. How many start-ups have you dealt with? 12:12

A. Many as clients. 12:12

Q. And have you ever seen a start-up give a showcase which showed the conceptualization of a process that did not actually implement the process? 12:12

A. I think you used the right word this time. They usually call it a concept. 12:12

Q. Right. 12:13

A. Not a showcase. A showcase usually means you're actually showing the capabilities to me. It means that you're showing capabilities. 12:13

HOMAYOON BEIGI, PhD

Usually if you have some very futuristic thing that's a concept car, for example, that's a concept. And I think this time you used the right wording. 12:13

Q. So in the conversation that you're referring to, the user, who we are led to believe is Vincent De Bie, right. In the chat, you can see on Page 5, it says: What is your name and it says Vincent De Bie, right? 12:13

A. Yes. 12:13

Q. And you know Vincent De Bie worked for Arinti which did the chatbot, right? 12:13

A. Yes. 12:13

Q. And so when Vincent types hello, the bot responds: Hi, at this moment you can only use me to create a Cronos signature, albeit this is in Danish, not in English, right? 12:13

A. Yes. 12:14

Q. Then -- 12:14

A. I'm sorry. Is it Danish or is it Dutch? I wasn't sure. 12:14

HOMAYOON BEIGI, PhD

Q. My expert tells me Dutch. 12:14

A. I thought it was Dutch, yes. 12:14

Q. I apologize. Yes, in Dutch. 12:14

Then Vincent types I want a signature. Now, in response to that, it says what is your name, the bot, right? 12:14

A. Yes. 12:14

Q. If he said I want to generate an invoice, what would have been the response from the bot? 12:14

A. Well, I would have expected from a chatbot to go back and say I can't do invoices. I can only do -- go back to that back node again, that I cannot do anything but signatures at this point. 12:14

Q. If it was programmed using natural language processing? 12:14

A. Yes. 12:14

Q. If it was just scripted out to ask the same question irrespective of what the next answer was, you would have expected it to just say what is your name, right? 12:14

A. I'm sorry. Let me go back 12:15

HOMAYOON BEIGI, PhD

because you said if it were programmed using natural language processing. I just want to make sure that I -- I respond correctly. 12:15

Can you clarify programmed using natural language processing versus it was in conversation in language? Because that's what I remember you asked and then I quickly said -- 12:15

Q. So I could generate the conversation, all the questions here, where no matter what you say in the first instance, the bot responds, hi, at this moment, you can only use to me create a Cronos signature. And then no matter what you say next, it says what is your name. And then no matter what you say next, it says what is your role. And then no matter what you say next, it says what is your e-mail address. And then no matter what you say, it says what is your cell phone number and so on, going down in this conversation. 12:15

So it doesn't really matter what 12:16

HOMAYOON BEIGI, PhD

the -- the text that is typed in, it will ask the next question in the order given irrespectively. That's one way this could have been implemented, right? 12:16

MS. NGUYEN: Objection. Form. 12:16

A. Well, I wouldn't characterize it as that because it does make a decision. And it -- when it actually reflects, it asks, is the following information correct, and then produces the information that the person has provided. 12:16

And my understanding is that they say no in the next screen, and then they go back and what is your cell phone number -- 12:16 12:17

Q. Why is it asking -- 12:17

A. -- and permission -- 12:17

Q. Why is it asking what is your cell phone number instead of what is your name? 12:17

A. No, it's not. This is from the previous screen. It's just scrolling. 12:17

So if we look at the previous screen, it's just, like, scrolling one by 12:17

HOMAYOON BEIGI, PhD

one. So no is pressed. Then it shows no. 12:17
You see that? The user says no, and then 12:17
it says what would you like to change. 12:17
And then they would say the cell phone -- 12:17
cell number. And then it would go back 12:18
and change the cell phone number. 12:18
Q. So let's go back to my question. 12:18
A. Yes. 12:18
Q. My question was not what happens 12:18
when it asked would you like to change 12:18
your information. But I'm starting where 12:18
the conversation begins. 12:18
Is there any reason to believe 12:18
that this showcase didn't merely have a 12:18
script that said in response to whatever 12:18
the first thing that was typed, you type, 12:18
hi, at this moment you can only use me to 12:18
create a new signature. In response to 12:18
whatever was typed next, to say what is 12:18
your name. In response to whatever was 12:18
typed next, you say, hi, at this moment 12:18
you can only use me to create a new -- 12:18
MR. MACEDO: I'm sorry. Strike 12:18
that. 12:18

HOMAYOON BEIGI, PhD

BY MR. MACEDO:

Q. After it says what is your name in response to whatever the response is, it says what is your role. And then in response to whatever came next, what is your e-mail address. And then whatever came next, what is your cell phone number.

Is there any reason why those questions had to get a legitimate answer to the previous question or any specific question to cause the chatbot to ask those questions?

MS. NGUYEN: Objection. Form.

A. I think being a chatbot where we defined what a chatbot was and everybody would have known what a chatbot was at this time due to references that I've also presented, which is basically its work is to do natural language processing.

MS. NGUYEN: Counsel -- sorry.

THE WITNESS: I'm sorry.

MS. NGUYEN: Please.

A. And -- and they are saying the chatbot collects all the information.

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 12:19

Q. But it doesn't say it uses natural language processing to do this demo? 12:19

A. It is using the phrase "chatbot." It is using the definition of a chatbot, where a chatbot is something that communicates with you in natural language. 12:19

Q. That you communicate in natural language doesn't mean you use natural language processing. You can write out a script as I described that does not require any specific answer to ask you the next question because at the end, it has you verify whether the information is correct? 12:20

MS. NGUYEN: Objection. Form. 12:20

BY MR. MACEDO: 12:20

Q. Correct? 12:20

A. (Witness reviewing document.) 12:21

Q. Can you tell us what you're looking at? 12:21

A. I'm looking at Exhibit 4. 12:21

HOMAYOON BEIGI, PhD

Q. And is there a particular portion you're looking for? 12:21

A. I'm looking at the Symons art. 12:21

Q. Okay. Have you found anything to help you? 12:21

A. I am not really looking for help, but I'm trying to figure out if I can show anything from here. 12:23

The Symons chatbot, as it specifically says, is a chatbot and as Melendez, for example, talks about as a few of the references that I presented talk about a chatbot is -- and as, of course, the patent itself of '664 defines it. 12:23

These are natural language processing software machinery. And any POSITA would know that if you're asking a question and this is a chatbot, and you're responding, you would like to check to make sure that is a valid answer that's being done. 12:24

So that's not really -- you know, this is something that would be 12:24

HOMAYOON BEIGI, PhD

obvious to a POSITA that you would have to -- it's a chatbot, and you're talking. Now, do I know -- did I look at the code underneath? I haven't looked at the code. And I don't think you have either, but I would have expected -- a POSITA would have expected that they are checking what the response is. 12:24 12:24 12:24 12:24 12:24 12:24 12:24 12:25

Q. But he was on the job for two weeks, just graduated with a bachelor's degree, has no evidence of doing anything else, and under your definition of POSITA does not seem likely to have been a POSITA, right, Mr. Symons? 12:25 12:25 12:25 12:25 12:25 12:25

MS. NGUYEN: Objection. Form. 12:25

A. He was presenting their showcase, their company's showcase. Doesn't necessarily mean that this is specifically his work. He's showcasing it. I don't know how many other people may have been working on this, how many other -- this is one of their products that he's presenting. 12:25 12:25 12:25 12:25 12:25 12:25 12:25

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 12:25

Q. But from your understanding, if he had only been on the job for two weeks and only had a bachelor's degree and had no other experience, he wasn't a POSITA, right? 12:25

MS. NGUYEN: Objection. Form. 12:25

BY MR. MACEDO: 12:25

Q. Mr. Symons? 12:25

A. I've already answered that part, went through good detail. 12:25

Q. And the answer is, yes, he wouldn't be under those circumstances a POSITA? 12:25

A. If he didn't have any experience prior to that and he had just a bachelor's in computer science, within his bachelor's -- term of his bachelor's, he could have worked on RPAs. He was hired. I don't know how he was hired, but he was hired to work on this. And he's presenting the -- showcasing the company's software, not his software, the company's software. 12:26

HOMAYOON BEIGI, PhD

So I am not sure if -- what I'm saying is that a POSITA looking at this. Here's a chatbot, asking questions. It's not a form. Like you had said before, it's not a form. It's a chatbot. It's asking questions and getting a response and working on it. 12:26

Q. And Mr. Symons didn't do the chatbot. Some other company Arinti did it. And so, again, Mr. Symons writing that it's a chatbot was by someone who had been on the job for two weeks, graduated with a specific type of computer science degree earlier that year, and has not evidenced any work experience either in chatbots or work prior to his October 2017 start date? 12:26 12:27

A. Informatics --

MS. NGUYEN: Objection. Form. 12:27

A. Informatics is not some other kind of computer science. It's well related to this. 12:27

MS. NGUYEN: Counsel, it's been well over an hour. It's time to take 12:27

HOMAYOON BEIGI, PhD

a break.

MR. MACEDO: Counsel, if the witness wants a break, he can ask for a break. I want to finish my line of question. The more you interrupt, the longer this will be.

MS. NGUYEN: How much longer?

MR. MACEDO: I don't know because I haven't finished the line of question. If I finish the line of question, I finish it. If you need to take a break because the witness is tired, you can ask me. I'm always happy to do that. I'd rather keep going if the witness can handle it.

Can you handle us keep going, Dr. Beigi?

THE WITNESS: Go ahead.

MR. MACEDO: So please stop interrupting us, Counsel. Let the witness ask if they want a break.

BY MR. MACEDO:

Q. So if hypothetically you've been on the job two weeks, got straight out of

HOMAYOON BEIGI, PhD

college, needed to showcase a chatbot that was being done by a different company when you're being hired to write RPAs, wouldn't you do the simplest thing possible since all you need to do is gather information? 12:28

MS. NGUYEN: Objection. Form. 12:28

A. That was all hypothesis. 12:28

BY MR. MACEDO: 12:28

Q. That's your job as an expert is to answer hypotheses. That's my hypotheses. 12:28

A. There were so many different conditions. 12:28

Q. That's the conditions I want you to answer. We can read it back if you want. 12:28

A. Please. 12:28

MR. MACEDO: Please, Ms. Court Reporter. 12:28

(Record read.) 12:28

BY MR. MACEDO: 12:28

Q. I'll start over. 12:28

So the hypothetical is you and Mr. Symons -- 12:28

HOMAYOON BEIGI, PhD

A. Yes. 12:28

Q. -- graduated college earlier in 12:28
the year, you were hired the beginning of 12:28
October, and you had to prepare a video 12:29
showing a showcase of a chatbot gathering 12:29
information and putting it into the 12:29
e-mail -- the Cronos e-mail generator. 12:29
And you were hired to do RPAs, and you had 12:29
to go to a different company Arinti to get 12:29
you the chatbot. 12:29

Wouldn't you want to do the 12:29
simplest chatbot possible to demonstrate 12:29
that the data could be collected? 12:29

MS. NGUYEN: Objection. Form. 12:29

A. I want to read to you from his 12:29
declaration. 12:29

BY MR. MACEDO: 12:29

Q. I want you to answer the 12:29
question I asked. 12:29

A. I am, if you don't mind. 12:29

Q. I do mind. I want you to answer 12:29
my hypothetical and based upon my 12:29
hypothetical, would you do what I said? 12:29

A. His job responsibility included 12:29

HOMAYOON BEIGI, PhD

communicating with customers and building automations. So he is presenting something. He's presenting a showcase which is communication. It doesn't necessarily mean that he has to, specifically himself, has to have implemented this. He is showcasing it. 12:29 12:29 12:29 12:30 12:30 12:30 12:30

Q. And so he may not know what that article's definition of a chatbot is. He may just be using whatever his vernacular definition was because he was not a POSITA? 12:30 12:30 12:30 12:30 12:30 12:30

MS. NGUYEN: Objection. Form. 12:30

A. I would not expect that. If he was employed by the company, and the company -- and then -- and if he's writing -- he's showcasing this, then I would expect that he would know what a chatbot is, and he's actually showcasing a chatbot. So even if you are new to the job and you're showcasing this very specific thing, which possibly others wrote, that you'd still be able to explain what it is because that is the job you're 12:30 12:30 12:30 12:30 12:30 12:30 12:30 12:30 12:30 12:30 12:30

HOMAYOON BEIGI, PhD

undertaking at that point. 12:30

BY MR. MACEDO: 12:31

Q. So someone who was hired two 12:31
weeks earlier to do RPA processing would 12:31
be expected to know about the article 12:31
definition of chatbots that you referred 12:31
to that a POSITA would know, potentially 12:31
but not a not POSITA, because he was 12:31
working with a sister company who 12:31
implemented something which he was not 12:31
hired for? That's your testimony, right? 12:31

MS. NGUYEN: Objection. Form. 12:31

A. No, I'm saying his work was in 12:31
robotic process automation. He's -- he's 12:31
studied informatics. So these are all 12:31
very related to what he was showcasing, 12:31
and he's showcasing that. 12:31

So I am not saying what his 12:31
qualifications were as a POSITA. I'm 12:31
saying that he was showcasing this 12:31
process. And he would be able to showcase 12:31
the process if he studied informatics and 12:31
he worked on providing process automation 12:31
because he's showcasing it. 12:32

HOMAYOON BEIGI, PhD

BY MR. MACEDO:

Q. So your understanding is the article called "When Chatbots Meet RPA Bots," right? 12:32

A. Yes. 12:32

Q. And the premise of this article is three things exist out there, RPAs, chatbots, and artificial intelligence, right? 12:32

A. Yes. 12:32

Q. And they thought it was insightful that you can combine the three and that before that, they didn't think people were combining those three things, right? 12:32

A. Not necessarily. We have shown that other people have talked about this combination before this date. 12:32

Q. I didn't say what other people said. I said what this article is saying. 12:32

A. They are presenting, yes, a scenario that combines the two. 12:32

Q. But this article is presenting that they are being innovative by having 12:32

HOMAYOON BEIGI, PhD

chatbots meet RPA bots and that in the future, it would also be AI, right? 12:32

A. They are showcasing it. 12:33

Q. But that's what they think is innovative, right? They think that they're being innovative because they're combining chatbots with RPAs and thinking in the future they will also combine it with AI, right? That's their premise, their theory? 12:33

A. They are showcasing it. Doesn't necessarily mean that it did not exist before that. This is something that they're showcasing. This is showing a combination of these. 12:33

Q. Okay. So I want to be clear. I'm not talking about whether other people have different views. I'm talking about the article that's entitled "When chatbot Meet RPA Bots." 12:33

Is it fair to say that the premise of the article written by Mr. Symons is that he thinks that it was innovative to combine RPAs, robot process 12:33

HOMAYOON BEIGI, PhD

automation, with chatbots as something new and innovative from his perspective? Forget about whether he's right or not. Is that the premise of his article? 12:33 12:33 12:33 12:33

A. I think the fact that he's showcasing it means that he thinks it's something of interest. 12:34 12:34 12:34

Q. Right. And he thinks he's being innovative by doing that? 12:34 12:34

A. He is saying that it is something of interest. It's show -- it's showcasing it. 12:34 12:34 12:34

Can you point me to a specific place where he says we invented this and we are now doing this? 12:34 12:34 12:34

Q. I'm asking you whether your reading, as a person of ordinary skill in the art, as a person of extraordinary skill in the art, would be that Mr. Symons was of the opinion by publishing this article on October 19, 2017, that he thought he was being innovative by combining chatbot to RPA bots. And if you don't know, that's fine. I'm asking you 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34 12:34

HOMAYOON BEIGI, PhD

whether you believe that that's what Mr. Symons was positing. 12:34

A. No. So it specifically says in the first line: The technology landscape has been evolving rapidly in the last years. New technologies have been emerging. 12:34 12:35 12:35 12:35

So I can't tell that he's saying, oh, right now we just came up with this new thing. 12:35 12:35

All the technologies have been maturing, and new concepts have been discovered. Some of the newer technologies have promising future such as robotic process automation, chatbots, and artificial intelligence. 12:35 12:35 12:35 12:35

So he is showcasing a case where these two have been combined. 12:35 12:35

Q. And go to the paragraph at the bottom of the page and read that out loud, going onto the next page. 12:35 12:35 12:35

A. We decided to join forces with Arinti, specialized in chatbot and AI technologies within the Cronos Group to 12:35 12:35

HOMAYOON BEIGI, PhD

explore the possibilities to combine RPA bots and chatbots. Both technologies -- 12:36

Q. With chatbots -- 12:36

A. I am sorry. 12:36

Q. To combine RPA bots with chatbots. 12:36

A. -- with chatbots. Both technologies have their specific advantages and combining them to automate processes can tremendously -- tremendously boost productivity in multiple organizations. 12:36

So reading this as an expert, I would say he's characterizing it correctly by saying that there are chatbots. We understand what they are. There are RPAs. We understand what they are. And both technologies have their specific advantages. Combining them to automate the process can tremendously boost productivity. 12:36

Q. Right. 12:36

A. So from my understanding when I read this is I believe that he understands 12:36

HOMAYOON BEIGI, PhD

what a chatbot is. He understands what an RPA is. And now he's saying that this is a combination of the two that has an advantage. 12:36 12:36 12:36 12:37

Q. And he thinks that it's something cool, new, different, worthy of publishing on his second week on the job, that they made this combination which he didn't identify as existing prior to him? 12:37 12:37 12:37 12:37 12:37

A. I'm not in his brain to know that. His management could have told him to do that. Is he -- I don't know what went on in his mind when he decided to write this article. 12:37 12:37 12:37 12:37 12:37

Q. And you never bothered to try and ask him even though you knew your counsel had been paying him? 12:37 12:37 12:37

A. No, I don't think -- from what I read, they understand what a chatbot is because they are explaining and using it properly, so. 12:37 12:37 12:37 12:37

Q. Okay. Have you ever used the Arinti chatbot? 12:37 12:37

A. No, I haven't. 12:37

HOMAYOON BEIGI, PhD

Q. Have you ever heard of it before you started working on this case? 12:37

A. I hadn't. 12:38

Q. Do you know if it works? 12:38

A. I don't know. 12:38

MR. MACEDO: Okay. Why don't we take a lunch break. 12:38

I will remind you that you're under oath; and under the PTAB trial practice guidelines, it would be improper for to you discuss your testimony with anyone including counsel. 12:38

THE WITNESS: I understand. 12:38

MR. MACEDO: So during lunch, you can talk about the weather or anything else, but please don't talk about your testimony with counsel or anyone else. 12:38

THE WITNESS: I understand. 12:38

MR. MACEDO: And we'll see you in an hour. 12:38

THE WITNESS: Thank you. 12:38

MR. MACEDO: You can go off. 12:38

HOMAYOON BEIGI, PhD

THE VIDEOGRAPHER: We are going off the record. The time is 12:39 p.m. 12:38 12:38

(Whereupon a lunch recess was taken at 12:39 p.m.)

* * *

HOMAYOON BEIGI, PhD

A F T E R N O O N S E S S I O N

(Time noted: 1:44 p.m.)

* * *

(Whereupon, Beigi Exhibit 15, Decision granting institution of inter partes review in Patent 10,819,664, was marked for identification.) 01:44

(Whereupon, Beigi Exhibit 16, Decision denying institution of inter partes review in Patent 10,819,664, was marked for identification.) 01:44

(Whereupon, Beigi Exhibit 17, Decision granting institution of inter partes review in Patent 11,258,732, was marked for identification.) 01:44

(Whereupon, Beigi Exhibit 18, Decision granting institution of inter partes review in Patent 11,558,317, was marked for identification.) 01:48

THE VIDEOGRAPHER: We are now back on the record. The time is 1:49 p.m. 01:48

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 01:48

Q. Welcome back, Dr. Beigi. 01:48

A. Thank you. 01:48

Q. Any reason why you can't testify now to the best of your abilities? 01:48

A. No. 01:48

Q. Okay. And I remind you you're still under oath. 01:48

A. Yes. 01:49

Q. Okay. Okay. So during the break, we marked as Exhibits 15, 16, 17, 18 the various decisions on the four IPRs. And I'm just going to identify, have you look at them, and confirm whether you recognize them, okay? 01:49

We'll start with Exhibit 15, which is the decision granting institution of inter partes review in IPR 2023-01368 for US Patent No. 10,819,664. 01:49

Do you see that exhibit? 01:49

A. Yes. 01:49

Q. And do you recognize that exhibit? 01:49

A. Yes. 01:49

HOMAYOON BEIGI, PhD

Q. And your understanding is that Exhibit 15 is the decision by PTAB to institute the inter partes review for the '664 patent, correct? 01:49

A. Yes, based on the -- just the decision. 01:49

Q. The title? 01:49

A. The title, yeah. 01:49

Q. Okay. That's okay. We'll go into it in more detail later. I want to get it on the record. 01:50

A. Yes. 01:50

Q. That's fine. So if you now look at Exhibit 16, that is the decision denying institution of inter partes review in IPR number 2023-01443 for US Patent No. 10,819,664. 01:50

Do you see that? 01:50

A. Yes. 01:50

Q. And do you recognize Exhibit 16? 01:50

A. Yes. 01:50

Q. And this is for the IPR that you referred to as an afterthought earlier, right? 01:50

HOMAYOON BEIGI, PhD

A. Yes. 01:50

Q. And your understanding is that the afterthought IPR referenced by Exhibit 16 was not instituted, correct? 01:50

A. Based on what it says, yes and -- 01:50

Q. And you knew that even before you looked at the exhibit? 01:50

A. Yes. 01:50

Q. Right. Okay. 01:50

And now if we look at Exhibit 17, that is the decision granting institution of inter partes review for IPR 2023-01379 for US Patent 11,258,732 B2, right? 01:50

A. Yes. 01:51

Q. And that decision, you've seen before? 01:51

A. Yes. 01:51

Q. And you recognize it? 01:51

A. Yes. 01:51

Q. And that was the decision to institute a review of the '732 patent, right? 01:51

HOMAYOON BEIGI, PhD

A. Yes. 01:51

Q. Okay. And then we have as Exhibit 18 the decision granting institution of inter partes review for IPR 2024-00065 for US Patent 11,558,317 B2, right? 01:51

A. Yes. 01:51

Q. And you recognize that? 01:51

A. Yes. 01:51

Q. And do you recognize that Exhibit 18 instituted inter partes review for the '317 patent? 01:51

A. Yes. 01:51

Q. Okay. So what I want to do is I want to look at the decision to institute, the expert report that goes with the decision to institute, and the patent that's associated with it. 01:51 01:52 01:52 01:52

A. Yes. 01:52

Q. Okay. And I'm going to start with the Exhibit 15 and the '664 patent that was instituted, that IPR. So you should have Exhibit 8 which is the '664 patent, Exhibit 4 which is your 01:52 01:52 01:52 01:52 01:52

HOMAYOON BEIGI, PhD

declaration in support of the IPR 1368. 01:53

A. Yes. 01:53

Q. And you should have the 01:53

institution decision which we marked as 01:53

15. 01:53

A. Yes. 01:53

Q. Okay. So the first thing I want 01:53

to do is I want you to turn to in 01:53

Exhibit 4 to your discussion of the '664 01:53

patent which is on Page 12. Actually 01:53

starting on Page 11. 01:53

A. Are you referring to the 01:53

document page or the one that is at the 01:53

bottom when you talk about these numbers? 01:53

Q. I'm referring to your page. 01:53

A. Okay. Thank you. 01:53

Q. Not -- it's Page 15 of Whatfix 01:53

Exhibit 1003, but Page 11 of your report. 01:53

A. I understand. 01:53

Q. Okay? 01:53

A. Yes. 01:53

Q. And you see under Section 5, it 01:53

says summary of the 665 patent -- I'm 01:54

sorry -- the '664 patent? 01:54

HOMAYOON BEIGI, PhD

A. Yes. 01:54

Q. Okay. And then you have Section A, which is the filing date and the priority dates, right? I'm just looking at Paragraph 22. Bottom of the page. 01:54

A. I heard 8. I'm sorry. 01:54

Q. A. 01:54

A. Yeah. 01:54

Q. We're looking at section A, filing date and priority date, Paragraph 22. 01:54

A. Yes. 01:54

Q. You provide the priority dates, and your assumption for purposes of your expert report is that the relevant date is November 5, 2017? 01:54

A. Yes. 01:54

Q. Okay. So now if we go to the next page, you have specification, and that is on Page 12 of your report, Page 16 of Exhibit 1003. And, again, we're looking at Beigi 2; is that right? Sorry, Beigi 4. 01:54

A. Yes. 01:55

HOMAYOON BEIGI, PhD

Q. Okay. And you describe the entire '664 patent in Paragraphs 23 and 24 with the replication of paragraph -- of Figure 2A, correct? 01:55

MS. NGUYEN: Objection. Form. 01:55

A. Summary -- 01:55

BY MR. MACEDO: 01:55

Q. That's the entire description you have of the patent, right? 01:55

A. Yes, summarizing it, yes. 01:55

Q. Right. And you've found that everything that was important for you to determine the validity of the patent, you could summarize in two paragraphs and one figure, correct? 01:55

MS. NGUYEN: Objection. Form. 01:55

A. It's the summary of the specifications. Basically it's a summary, but, of course, not entirely because you have a whole document. It's a summary, yes. 01:55

BY MR. MACEDO: 01:56

Q. But you could summarize what you thought was important from the '664 patent 01:56

HOMAYOON BEIGI, PhD

in two paragraphs and the replication of one figure, correct? 01:56

A. Yes. 01:56

Q. And was there anything else which you left out of that summary, which, sitting here today, you think is also important with respect to the '664 patent that maybe should be included in the summary? 01:56

A. (Witness reviewing document.) I think it's a summary. I think it's a summary. 01:56

Q. Did you type out or dictate the content of what was included in Paragraphs 23 and 24 of Exhibit 4 of your declaration? 01:57

A. We went back and forth with the counsel. So I made observations, took notes, and we went back and forth. But finally, this is what -- this is what I state, yes. 01:58

Q. So I appreciate the general process. I'm talking about these two paragraphs. 01:58

HOMAYOON BEIGI, PhD

Are these two paragraphs your original analysis of how to summarize the specification, did counsel do it, or was it a collaborative effort? 01:58

A. It's collaborative.

MS. NGUYEN: Objection. Form.

A. It's not verbatim.

BY MR. MACEDO:

Q. I'm sorry?

A. It's not verbatim, but it's collaborative.

Q. Was -- did you ever ask to put an additional description of the '664 patent which did not make it into the final draft?

A. No.

Q. Did you ask to remove any of the description that was presented that did not make it into the final draft?

A. Let me go back. I think I misunderstood. I thought you said were you asked. Can you rephrase?

Q. Let's rephrase it.

In paragraphs 23 and 24 you have

HOMAYOON BEIGI, PhD

the summary of the specification of the '664 patent in Exhibit 4, right? 01:59

A. Yes. 01:59

Q. And that as a whole was a collaborative process between you and counsel, correct? 01:59

A. Yes. 01:59

Q. I want to know with respect to Paragraphs 23 and 24 in particular. Was there any sentences, words, quotes, figures, which you proposed putting in to the description of the '664 patent which didn't make it into the final draft? 01:59

A. I can't remember if that would have been the case. It doesn't -- nothing sticks out that I could point to and say, oh, this was something that -- 01:59

Q. And was there any portion of Paragraphs 23 and 24 which counsel put in, and you said, no, that doesn't belong in there? 02:00

MS. NGUYEN: Objection to the extent that it includes any communications. 02:00

HOMAYOON BEIGI, PhD

Dr. Beigi, I instruct you not to answer. 02:00

(Whereupon, a request for Instruction not to answer was made.) 02:00

MR. MACEDO: I'm sorry. Are you instructing him not to answer my question? 02:00

MS. NGUYEN: Anything that includes privileged communications between himself and counsel. 02:00

MR. MACEDO: You're taking the position that how he drafted this declaration is privileged and you're not allowing him to answer? Is that what you're saying, Counsel? 02:00

MS. NGUYEN: That's definitely a mischaracterization of what I just said. 02:00

MR. MACEDO: Okay. So then I don't understand your objection. 02:00

MS. NGUYEN: Your question is, was there any portion of Paragraphs of 23 or 24 which counsel put in, and you asked -- and you said that does not 02:00

HOMAYOON BEIGI, PhD

belong in there. When -- the phrase "you said no" is a communication. 02:00 02:00

MR. MACEDO: Exactly. And you're saying that if he said to you take that sentence out, that is privileged? 02:00 02:00 02:00 02:00

MS. NGUYEN: Yes, it's a communication between -- 02:00 02:00

MR. MACEDO: Even though he submitted an expert report saying this is his testimony, that's your position for the board? When we mark this, I just want to get this clear. 02:00 02:00 02:01 02:01

MS. NGUYEN: Yes, it is a communication. 02:01 02:01

MR. MACEDO: Okay. But it isn't privileged once you submit his declaration. 02:01 02:01 02:01

MS. NGUYEN: Well, your question was not about when he submitted his declaration. 02:01 02:01 02:01

MR. MACEDO: Yes, it's about drafting the declaration which he submitted. 02:01 02:01 02:01

HOMAYOON BEIGI, PhD

MS. NGUYEN: That is part of the process of drafting. That is not about the submission of the declaration. 02:01

MR. MACEDO: It goes to his opinion and how it was formed and the materials considered, and we are allowed to ask him about the materials considered in generating his expert report. 02:01

MS. NGUYEN: This isn't a question about materials considered. This is a question about whether -- 02:01

MR. MACEDO: It is exactly the materials considered. 02:01

MS. NGUYEN: -- what he said to counsel. 02:01

MR. MACEDO: No, Counsel. It is exactly materials considered. 02:01

MS. NGUYEN: No. And if you would like to take it to the board, we can. 02:01

BY MR. MACEDO: 02:01

Q. So did you consider any 02:01

HOMAYOON BEIGI, PhD

description of the '664 patent that includes words not in Paragraphs 23 and 24 in formulating the declaration which was submitted as Exhibit 4? 02:01

A. When I signed off on this, I accepted what is in this document as what I am saying as my declaration, which means if there were something that I would want in there and the counsel would have put it in, I would not sign it. 02:01 02:02 02:02 02:02 02:02

Q. And was there anything which you had removed from the drafts of the declaration which you did not approve of? 02:02 02:02 02:02

A. I don't remember. We did a lot of editing back and forth. I don't remember whether I removed something, reworded it, added something. I don't remember that far back because this is, as we've established, in the summer of last year. 02:02 02:02 02:02 02:02 02:02 02:02 02:02

Q. Well, you spent at least 10 or 20 hours working on this report, right? 02:02 02:02

A. Yes. 02:02

Q. And in that 10 or 20 hours, how 02:02

HOMAYOON BEIGI, PhD

much time do you think you spent considering what the summary of the specification of the '664 patent was? 02:02 02:02 02:03

A. I can't recall how much of it was that. 02:03 02:03

In deciding what the summary is, a lot of the work went into reading the patent and understanding the patent and the documents and then drafting. So I can't tell you what the breakup is. 02:03 02:03 02:03 02:03 02:03

You're asking me how -- what part of that time that I spent went into these two paragraphs, I cannot tell you that. 02:03 02:03 02:03

Q. Well, so why don't we look for a second at Exhibit 6 for the '732 patent and your corresponding section describing the '732 patent which is located on Page 15 and 16 using your pagination and -- 02:03 02:03 02:03 02:03 02:03 02:03 02:03 02:03

A. Please wait until I get the exhibit. Exhibit -- 02:03 02:03

Q. Sure, it's going to be one of the black binders. 02:03 02:03

HOMAYOON BEIGI, PhD

A. Oh, Exhibit 6 is one of these, yes. This one? 02:03 02:04

Q. Forgive me. 02:04

A. This is the '317. 02:04

Q. Okay. So it's the other black binder. 02:04 02:04

A. This one? 02:04

Q. Yes. 02:04

A. Okay. Exhibit 6. So what's the question? 02:04 02:04

Q. So in Exhibit 6 if you turn to Page 15, and you're describing in Paragraphs 23 and 24 what you consider a summary of the '732 patent and you show the same Figure 2A, right? If you go to Page 17, you'll see Figure 2A. 02:04 02:04 02:04 02:04 02:04 02:04 02:04 02:04

A. Yes. 02:04

Q. And the description, if you compare, it is very similar except that it uses '732 with the citations to the '732 patent instead of the 63 -- '664 and the citations to the '664 patent, right? 02:04 02:04 02:04 02:04 02:05

A. And so are the patents based on. 02:05

Q. That wasn't my question. 02:05

HOMAYOON BEIGI, PhD

A. Well, that's why, I'm saying, that's the specifications are -- 02:05

Q. Well, the specifications are the same. But the inventions are different, right? 02:05

A. I don't believe so. 02:05

Q. Really? 02:05

A. Yes. 02:05

Q. Okay. So I want you to look at the '732 patent, and I want you to look at claim 1. We marked this as Exhibit 9. 02:05

A. Which claim? 02:05

Q. Claim 1 in Column 22 of the Exhibit 9 for the '732 patent. Tell me when you're there. 02:06

A. I am. 02:06

Q. Okay. You see that after the preamble, there are three separate subparagraphs, one starting defining, the second one going associating, and the third one going publishing, right? 02:06

A. Yes. 02:06

Q. Okay. Now, if you look at your report for that patent, you have a picture 02:06

HOMAYOON BEIGI, PhD

Figure 2A, right? It's on page 17 of your report. 02:06

A. Yes, I'm comparing it to the patent. 02:06

Q. Yes. And do you see the steps of defining a conversation in Figure 2A? 02:06

A. It encompasses it because it says select the conversation of the chatbot and then implement the conversation and then follow the conversation flow. So there must have been -- you must have defined something if you're following it, so it's implicit. 02:07

Q. But it's not a step that's disclosed in Figure 2A. It happens before 2A ever occurred? 02:07

A. I understand. What I'm saying is -- 02:07

Q. Well, that's my question -- 02:07

A. A method for defining -- 02:07

Q. No. My question is: Do you see a description of the step defining a conversation as set forth in the '732 patent claim 1 being identified anywhere 02:07

HOMAYOON BEIGI, PhD

in Figure 2A? Not what is inherent, not what must have been, but where it says define a conversation? 02:08

MS. NGUYEN: Objection. Form. 02:08

A. Short of putting everything that's in that patent and just filling the whole thing for specifications, you have to be selective. 02:08

BY MR. MACEDO: 02:08

Q. Okay. 02:08

A. And this is a figure right out of the patent '732. And it implicitly cannot put the whole, you know, all of -- all of that document in there because then it's not a summary of the specifications basically. 02:08

Q. Okay. Dr. Beigi -- 02:08

A. Yes. 02:08

Q. -- they will have time to ask you any question they want. I want you just to answer mine. 02:08

I don't believe that Figure 2A has any step that says define a conversation. And to help you, I suggest 02:08 02:09

HOMAYOON BEIGI, PhD

you look at Figure 3 of the '732 patent where in Step 320, it says: Define a conversation flow. 02:09

A. I understand that, but I'm saying that this is implicit in the '664 patent. Hence I said there's no difference. And that's why there's the same specifications -- 02:09

Q. That is not my question. My question -- 02:09

A. That's what I understand from it. 02:09

Q. No. My question is: Is the step define a conversation shown in Figure 2A, or is it really shown in Figure 3? 02:09

MS. NGUYEN: Objection. Form. 02:09

A. I direct your attention to Figure 1 of '664. 02:10

BY MR. MACEDO: 02:10

Q. You can't answer my question yes or no? 02:10

A. I need to refer to this to answer that. 02:10

Q. Okay. 02:10

HOMAYOON BEIGI, PhD

A. Other than -- other than including the whole patent, I need to describe this -- 02:10

Q. Okay. But I just -- 02:10

A. -- because this comes before -- 02:10

Q. Dr. Beigi -- 02:10

A. Yes. 02:10

Q. -- I just want you to understand. My question was straightforward that called for a yes or no, okay? And I'll rephrase it to make it very simple for you. 02:10

If you compare Figure 3 of the '732 patent and Step 320 where it says define a conversation flow and Step 330 where it says associate an automation process with the conversation and Step 340 which says publish the conversation with claim 1 of the '732 patent which has a defining a conversation step, associating the conversation with an automation process step, and a publishing the conversation to be accessible to a user via the natural language interface step, 02:10 02:11 02:11 02:11 02:11 02:11 02:11 02:11 02:11 02:11 02:11

HOMAYOON BEIGI, PhD

would you agree that the relevant figure for the invention claimed in claim 1 of the '732 patent is Figure 3, not Figure 2A? 02:11

MS. NGUYEN: Objection. Form. 02:11

A. I would say that's a sub -- that's a subspace of -- and that's why I'm referring you to Figure 1 of '664, which has conversation definitions as its one of two. So defining conversation's already been disclosed in '664. So short of putting every single figure, every single line of -- of things that are written in this patent in the specification which is supposed to be a summary, I had to pick a figure. 02:11 02:12

And the figure which basically has the overall flow is that figure, which I think is 2A, I believe, if I'm correct. And it's shared in both patents. 2A is in '664 as well as -- and -- and by the way, defining conversation. They are almost identical. 102 and '664 is the same thing as 102 and '732, defining conversation -- 02:12

HOMAYOON BEIGI, PhD

conversation definition which is basically the premise of claim 1. 02:12 02:12

So given that this is characterizing the whole system, that's what I use to summarize. I cannot include every single part of that patent because it's a summary. 02:13 02:13 02:13 02:13 02:13

BY MR. MACEDO: 02:13

Q. So you understand that the declaration you put in that we have marked as Exhibit 6, not including your résumé, was 177 pages, correct? 02:13 02:13 02:13 02:13 02:13

A. We're talking about which one again? Sorry. 02:13 02:13

Q. The one that you're looking at. 02:13

A. I'm looking at 2 right now. 02:13

Q. '732 patent, Exhibit 6, talking about the '732 patent, as I said. 02:13 02:13

A. Not including my résumé? 02:13

Q. Correct. Your signature page is on Page 177? 02:13 02:13

A. Yes, 177. 02:13

Q. So in 177 paragraphs, you thought it was more important to show 02:13 02:14

HOMAYOON BEIGI, PhD

Figure 2A from the '732 patent when describing and summarizing the invention for the '732 patent than Figure 3? That's your testimony? 02:14

A. Because that's the whole system. The 2A is a whole system. It's a specification of the whole patent. And that's why that is a holistic figure. Otherwise, I would have to include every single detail which I do later on in the 177 pages. We talk about the -- I talk about this, the claims, right, the claim -- I talk about -- 02:14

Q. You don't talk about Figure 3 anywhere in this report, as far as I can tell. 02:14

A. But I talk about the claim, claim 1 in detail in many cases, which is the combination as you just stated, the combination of that figure. There's no point in talking about that figure then if the claim is actually a combination. 02:14

Q. So as far as you're concerned, it was not necessary for you to talk about 02:15

HOMAYOON BEIGI, PhD

Figure 3 with respect to the '732 patent even though it has all the same steps as the claims, correct? 02:15

MS. NGUYEN: Objection. Form. 02:15

A. I believe I answered the fact that these two patents, there's nothing new in '732 compared to '644 -- I'm sorry -- '664. And the conversation definition which is the crux of claim 1 is already in here; and that is why I only picked one figure, which would be the holistic system. And I used the 2A in a summary -- in a summary of the specifications. That's just a figure. 02:15

It's not saying that -- there is 177 pages, as you stated. This is -- in my opinion, this is just the same thing basically. It's just reworded, reclaimed, restated; and that is why the summary has to be the same. 02:15

BY MR. MACEDO: 02:16

Q. So your opinion is that Figure 2A and Figure 3 discuss the identical subject matter, and so it was unnecessary 02:16

HOMAYOON BEIGI, PhD

for you to discuss Figure 3 in the context of the '732 patent? Is that your testimony? 02:16

A. No, I didn't include Figure 2B. I didn't include Figure 2C. I did not include Figure 4A. I did not include 4B. I did not include 5A. I did not include 5B. I did not include 5C. I did not include 5D. 02:16

You want me to go ahead? 02:16

I did not include every single figure. It's a summary. 02:16

Q. That wasn't my question. 02:16

A. You're saying it's the same thing. Of course, it's not the same thing. There are two different figures. 02:16

Q. Is it possible to have a disclosure where you have one invention described in one part of the disclosure and claimed in one patent related to it and a different invention described in a different part of the disclosure with a different patent? 02:16

A. I believe if you already 02:17

HOMAYOON BEIGI, PhD

disclosed it in the body of the patent, even if it's not in the claims -- I may be wrong because I'm not a lawyer -- you would be able to probably answer that better. 02:17

This is my technical opinion, that a patent, if the body already has that information, it's important what's in the claims, but the body itself speaks as well. 02:17

So if the body already -- of '644 [sic] already has this information, you can claim a lot of different things and keep creating patents, but the important thing is that the information is already in 644 -- sorry -- '664. 02:17

So that's why I'm saying -- not saying 2A and 3 are the same figures. I'm saying when you present a summary, you're presenting a summary of the whole system; and this is the system that's being patented. 02:17

Later when I go into the details, of course I talk about the claim. 02:18

HOMAYOON BEIGI, PhD

I talk about the claim in detail. 02:18

Q. But that's not my question. 02:18

MR. MACEDO: And I'm going to move to strike your answer because it wasn't responsive to what I was asking. 02:18

BY MR. MACEDO: 02:18

Q. What I want you to focus on is claim 1 of the '732 patent and Figure 3. And I want to know did you consider Figure 3 and the description of Figure 3 from the '732 patent in your analysis of claim 1 of the '732 patent when you prepared your expert report marked as Exhibit 6? 02:18

A. Yes, I did. I looked at the figure and looked at the claim together, and it is very apparent that it is trying to describe the claim or the claim is trying to describe the image. But either way, they are related to each other. 02:18

Q. So you understand Figure 3 is a figure that is meant to provide an embodiment of what is claimed in the '732 patent? 02:18 02:19

HOMAYOON BEIGI, PhD

A. I think it's a description of the claim, but I think the claim was already presented in '664. That's what I'm trying to say. The claim is already in the body of '664 as you can even see in the figure, Figure 1. And without having created conversations or defined conversation, you can't go anyplace else with '664, with any of these patents because that's the beginning. That's -- you have to define the conversation. 02:19

Q. And you understand the difference in chatbots between a natural language process and a rule-based process in formulating a conversation, right? 02:19

A. I do. 02:19

Q. Can you explain that? 02:19

A. So when you use natural language processing, you are trying to assess the rules that are associated with the language. As we do, when you state a sentence, the natural language processing unit is trying to assess the information that the person who is uttering it is 02:19 02:20 02:20

HOMAYOON BEIGI, PhD

trying to convey. And that information that is being conveyed, it's trying to extract that. That's what the natural language processing is. 02:20

You can still have a rule-based system with the natural -- and combined with a natural language processing system. They are not really distinct from each other. Part of natural language processing is trying to figure out what rules exist. In fact, grammar is a rule; and one of the things you do is you do grammatical analysis so you are doing rule-based processing in certain cases. 02:20

Q. But in 2017, there were chatbot editors that were rule-based without any natural language processing, correct? 02:20 02:21

A. As well as the ones that were with natural language processing, yes. 02:21

Q. I understand. I'm asking each of them separately. I want to establish the existence of chatbot editors in 2017 which were rule-based without natural language processing. 02:21

HOMAYOON BEIGI, PhD

Do you agree those existed? 02:21

MS. NGUYEN: Objection. Form. 02:21

A. You're saying "chatbot." So when you say "chatbot," it has to have some form of natural language processing in it. If it's -- that is a converse -- I'm sorry. 02:21

Q. I was just asking him for a document that I'm going to show you which contradicts you. So I just want to make sure that your testimony is clear. 02:21

So I was asking you whether you can, in 2017, have a chatbot editor exist which was rule-based without natural language processing? 02:21

A. I'm sorry. 02:21

Q. And that calls for yes or no, I don't know, I don't recall. 02:22

A. Chatbot editor. I apologize. 02:22

Q. Yes. 02:22

A. I was talking about a chatbot itself. 02:22

A chatbot editor, of course, can have rule-based, yes, in that -- at that 02:22

HOMAYOON BEIGI, PhD

time.

Q. Without using natural language processing?

A. It's a matter of semantics. So I want to be clear because if you process words, you are actually processing natural language. So I don't want to go on record and say something that is technically not very specific. Because words are part of the natural language and if you're actually processing words to make a decision, even if it's rule-based, you're still processing the natural language. Even a yes or no is a natural language. So there's no --

Q. If I could get a yes or no from you, I would be thrilled, okay?

A. If I could give it, I would be thrilled.

Q. Okay. So if we can read back the question and if you can answer it yes or no, please answer it yes or no. And if you can't answer it yes or no, just say I can't answer it yes or no. Okay?

HOMAYOON BEIGI, PhD

A. Okay. 02:23

MR. MACEDO: Okay. Let's go back and read the question that I don't think got answered. 02:23

(Record read.) 02:23

A. I can't answer that yes or no. 02:23

BY MR. MACEDO: 02:23

Q. Okay. Do you agree that chatbots existed which were rule-based without natural language processing, in 2017? 02:23 02:24 02:24

A. It's, again, the same loaded question. I'm so sorry. I cannot answer yes or no because that is very loaded. 02:24 02:24 02:24

MR. MACEDO: Okay. What exhibit number are we on? 02:24 02:24

THE COURT REPORTER: 19. 02:24

MR. MACEDO: You can mark as Exhibit 19 an article from Expert Insights on August 29, 2019, "Different Types of Chatbots: Rule-based vs. NLP." 02:24 02:24 02:24 02:24

(Whereupon, Exhibit 19, Article from Expert Insights on August 29, 02:24

HOMAYOON BEIGI, PhD

2019, "Different Types of Chatbots: Rule-based vs. NLP", was marked for identification.) 02:24 02:24 02:25

THE WITNESS: Thank you. 02:25

BY MR. MACEDO: 02:25

Q. And this is referring to the time period of 2019 which comes after 2017? 02:25 02:25 02:25

A. Yes. Can you point me to the statement you were just reading? 02:25 02:25

Q. I haven't read from it; but if you want, what I'd like for you to do is I'd like to start off and read to the record the first paragraph where it says "Chatbots are." 02:25 02:25 02:25 02:25 02:25

A. I'm reading from -- 02:25

Q. You're reading from Exhibit 19 where it says, "Chatbots are," and I want you to read that first paragraph. 02:25 02:25 02:25

A. This is not my statement that I'm reading. 02:25 02:25

Q. This is not your statement. This is a statement of presumably a POSITA out there in 2019 reflecting on the 02:25 02:25 02:25

HOMAYOON BEIGI, PhD

state-of-the-art after the invention. 02:25

A. Understood. But I just wanted to state for the record that is not my statement. 02:25 02:25 02:26

Q. I agree. 02:26

A. Chatbots are relatively new and the rise of artificial intelligence is introducing many new developments. Chatbots are one of the first examples where AI can be applied in practice. The behavior of bots where AI is applied differ enormously from the behavior of bots when -- where this is not. 02:26 02:26 02:26 02:26 02:26 02:26 02:26 02:26

Q. Okay. First of all, do you agree with that statement? You can say yes, no, or I'm not sure. That's fine. 02:26 02:26 02:26

A. Again, because "AI" is such a loaded word, I cannot answer this with a yes or no. 02:26 02:26 02:26

Q. That's fine. That's fine. I'm not asking to put words in your mouth. I just want to get your opinion on the record as to if you agree, you don't agree, or I can't agree because, okay? 02:26 02:26 02:26 02:26 02:26

HOMAYOON BEIGI, PhD

A. Yes, because "AI" is such a loaded word, I cannot tell you. 02:26

Q. And do you understand what they mean by "AI" in the context of that sentence? 02:26

A. Yes, I do, probably more than I have to because I remember the history of AI so that's why I'm saying it's a very loaded word. And I am not a POSITA. As you said, this person is a POSITA. I know more about AIs and chatbots, and I cannot say yes or no because of that. 02:27

Q. You're smarter than the person that wrote the article in the terms of expertise? 02:27

A. I have more experience. I wouldn't characterize it as being smarter. 02:27

Q. Okay. So when you go to the next sentence, the second paragraph, what does that say? 02:27

A. In this article, we'll tell you more about the rule-based chatbot and the NLP, natural language processing, chatbot. 02:27

Q. So do you understand that at 02:27

HOMAYOON BEIGI, PhD

least the person who wrote Exhibit 19 thought there was a distinction between a rule-based chatbot and an NLP chatbot? 02:27

A. May I read the next two statements? 02:27

Q. Absolutely. You asked me to point you to what I was pointing you to, and that's what I was doing. 02:27

A. Let me. 02:28

Q. I'm going to have you read the next one into the record but -- 02:28

A. Let me read it to myself once. 02:28

Q. Absolutely. 02:28

A. I've read it. 02:28

Q. Okay. So again, the sentence that says: In this article, we'll tell you more about the rule-based chatbot and the NLP, natural language processing, chatbot, do you understand that this author is suggesting that two different types of chatbot existed as late as -- or as early as 2019, one being a rule-based chatbot and the other one being a NLP chatbot? 02:28 02:28 02:28 02:28 02:28 02:29 02:29 02:29

HOMAYOON BEIGI, PhD

A. I understand that is defining -- 02:29

MS. NGUYEN: Objection. Form. 02:29

A. I understand that is defining 02:29
what a rule-based chatbot is versus what 02:29
he defines as NLP of AI bots. And I 02:29
understand that based on the specific 02:29
example that he specifically says: Since 02:29
no artificial intelligence is used in -- 02:29
I'm sorry, I was reading wrong -- user 02:29
input must conform to these predefined 02:29
rules in order to get answer. Often such 02:29
bots only use buttons -- I'm 02:29
paraphrasing -- only buttons are used. 02:29
So he's specifically defining a 02:29
very narrow rule-based chatbot. And this 02:29
is what he's defining. And then he's 02:29
defining a counterpart which utilizes 02:29
natural language processing from what I 02:30
read up so far, so. 02:30

BY MR. MACEDO: 02:30

Q. And when he talks about only 02:30
buttons are used, is that like the buttons 02:30
we see in Symons where they say which is 02:30
correct, the cell or which is incorrect, 02:30

HOMAYOON BEIGI, PhD

the cell, the name or whatever? It's those type of buttons, right? 02:30

A. It's that and many in the patents as well, yes. 02:30

Q. Right. And so would the author of Exhibit 19 be treating Symons at least where it presents the buttons as a rule-based bot in contrast to NLP of AI bots? 02:30

A. So you're carving out one part of the chatbot and saying for that one little conversation, is it -- 02:30

Q. I'm starting there. I'll expand, but that's the first part. 02:30

A. But that's what I'm getting as an understanding. 02:30

Q. Right, that's what I'm asking. 02:30

A. You're carving out one part of that chatbot and saying if it is asked in the form of pressing a button whether that in his definition would be a rule-based? 02:30

Q. Correct. 02:31

A. Yes. 02:31

Q. Okay. Now, if they used text 02:31

HOMAYOON BEIGI, PhD

where all they do is use a script and ask the question no matter what the answer is, would that also be rule-based bot under the definition in Exhibit 19? 02:31

MS. NGUYEN: Objection. Form. 02:31

A. It depends on what they do with it. If they are -- if it -- so by definition, if you're using text, you're communicating in natural language, if it's natural language text of course, like we saw, for example, in Symons. If it is natural language text, then you are using natural language. 02:31

BY MR. MACEDO: 02:31

Q. But you're not necessarily using natural language processing -- 02:31

A. -- bots -- 02:31

Q. You developed your own chatbot back in 2006 where you used rules to define the process of the conversation even though it was in natural language? 02:31

A. I'm sorry. 2003. 02:32

Q. 2003? 02:32

A. And you're -- you're 02:32

HOMAYOON BEIGI, PhD

misrepresenting what I said. 02:32

Q. Okay. 02:32

A. Our system used natural language 02:32

processing. It mapped those results from 02:32

the -- the intelligible results from the 02:32

natural language processing to the rules 02:32

on what to do in response. You're telling 02:32

me that -- what you said is not -- is not 02:32

what I said. 02:32

Q. Okay. But it is possible as 02:32

late as 2019 to have a chatbot which is a 02:32

rule-based chatbot that does not use NLP; 02:32

is that correct? 02:32

A. That's more like a form. That 02:32

is a form. I would call that a form. 02:32

Q. Does it have to be a form in 02:32

order to be rule-based? 02:32

A. If it's the way he's defined it, 02:32

which is often these bots use buttons, 02:32

then I would say it's a form. 02:33

Q. So if it's often they use such 02:33

buttons, does that mean that the only way 02:33

to do it was using buttons; or does that 02:33

just mean that when buttons are used, 02:33

HOMAYOON BEIGI, PhD

that's an example? 02:33

MS. NGUYEN: Objection. Form. 02:33

A. I'm not sure what he meant by 02:33
that. He's not being very clear here. 02:33

But I can think of, for example, 02:33
like a selection that's also somewhat like 02:33
this. You know, select from different 02:33
options. 02:33

BY MR. MACEDO: 02:33

Q. But you can use a rule-based bot 02:33
which asks in text form a question in 02:33
natural language without using natural 02:33
language processing, right? 02:33

A. That's a form. Have you filled 02:33
out forms online? They ask you a question 02:33
in English, and you click yes or no or you 02:33
select something and then you say next. 02:33
To me -- you're asking my opinion. 02:33

Q. Yeah. 02:33

A. Not his opinion, of course. 02:33
He's said it already. 02:34

In my opinion, that is just a 02:34
form. And that's why I said it's a very 02:34
loaded question. 02:34

HOMAYOON BEIGI, PhD

Q. And can you fill out a form in a chatbot format where you ask what is your name and then you get a response of a name and then you ask the next question in the form, what is your title? 02:34

MS. NGUYEN: Objection. Form. 02:34

A. If you -- if the response is text, then I would say, no, that's not a normal thing if the response is text. I mean, if you ask for -- so if you have a form, for example, where you ask for a specific thing, it could be, you know, thought of as a -- like for -- I'll give you an example. 02:34 02:35

That's why I was thinking that since Symons talks about chatbots, then it is a chatbot. It's not a form. And that's why I said implicitly that is -- a POSITA would have known it was a chatbot. 02:35

That's why I'm going there so because it is -- in fact, the form is different from a chatbot. A chatbot by definition is using language. Chat, it's chatting with you. 02:35

HOMAYOON BEIGI, PhD

So a misuse of something as saying -- and he's not using a chatbot, right. He's saying rule-based bot, not rule-based chatbot, right. He's just saying bot. He's not necessarily saying that there is a chat, you know, concept here. 02:35

BY MR. MACEDO: 02:35

Q. Can you read the title to the record? 02:35

A. The title says "Different Types of Chatbots: Rule-Based Versus NLP." 02:35

But I'm just saying -- that's why I said he's not being very meticulous about the -- the way he's talking about this. 02:35

Q. But this person who is obviously active in the field is distinguishing between chatbots that are rule-based chatbots and chatbots that are NLP chatbots, correct? 02:35

MS. NGUYEN: Objection. Form. 02:36

BY MR. MACEDO: 02:36

Q. In his language. 02:36

HOMAYOON BEIGI, PhD

A. In his language, he is -- he is saying there is a rule-based chatbot and the NLP chatbot. 02:36

Q. And do you think that the distinction he's drawing in 2019 existed in 2017? 02:36

MS. NGUYEN: Objection. 02:36

A. I don't agree with this distinction. How can I agree? In -- in 1990s, we had a full conversational ticket ordering at IBM Research. That's -- that was 1990s. 02:36

BY MR. MACEDO: 02:36

Q. But did you also have -- did you also have chatbots which didn't use natural language processing? 02:36

A. I would not have called it a chatbot. That's what I'm trying to tell you. I'm not -- 02:37

Q. What he's calling a rule-based chatbot, whatever you called it, whatever he -- what he's calling a rule-based chatbot, did it exist in October of 2017? 02:37

A. Since I wouldn't call it that, I 02:37

HOMAYOON BEIGI, PhD

can't tell you. 02:37

Q. Okay. 02:37

A. Because what he's 02:37

characterizing, I wouldn't have called a 02:37

chatbot. 02:37

Q. Okay. 02:37

A. That's what I'm saying. 02:37

Q. But what -- 02:37

A. I'm saying in his 02:37

characterization is not what I would have 02:37

said is the chatbot. A chatbot, because 02:37

it is a chatbot, needs to chat with you 02:37

and it is a very old concept goes back -- 02:37

you heard of probably the Turing test, 02:37

right? So it goes back to 1950. The 02:37

Turing test is to find out how well you 02:37

understand the natural language the other 02:37

person is communicating with you to tell 02:37

whether that thing is actually a machine 02:37

or a human. 02:37

So chatbots go back to 1950. So 02:37

chatbots are well understood, that they're 02:37

chat. And when Turing test is done, it's 02:38

not like on a bot with buttons. We do 02:38

HOMAYOON BEIGI, PhD

Turing tests to find out, whether a chatbot in 1950 when you devise it, is like a human. It's mimicking human language conversation. 02:38

Q. And in 1950 when the Turing tests was being administered, did they always use natural language processing in the chatbots which it was being administered against? 02:38

A. The word "chatbot" wasn't used in 1950. But later on was, I think in the -- I refer to it. I don't remember the exact date. If you want, I can look it up. It was later on devised, but it's the same idea. 02:38

Q. So let's assume for a second that the board were to agree that the way that Exhibit 19 distinguishes between rule-based bots and NLP of AI bots is a proper distinction between how chatbots existed in 2017. 02:38

Do you understand my assumption? 02:39

A. What is the question? 02:39

Q. I'm asking you if you understand 02:39

HOMAYOON BEIGI, PhD

my assumption that the board agrees with my reading of Exhibit 19 that it demonstrates that chatbots could either be rule-based or natural language processing or a combination of the two. 02:39

Do you understand me? 02:39

A. So I'm trying to. So the board would agree with you, and I'm trying to understand what you think. 02:39

Q. Right. 02:39

A. And you think that there is such a thing called a rule-based chatbot, which doesn't chat but it's still a chatbot. 02:39

Q. Well, it doesn't say it doesn't chat. 02:39

A. Oh, no, because it's a chatbot. That's why I'm saying I don't characterize this as a correct statement. And if the board agrees with it, then they agree with it; but I cannot agree with it. 02:39

Q. So this doesn't say that there is no chat. It just says that the chat is limited to the rules. 02:39

So if you try to put something 02:40

HOMAYOON BEIGI, PhD

in there which the rules can't handle, you may get a response, like in Symons, I am a bot, I can't do anything other than this? 02:40

MS. NGUYEN: Objection. Form. 02:40

A. And so in '664 actually, '664 does the same thing. Remember, I'm only a bot in the figures. But -- 02:40

BY MR. MACEDO: 02:40

Q. Right. 02:40

A. -- that being said -- 02:40

Q. So does that mean that the '664 doesn't describe a chatbot? 02:40

A. That being said -- no, but what you're characterizing doesn't say whether it is a chatbot or not. The fact that I'm just a bot means I didn't do really well with the Turing test. That's just really what it means. 02:40

But you still have to chat. If you chat with a person, it's very different. If you chat with the person, the whole premise of it is the fact that it's a natural language system. It is something that mimics human language. And 02:40

HOMAYOON BEIGI, PhD

I actually use it in my references as well. That is a proper characterization of what a chatbot is, which is something that mimics human language and understands it. It is a software that mimics human understanding. 02:40 02:40 02:41 02:41 02:41 02:41

So if somebody comes and says, well, they were rule-based, I would ask -- if I were sitting face-to-face, I would say, what part of -- what do you mean by rule-based? Did you process the text that came through and then you had some rules, or did you not process the text and there was no text and you just had buttons like you're saying? 02:41 02:41 02:41 02:41 02:41 02:41 02:41 02:41 02:41 02:41

So this is something I don't know. Since I haven't spoken with this Cronos staff, I cannot answer that question. 02:41 02:41 02:41 02:41

Q. So if you look at Beigi Exhibit 14 which is the English-language translation of Symons -- 02:41 02:41 02:41

MS. NGUYEN: Actually before we move on to a different exhibit, I just 02:41 02:41

HOMAYOON BEIGI, PhD

wanted to state for the record that we object to the authenticity and the relevance of Exhibit 19. Thank you. 02:41

MR. MACEDO: Okay. Those aren't objections to form, but okay. 02:41

A. Which exhibit, I'm sorry? 02:42

BY MR. MACEDO: 02:42

Q. We're looking at the English-language translation of Symons which is Exhibit 14. 02:42

A. Should be in this pile, I think. 02:42

Q. I think it's that one, yeah. 02:42

A. Yes. 02:42

Q. Now, when you were talking about Symons earlier, you were saying that it was a chatbot in part because it validates, right? 02:42

MS. NGUYEN: Objection. Form. 02:42

A. No. I said I think the opposite. I said since it was a chatbot, I would have expected that it would validate. 02:42

BY MR. MACEDO: 02:43

Q. And so if it doesn't validate, 02:43

HOMAYOON BEIGI, PhD

is that an indication to you that maybe it isn't a chatbot? 02:43

A. That's not -- that's not necessarily the case. It can -- it could decide not to validate but still understand what's going -- what the person is asking or requesting. Validation is a separate process, right, based on what you understand. You can choose to validate what I tell you, but you could still understand what I say. Those are two different things. 02:43

Q. So did you ever ask for a telephone number in any of the chatbots you developed over the years? 02:43

A. Definitely. 02:43

Q. And did you validate, like, how many digits were in the number to see if it was a valid number? 02:43

A. Yes, we did. 02:43

Q. And if it was a chatbot by someone that was at least of ordinary skill in the art in 2017, you would expect them to at least validate that if somebody 02:43

HOMAYOON BEIGI, PhD

put in the wrong number of digits, they'd say you messed up, right? 02:44

MS. NGUYEN: Objection. Form. 02:44

A. No. 02:44

BY MR. MACEDO: 02:44

Q. That wouldn't be what you would expect from a chatbot in 2017? 02:44

A. No -- 02:44

MS. NGUYEN: Objection. Form 02:44

Dr. Beigi, please give me time to insert my objection. 02:44

THE WITNESS: Sure. 02:44

A. But your question the way you formed and you answered it yourself is the specific number. That -- you can come in from different parts of the world, have different number of digits, so that validation doesn't necessarily exist for all possible scenarios. 02:44

If you're sure your customers are from New York, you can even validate their area codes. But if you have no idea where the origin is, there are certain things you cannot necessarily limit. 02:44

HOMAYOON BEIGI, PhD

So I don't -- so what you stated, does it have to have nine digits or ten digits, I don't remember. But that's not necessarily a validation because you could have other number of digits. You could be calling from England. Your phone number could have any number of digits, could be an extension. 02:44 02:44 02:44 02:44 02:45 02:45 02:45 02:45

BY MR. MACEDO: 02:45

Q. But wouldn't you know from the prefix whether it's coming from England or coming from Holland or coming from New York? 02:45 02:45 02:45 02:45

A. Not necessarily. Could be an extension. I don't know. If the application -- depends on the application. You can validate if you know more information. 02:45 02:45 02:45 02:45 02:45

Q. So if you look at Exhibit 1006, Beigi 14, which is the English translation of the Symons video, and turn to Page 7, when it says what is your cell phone number, the response is (0) 412-3456. 02:45 02:45 02:45 02:45 02:45

When you did your chatbot 02:45

HOMAYOON BEIGI, PhD

software, if you got a response like that, would you have said something is wrong? 02:45 02:45

A. Not necessarily. 02:46

Q. Okay. 02:46

A. Depends on the geographic location. 02:46 02:46

Q. Okay. 02:46

A. That is, by the way, could be a valid number because outside of the US numbers start with zero in Europe, yeah. 02:46 02:46 02:46

Q. But they would have more digits? 02:46

A. No, not necessarily. If they are a small country with small five-digit numbers, then you can have something like this. That's why I can't tell. I mean, I have no idea. 02:46 02:46 02:46 02:46 02:46

Q. Well, that is actually the number they correct later on in the conversation, right? 02:46 02:46 02:46

A. Yes, but I'm saying I don't know how to check it without knowing more information about the actual process. 02:46 02:46 02:46

Q. And, of course, you don't have it because Symons didn't give it to us. 02:46 02:46

HOMAYOON BEIGI, PhD

MS. NGUYEN: Objection. Form. 02:46

BY MR. MACEDO: 02:46

Q. Right? 02:46

A. It's internals of it. 02:46

Q. I'm sorry? 02:47

A. It's the internals of it. I don't -- we only see the video, the actual interaction. 02:47

Q. And your understanding in the video is that there is a chat going on with Vincent De Bie on one computer and an RPA running on the computer of Mr. Symons, right? 02:47

If you look at Page 15, you will see that Mr. Symons' name is on Word. 02:47

MS. NGUYEN: Objection. Form. 02:47

A. I'm not sure what you mean by on Mr. Symons's computer. That's why what I'm trying to -- 02:47

BY MR. MACEDO: 02:47

Q. Mr. Symons's version of Word is running in the bot. 02:47

A. What page? 02:47

Q. Page 15. The Word version has 02:47

HOMAYOON BEIGI, PhD

Mr. Symons's name on it. 02:48

Do you see that? 02:48

A. I'm missing that. Where is -- 02:48

what -- can you point? 02:48

Q. Do you mind if I circle it? 02:48

A. No, please do. 02:48

Q. So for the record, I marked on 02:48

Page 15 of Exhibit 14 the portion of the 02:48

Word file which has Mr. Symons's name on 02:48

it; and I circled it on the exhibit 02:48

version. 02:48

Do you see that? 02:48

A. Yes. 02:48

Q. You see that that is 02:48

Mr. Symons's version of Word, not Mr. De 02:48

Bie's version of Word, correct? 02:48

A. I'm not a Windows user, but I 02:48

would assume probably that's what the case 02:48

is. 02:49

Q. Right. By the way, do you know 02:49

if Mr. Symons was a rock climber? 02:49

MS. NGUYEN: Objection. Form. 02:49

A. How is that relevant? I'm 02:49

sorry. 02:49

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 02:49

Q. Well, turn the page. 02:49

Do you see the screen saver is 02:49

of someone climbing a rock? 02:49

A. Okay. 02:49

Q. Do you know whose screen saver 02:49

that is? 02:49

A. I don't remember the details of 02:49

the transition between the point where it 02:49

turned into this slide, but. 02:49

Q. So if you go back to -- 02:49

A. Yeah. 02:49

Q. If you go back to Page 9 -- 02:49

A. Yeah. 02:49

Q. -- that's where it leaves the 02:49

chat conversation that I believe is with 02:49

Mr. Vincent De Bie and then passes on to 02:49

the computer with the screen saver of the 02:49

rock climber on Page 10. 02:50

A. Yes. 02:50

Q. Yes. 02:50

A. Yes. What is the question now? 02:50

Q. So your understanding is that up 02:50

to Page 9, the conversation that is being 02:50

HOMAYOON BEIGI, PhD

illustrated would be with Mr. Vincent De Bie on his computer, correct? 02:50

A. Would you ask the question again? 02:52

Q. Your understanding is that up to Page 9 in Beigi Exhibit 14, the video is demonstrating a conversation where Mr. Vincent De Bie on his computer is conducting the chat, correct? 02:52

A. It's unclear where it's actually -- where it's actually running. But he is interfacing with a chatbot. From this, I can't tell you where it's from just by looking at the figure. 02:53

Q. Well, maybe if you jump ahead a little bit. We know that the e-mail at the end of the process gets sent to Mr. Vincent De Bie. You can see on Page 18 and 19 where the same computer with the same conversation that we're seeing up to Page 9 now has received an e-mail from Symons Senne to Vincent De Bie where the e-mail is -- attaches the Word document with the e-mail signature? 02:53

HOMAYOON BEIGI, PhD

A. Yes. 02:53

MS. NGUYEN: Objection. Form. 02:53

A. (Continuing) but what is going on from, what I understand, is there is a chatbot collecting information. Then the RPA, which is not the chatbot, of course, right, it's working together with the chatbot. The RPA is running -- basically a browser is opened, and then the RPA is launched. And then the RPA generates the signature, and the signature is now being copied into this Word document. 02:53 02:54 02:54 02:54 02:54 02:54 02:54 02:54 02:54

So this Word document belonging to Mr. Symons, I cannot tell you, but may very well be that this Word document that is being generated is because the RPA is generating instead of copying it down. 02:54 02:54 02:54 02:54 02:54

Q. Of course the RPA is being -- generating it because -- 02:54 02:54

A. Yes. 02:54

Q. -- that's what they are showing? 02:54

A. Yes. 02:54

Q. That's what the -- that's the concept they are trying to get across. 02:54 02:54

HOMAYOON BEIGI, PhD

But they are showing you that the RPA is being run on the rock climber's computer and that the RPA is copying the signature from the Cronos software into the Word that has Mr. Symons's name on it and then being e-mailed using the e-mail software from Mr. Symons to Mr. Vin De Bie -- Vincent De Bie. And then Mr. Vincent De Bie who had the chat is receiving the e-mail. 02:54 02:54 02:55 02:55 02:55 02:55 02:55 02:55 02:55

Isn't the -- at least a logical assumption that there were two different computers involved, one with Mr. Vincent De Bie where he did the chat and one which had the information collected on the chat passed on to run the RPA using Mr. Symons's computer which would generate the e-mail and send it to Mr. Vincent De Bie so he could verify that the signature was correct? 02:55 02:55 02:55 02:55 02:55 02:55 02:55 02:55 02:56

A. That's a conjecture. 02:56

MS. NGUYEN: Objection. Form. 02:56

A. That's a conjecture because this -- I am not sure where this Windows 02:56 02:56

HOMAYOON BEIGI, PhD

software is running because it could be running on a remote device. Could be running on the device, as you were saying, so I can't tell just based on this. 02:56

I know that it's opened, and I know that it's copied into it. But it could very well be because Mr. Symons is the one who -- 02:56

BY MR. MACEDO:

Q. Did you look at the original Medium website? 02:56

A. Yes. 02:56

Q. And did you look at the comments that were posted six years ago on the website? 02:56

A. No, I'm not sure if I did. I don't know. I can't remember. 02:56

Q. So did you see that Neha Negi almost six years ago said: Hi, saw the video. But wanted to know how does the chatbot trigger the API bot. Thanks. 02:56

Did you see that comment? 02:56

A. No, I don't think so. 02:56

Q. Did you see the comment from 02:57

HOMAYOON BEIGI, PhD

Sachin Prakash from about six years ago saying: Which RPA tool and chatbot tool are used and give description to do this automation. 02:57

Did you see that comment? 02:57

A. I don't remember. 02:57

Q. Did you see the comment from Esteban saying: Interesting, but it seems that the RPA is simply programmed or what's the big difference between RPA and simply programming? 02:57

Did you see that comment? 02:57

A. I did not see that comment. 02:57

Q. By the way, do you have an answer to any of the questions that those comments made? 02:57

A. I don't. I don't have answers. 02:57

Q. And did you see that nobody responded to those comments? 02:57

A. Since I didn't see the comments, I can't tell if I saw answers. 02:57

Q. And you didn't see that there were two people that liked the comment that wanted to how did the chatbot trigger 02:57

HOMAYOON BEIGI, PhD

the API bot? 02:57

A. Again, I didn't see the 02:57

comments. 02:57

Q. Okay. But you did look up the 02:57

original Medium? 02:58

A. I did. 02:58

Q. And you did look to see if there 02:58

were comments? 02:58

A. I don't remember if I saw the 02:58

comments, but I didn't pay attention to 02:58

the comments if there were. I'm sure -- 02:58

since you're saying that, there must have 02:58

been. But I did not -- I did not -- I 02:58

don't recall seeing comments -- the 02:58

comments. 02:58

Q. By the way, how many people 02:58

would need to have seen the article before 02:58

November of 2017, in your opinion, for it 02:58

to have been publicly available? 02:58

MS. NGUYEN: Objection. Form. 02:58

A. How many people seen it? That's 02:58

a sort of after fact. Once it's publicly 02:58

available, you can have any number of 02:58

people see it. What do you mean? 02:58

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 02:58

Q. Well, if it was published and no one looked at it, would you consider it prior art for your purposes? 02:58

A. If it were on a public place where people could look at it and it was something that is prevalent like Medium, my own biography is on Medium. There are many people who use Medium. Medium is very widely used. 02:58

Q. There's lots of things in Medium which sometimes nobody ever sees, right? 02:59

A. I don't know. I don't run Medium. So I'm not sure. 02:59

Q. Okay. 02:59

A. I know it's a well-known platform. 02:59

Q. But if you publish something in a library like the Library of Babylon with 100 million books, just because sitting in library doesn't make it prior art. That's your understanding, right? 02:59

MS. NGUYEN: Objection. Form. 02:59

A. I think if it's publicly 02:59

HOMAYOON BEIGI, PhD

available -- and at the time, I think since we've looked at, for example, Melendez and -- and any of the other references that I gave, that it was something that people wanted to look at. People were looking for chatbots and RPAs going together. So because of all of that, I think they would look it up -- would have looked it up. It's definitely searchable and very easily searchable on Google.

If you search my name, the first page that comes up has an article on biography -- probably the first couple of pages on Medium. So Medium is very accessible. It's not a unknown.

BY MR. MACEDO:

Q. So it doesn't matter to you whether nobody had seen the article by November 5th as long as it was on Medium?

MS. NGUYEN: Objection. Form.

A. But I think based on what you just say, there are people who have made comments so it must have been seen.

HOMAYOON BEIGI, PhD

I'm not sure what that date, how many people saw it because there's no indication how many people saw it. There's no -- as far as I know, there is no statistic on how many people have viewed this article. 03:00 03:00 03:00 03:00 03:00

BY MR. MACEDO: 03:01

Q. Well, Mr. Symons would have had that statistic because he posted it. 03:01 03:01

A. I'm not Mr. Symons. 03:01

Q. Yes, but he submitted a declaration. He could have provided that information; but he didn't, right? 03:01 03:01 03:01

A. We are making conjectures. He could have, he should have, he would have. I don't know. 03:01 03:01

You're asking me, I'm providing expertise on the matter, not whether Mr. Symons should have done it or shouldn't have done it. 03:01 03:01 03:01

Q. Wait. You've posted things in Medium? 03:01 03:01

A. I haven't. 03:01

Q. You haven't or you have? 03:01

HOMAYOON BEIGI, PhD

A. I have not. 03:01

Q. So do you really know how Medium works, or are you just hypothecating? 03:01

MS. NGUYEN: Objection. Form. 03:01

A. I told you that an extended biography was written about me that was posted on Medium and I've read articles on Medium. I haven't used it myself. 03:01

You're asking whether I used it myself. Used as a viewer. I have not used it for posting. I think you said have you posted. 03:01

BY MR. MACEDO: 03:01

Q. Okay. But I'm trying to understand, do you know how Medium works to know whether just because you post it, people can see it? 03:01

A. It's a blogging system, so you can write articles. You can submit them; and it will be made -- will be made available to people who read it, who look for it, who search for it. 03:02

Q. Do you know that, or are you just hypothecating it? 03:02

HOMAYOON BEIGI, PhD

A. I've seen cases of it. I've given examples of it. 03:02

Q. Well, you've seen articles which have been published, but you don't know how Medium actually determines whether to share and publish? 03:02

A. I don't know the process. 03:02

Q. Now, when an article is being published on Medium, somebody writes the article, right? That's the -- they type it up and do whatever they are doing with it, right? 03:02

A. Yes. 03:02

Q. And do they then associate with anything? Like in this case, did they associate with a video? 03:02

A. In this case, he referred the video in the article. 03:02

Q. Right. 03:03

A. Which was a Vimeo video. 03:03

Q. Right. And he used the link to associate the video with the article? 03:03

A. That specific case, yes. 03:03

Q. And then at some point, he said 03:03

HOMAYOON BEIGI, PhD

post to publish it, right, presumably? 03:03

A. Since I said I don't know the 03:03

process, I would say it's reasonable to 03:03

think that he posted it. Otherwise, they 03:03

wouldn't have it. 03:03

Q. And is it necessary that the 03:03

association come after they typed in the 03:03

body, or could they started off by 03:03

associating the video before they type in 03:03

the text of the blog? 03:03

MS. NGUYEN: Objection. Form. 03:03

A. I'm not sure if I understood. 03:03

Association -- the -- the article has a 03:03

date. And it has been linked to a video 03:03

which has a date, and that's as far as I 03:03

know. 03:03

BY MR. MACEDO: 03:03

Q. Okay. Somebody had to type the 03:03

text of the article, right? 03:04

A. Yes. 03:04

Q. And then they had to put in the 03:04

link to the URL for the video? 03:04

A. And you're saying "and then," 03:04

but. 03:04

HOMAYOON BEIGI, PhD

Q. Well -- we can -- 03:04
A. I would write it -- 03:04
Q. Those are two separate things 03:04
that need to happen. Somebody has to 03:04
write the text, and somebody has to 03:04
provide the link to the -- to the -- 03:04
associate the video with the text using 03:04
the link, right? 03:04
A. Yes. 03:04
Q. And then presumably somebody 03:04
would say post it to publish it, right? 03:04
A. I would expect so. 03:04
Q. And one way they could do it is 03:04
they could put the link in and then add 03:04
the text, right? 03:04
A. I don't know because the -- I 03:04
don't know how the versioning works on -- 03:04
on the article. My understanding is that 03:04
we vetted the fact that it was actually 03:04
published at that date. And I didn't do 03:05
that, but the counsel -- 03:05
Q. I'm asking a different question. 03:05
A. Yes. 03:05
Q. Not whether it was published, 03:05

HOMAYOON BEIGI, PhD

but I'm asking the process of how it was published. 03:05

A. I don't know. Because I -- like I said, I don't know the processing. I have published many other places. I don't know specifically on Medium. 03:05

Q. Have you ever posted a video with chat on Facebook? 03:05

A. I don't have Facebook account. 03:05

Q. Have you done it on LinkedIn? 03:05

A. Yes. 03:05

Q. When you posted a video with a description on LinkedIn, one thing you could do is you could associate the video using an URL and then put your text in and then hit post to publish, right? That's one way you can do it? 03:05

A. Yes. 03:05

Q. Or you can type in the text, add the URL to associate, and then hit post, right? 03:05

A. How was the first one? Sorry. Maybe I didn't understand the first one. 03:05

Q. It's whether you type the text 03:05

HOMAYOON BEIGI, PhD

before you do the association or whether you do the association before you type the text. 03:05 03:06 03:06

A. Let me look at the Medium file. What I recall is that there is a link specifically in that Medium. 03:06 03:06 03:06

Q. I understand. But I'm focusing on the process that we're talking about with Facebook. 03:06 03:06 03:06

A. I don't know Facebook. 03:06

Q. I'm sorry. LinkedIn. 03:06

A. LinkedIn, yes. 03:06

Q. So in LinkedIn, you can either link the video and then put in the text or put in the text and then link the video when you're doing a post? 03:06 03:06 03:06

A. So the order would be different, right. 03:06 03:06

Q. Yes. 03:06

A. Yes. 03:06

Q. And then you would publish it by hitting a button to publish it? 03:06 03:06

A. Yes. 03:06

Q. And if you edit it, that would 03:06

HOMAYOON BEIGI, PhD

change the version as you were using it? 03:06

A. I would expect, yes. 03:06

Q. And your understanding is that the concept of publishing is a version control concept? 03:06

A. It includes version control. It's not -- 03:06

Q. Not limited to? 03:06

A. Okay. Yes. 03:06

Q. Okay. Yes. 03:06

And so the concept of having to publish a conversation to a chatbot is to distinguish in different versions of that conversation if you update the conversation, right? 03:06

MS. NGUYEN: Objection. Form. 03:07

A. Sorry. We went to chatbot now -- describe -- 03:07

BY MR. MACEDO: 03:07

Q. Well, the patent that we were talking about, the '732, talks about publishing the conversation for the chatbot or the natural language interface, right? 03:07

HOMAYOON BEIGI, PhD

A. Yes, right. 03:07

Q. And when it's talking about 03:07
publishing a conversation, it's to be able 03:07
to distinguish it from if you edit the 03:07
conversation different versions, right? 03:07
That's one of the concepts? 03:07

A. It could have version control, 03:07
or it could just not have version control. 03:07
If it had version control, you would have 03:07
information. If you didn't have version 03:07
control, you just modify this. 03:07

Q. Okay. When you're doing a 03:07
conversation where you're trying to tie 03:07
the conversation to an automated process, 03:07
one way of doing that is you define the 03:07
conversation and then you tie it to the 03:07
automated process, right? 03:07

A. Go on. 03:08

Q. That's one way? 03:08

A. To define the conversation, and 03:08
then tie it to the -- 03:08

Q. Tie it to the automated process. 03:08

A. -- automation process. 03:08

Q. Right, whatever the automation 03:08

HOMAYOON BEIGI, PhD

process is. 03:08

A. Yes. 03:08

Q. Or you could start off with 03:08

here's an automation process and then do a 03:08

conversation around it? 03:08

A. I would have presumed that in 03:08

the first case, there must have been an 03:08

automation process because then how would 03:08

you know what to link it to? Then 03:08

wouldn't it come out the same thing? 03:08

Maybe I'm missing something. 03:08

Q. You as the -- as your customers, 03:08

you remember, they defined the flowchart? 03:08

A. Yes. 03:08

Q. They could define the flowchart 03:08

without have the automation process, or 03:08

they could have the automation process and 03:08

then define a flowchart based upon it, 03:08

right? 03:08

A. Well, then if you tested, it 03:08

would crash. 03:08

Q. It wouldn't run until both are 03:08

done? 03:08

A. Exactly. 03:08

HOMAYOON BEIGI, PhD

Q. But the order of whether you define before you associate or associate before you define could be different? 03:08 03:09 03:09

A. But I think it's immaterial because unless you actually submitted it or posted it or, you know, whatever else you want to call it, it doesn't take, right. You -- it has to be still -- 03:09 03:09 03:09 03:09 03:09

Q. There's three things that need to be done. 03:09 03:09

A. Yeah. 03:09

Q. You need to define, associate, and publish. 03:09 03:09

A. Yes. 03:09

Q. You could go associate, define, publish. You could go define, associate, publish; or if there is no automated process, you could just go define, publish, right? 03:09 03:09 03:09 03:09 03:09

A. Can you do publish, define, associate? You can't -- 03:09 03:09

Q. Well, you could if you -- 03:09

A. -- there is no logic. 03:09

Q. -- if you published an original 03:09

HOMAYOON BEIGI, PhD

conversation, could come back and edit it and modify it? 03:09

A. That is not the same. So what I'm saying is that there is a chatbot which is doing a conversation. There is an automation process. This is in mind, right, when you're -- when you're putting something together. You are defining -- 03:09 03:09 03:09 03:09 03:10 03:10

Q. Well, in the context of the '732 patent -- 03:10 03:10

A. Yes. 03:10

Q. -- there are three separate steps that are discussed. One is defining a conversation, one is associating the conversation with an automated process, and one is publishing the conversation? 03:10 03:10 03:10 03:10 03:10

A. But if there is an automation process, there is a chatbot and there is a need to publish, all three of them have to have that. 03:10 03:10 03:10 03:10

Q. But the order can be different? 03:10

A. But post is -- publish is the last thing always. 03:10 03:10

Q. Assume that publishing is the 03:10

HOMAYOON BEIGI, PhD

last thing for the purposes of this discussion. 03:10

A. Then it's immaterial. 03:10

Q. Then -- well, it's immaterial to you. But there is a difference that it could define and then associate or it could associate and then define? 03:10

A. How is that different if it's not published yet? It's just a matter of editing. 03:10

Q. I'm asking you whether those are two possible ways of achieving the published result. 03:10

Do you have to define before you associate, or can you associate before you define? 03:11

MS. NGUYEN: Objection. Form. 03:11

A. I can type -- I can type a sentence from period backward to the beginning or all the way from the beginning of the sentence to the end of the sentence. What matters is at the end when I hit enter and that sentence is formed. 03:11

HOMAYOON BEIGI, PhD

What I'm asking is -- I'm trying to understand. I'm trying to understand what is the difference because -- because that publish is important. That publish has to happen whether you do one or the other because unless both of them are there, you don't achieve what you're trying to achieve. 03:11

BY MR. MACEDO:

Q. So from your perspective, what is necessary is that before you publish, you must both define and associate; but it doesn't matter whether you define first or associate first. Is that a fair summary of what you're saying? 03:11

MS. NGUYEN: Objection. Form.

A. I want to be more clear so define a conversation, right, because we keep saying define and publish. 03:12

BY MR. MACEDO:

Q. Define a conversation -- 03:12

A. Define a conversation, go ahead, next thing, because I want to make sure I have the down. 03:12

HOMAYOON BEIGI, PhD

Q. Okay. There's three things that have to happen in the context of the '732 claim 1 and the other independent claims. Among other things, you have to define the conversation, you have to associate the conversation with some automated process, and you have to publish it? 03:12

A. Some automated process? 03:12

Q. Whatever it is that you're -- whatever the claims are. 03:12

A. So you're saying it's not material whether there is an automation process or not? 03:12

Q. No. There has to be automation process that's being associated with. 03:12

A. Exactly what I'm trying to say. So if there has to be an automation process that you have associate with and you have to define the conversation, then I don't -- I don't get the question. 03:12

Why would it matter if you did one or the other because unless you publish it, it's not -- 03:13

Q. Let's not care whether it 03:13

HOMAYOON BEIGI, PhD

matters. Let's care about whether it can happen. So let's take the example of Symons, okay. In Symons they know they want an automated process that requires you to collect the person's name, function, e-mail address, and telephone number. 03:13

And so if Symons went to -- to his buddy Vincent and say, Vincent, I'm going to make this RPA process. It isn't made yet. This is the information I need to collect. Can you create the chatbot to do that? And then I will give you the process to associate with it afterwards. That's one way that they could have done this, correct? 03:13

A. But they can't publish it. If they publish it, then it's going to crash. 03:13

Q. It doesn't publish until they're done. 03:13

MS. NGUYEN: Objection. Form. 03:13

BY MR. MACEDO: 03:13

Q. But they could publish it because the conversation will happen. 03:13

HOMAYOON BEIGI, PhD

It's just the RPA won't do anything until it's done. 03:13 03:14

A. But the whole point is the two working together in tandem. 03:14 03:14

Q. I understand. 03:14

A. You have to understand -- 03:14

Q. I'm trying to understand whether it is necessary that the conversation be defined before the association with the process or can you associate with the process before you define the conversation? 03:14 03:14 03:14 03:14 03:14 03:14

A. What am I associating with -- that's the question is what am I associating with the automation process if there is no flow? It just doesn't make sense. The logic doesn't make sense to me. 03:14 03:14 03:14 03:14 03:14 03:14

Q. So if I know the last step of the chat conversation is to pass the information on to the RPA -- 03:14 03:14 03:15

A. Yes. 03:15

Q. -- and I put that as the very first thing I do before I have the 03:15 03:15

HOMAYOON BEIGI, PhD

conversation. And then in preparing the conversation, I go back and I say, well, what information do I need to collect? I need to collect the name, the title, the e-mail address. Okay. 03:15

And then I write out the conversation and program it into the chatbot so that way we'll publish it correctly. And then I publish it. There I associate, then I define, and then I publish. I'm looking at it linearly -- 03:15

A. Okay. So you're looking at it as two parallel things have to happen until I can publish. And I can probably go edit the chat conversation. I can go edit the -- because maybe they don't work. Maybe things aren't working properly. 03:15

These are two things that have to happen before I publish. So the fact that you're looking at it linearly and saying, you know, it's either this way or that way, what I'm saying is that these are two constituents which are important and they work hand in hand because the 03:16

HOMAYOON BEIGI, PhD

automation process doesn't know what to do if the right information isn't passed. And the conversation flow doesn't know what to pass if it doesn't know what the automation process is. 03:16

And once these two are both properly established, you publish. And that's when it works. So that's my mindset and the way my brain works. 03:16

Q. So there's nothing inherent in the order of defining versus associating just because a conversation exists? 03:16

A. I think the most important things that needs to have an order is the publish. The other two could -- you can go back and forth and edit them as much as you want, and then the question is which one came first. 03:16

Q. And there's nothing inherent about one coming first over the other? 03:16

A. They have to work together. 03:16

Q. Right. 03:16

A. So I don't think there's anything inherent where you would have to 03:17

HOMAYOON BEIGI, PhD

say that specifically, this one has to happen until I go do that one. 03:17 03:17

Q. Right. So there's nothing inherent about defining before associating or associating before defining. But both of them must happen before publishing is your understanding of what happens when you see a conversation like Symons? 03:17 03:17 03:17 03:17 03:17 03:17

MS. NGUYEN: Objection. Form. 03:17

A. If there is supposed to a working relationship between a chatbot and an RPA, then both of those, the flow and the automation process, have to be defined before you -- you commit to it. I'll use the word "commit," publish, right. 03:17 03:17 03:17 03:17 03:17 03:17

So that's why I find it hard to -- I'm stating what I believe the reality would be in a system. 03:17 03:17 03:17

BY MR. MACEDO: 03:17

Q. The reality is that the Symons chatbot and RPA could have been -- had to be published to be operating? 03:17 03:17 03:18

A. Yes. 03:18

Q. But whether they define the 03:18

HOMAYOON BEIGI, PhD

conversation before they linked it to the chatbot or after they linked it to the chatbot or going back and forth with it, you don't know and it wasn't important to you because all that matters is it had to happen before you published? 03:18

MS. NGUYEN: Objection. Form. 03:18

A. Okay. So what I'm talking about, I'm talking about the definition of the conversation flow, not necessarily the actual act of chatbot collection. I just want to make sure -- 03:18

BY MR. MACEDO: 03:18

Q. Correct. 03:18

A. -- that we're on the same -- 03:18

Q. We're on the same page, yeah. 03:18

A. I would have to define a conversation flow that would go with the automation. They have to sync. They have to be two things that work together. The whole point of patents or any document, most of the documents we're talking about here, is for these two to work together in tandem. 03:19

HOMAYOON BEIGI, PhD

If they have to work in tandem, then both of them have to be defined. Chatbot, chat conversation flow has to be defined; and the automation process has to be defined. Those two, if they are not defined, you cannot publish it. 03:19

Q. Right. 03:19

A. I don't know how else to answer. 03:19

Q. So the preamble of claim 1 talks about defining the automation process, but the second step of the process is to associate the conversation which has been defined with an automation process. 03:19

And the question is: When you're associating a conversation with the process, do you have to already have the conversation flow necessarily written out to associate it, or can you associate I'm generating a conversation about buying tickets and this is the process, like Allen defines it, and then say that this process that I defined, now we're going to create a chatbot that will have this conversation flow? 03:19 03:19 03:19 03:19 03:19 03:19 03:19 03:19 03:20 03:20 03:20 03:20 03:20

HOMAYOON BEIGI, PhD

MS. NGUYEN: Objection. Form. 03:20

BY MR. MACEDO: 03:20

Q. Do you see the difference? In other words, you're talking about you have to both define the conversation and the process. 03:20

A. Automated process. 03:20

Q. I accept that. 03:20

But the question isn't the order of defining the conversation versus defining the process. The order is associating the process already defined with the conversation that's being defined? 03:20

A. And what's the other option? Not associating it? 03:20

Q. No. You're going to associate and you're going to define the conversation, but the question is you can associate first and then define the conversation or you can define the conversation and then associate it, right? 03:20

A. Let's say I associate buying a ticket, and then I go create a 03:21

HOMAYOON BEIGI, PhD

conversation flow for something completely irrelevant. I just don't get it. 03:21

Q. No, no. 03:21

A. That's -- 03:21

Q. That's not my point. 03:21

So in Allen, for example, you spend all of this time with PLOW defining a -- defining an automated process? 03:21

A. Yes. 03:21

Q. After the process is defined, then there needs to be a conversation to gather the information to test the process or implement it? 03:21

A. A conversation to implement it, yes, yes. 03:21

Q. You want to buy a ticket; you're going to go to San Francisco at 3:00, right? 03:21

A. Yes. 03:21

Q. So the conversation is what would you like to do. I'd like to buy a ticket. Where do you want to go? I want to go to San Francisco, for example. 03:21

A. We haven't talked about the 03:21

HOMAYOON BEIGI, PhD

automation process here. 03:22

Q. Well, but there is an automation process that's already set up in Allen because you train it, right? They use the PLOW system to train an automation process. That's what Allen's all about is training, using PLOW to automate a specific process; and they have different example processes, right? 03:22

A. Yes. 03:22

Q. And once the process is trained, they say now you can implement that process, right? 03:22

A. Using a conversational flow. 03:22

Q. Well, you can implement it -- we'll talk about how in a minute -- but you can implement it. That's one of the things -- 03:22

A. You can do that automation process, yes. 03:22

Q. Right. You can say to PLOW I want to buy a book or whatever the automation process is, right? 03:22

A. You can show PLOW how to buy a 03:22

HOMAYOON BEIGI, PhD

book. 03:22

Q. Well, first you teach PLOW how to buy a book? 03:22

A. Yes. 03:22

Q. It then saves that automated process in to buying a book? 03:22

A. Yes. 03:22

Q. And then you can say to PLOW, I want to buy a book. 03:23

A. Yes. 03:23

Q. And then PLOW can then get information from you so you can buy a book? 03:23

A. What book, for example, yes. 03:23

Q. What book and things like that. 03:23

A. Yes. 03:23

Q. And one way PLOW could have done it is by hosting a form which isn't a natural language conversation, right? One of these little boxes that you call a form that you said is not a -- 03:23

A. You can just go to Amazon and buy it basically. 03:23

Q. No, no. You can just say give 03:23

HOMAYOON BEIGI, PhD

me the -- you want to buy a book, okay. 03:23
Give me name, title, and price, whatever 03:23
information you need and then go buy. You 03:23
could have done that with Allen's PLOW? 03:23
MS. NGUYEN: Objection. Form. 03:23
BY MR. MACEDO: 03:23
Q. Right? 03:23
A. You fill out the things you're 03:23
looking for, is that what you're saying? 03:23
Q. Well, like PLOW could have 03:23
presented to the user after they say I 03:23
want to buy a book, a box that says title 03:23
and have them fill in the box, the form, 03:23
and whatever other information they need 03:24
to collect as a result of the training and 03:24
then go implement it, right? 03:24
MS. NGUYEN: Objection. Form. 03:24
BY MR. MACEDO: 03:24
Q. That's one way PLOW could have 03:24
been done? 03:24
A. But in the case that we're 03:24
talking about, we're talking about Allen. 03:24
Q. I'm just talking about could 03:24
PLOW have -- 03:24

HOMAYOON BEIGI, PhD

A. You're talking about Allen. 03:24

Q. Could PLOW have been implemented using a box with a form to gather the title and other information necessary to buy a book? 03:24

A. Then how would I show that automation? So the whole point of it is showing the automation process, is to show how that is done in a natural way, right. It's basically to show how it -- 03:24

Q. That isn't the point of Allen. The point of Allen is a simple way to teach an automation process. 03:24

A. Yes, but I have to first teach it. What I'm saying is -- 03:24

Q. It's taught. 03:24

A. Okay. 03:24

Q. The conversation in Allen that is pertinent is not the conversation of how it's taught. It's the conversation of how a user can implement Allen to automate buying -- it can buy a book using the process that was taught? 03:24

A. I think the whole point of -- 03:25

HOMAYOON BEIGI, PhD

part of the point of Allen is that it is flexible and it will find the places where it actually has to put the book title. 03:25 03:25 03:25

Q. I understand. But the conversation has to collect the information in the same way that Symons conversation collected information? 03:25 03:25 03:25 03:25

A. It has to collect information. 03:25

Q. And it could collect the information using natural language or it could collect it by putting up a table to have the user type in the information, right? 03:25 03:25 03:25 03:25 03:25

A. Then it wouldn't bring convenience of a chatbot and a natural language conversation to do that. It would be different. It would be different. It wouldn't be PLOW. Probably maybe something else, PLOW 2 or PLOW 1. You miss the convenience of having a human conversation to do that. 03:25 03:25 03:25 03:25 03:25 03:25 03:26

I can refer to something in Allen to specifically tell you about it. 03:26 03:26

Q. Not necessary. 03:26

HOMAYOON BEIGI, PhD

What I want -- what I want to understand from you is do you understand that Allen was a POSITA? 03:26

A. Yeah. 03:26

Q. And do you know what Allen's background and training was? You're not going find it in any of those documents. 03:26

A. No, I don't know what his background and training is. But I just -- I think just based on the provided information that he would have been a POSITA. 03:26

Q. You're guessing? 03:26

A. I'm just guessing, yes. 03:26

Q. Okay. Do you know whether Allen actually built the software, the PLOW? 03:26

A. Do I have Allen? 03:26

Q. I don't think I've marked it yet. 03:27

MR. MACEDO: Have I? 03:27

THE WITNESS: May I have Allen, please. 03:27

MS. NGUYEN: Counsel, could we take a break? 03:27

HOMAYOON BEIGI, PhD

MR. MACEDO: If he answers this question, we can take the break. If he needs Allen to see it, that's fine. That's his call. 03:27

THE WITNESS: Yes, I would like to see Allen, please. 03:27

MR. MACEDO: Okay. We'll pull Allen for you. It's Tab 40. We marked it as 11. You have Allen. 03:27

THE WITNESS: Oh, yes, yes, you're right. 03:27

BY MR. MACEDO: 03:28

Q. And, remember, the only question I'm asking is do you know whether Allen actually published the software PLOW. 03:28

A. And that's why I'm trying to review the patent one more time, just to refresh my memory whether -- it's a very specific question, whether it was published. 03:28

Q. It is. If you look at Page 2 -- nope, Page 2, before the text. And if you look at the last reference as well as the ones above it, does that help you figure 03:29

HOMAYOON BEIGI, PhD

out an answer? 03:29

A. Well, it was published -- the demonstration was published, it says. The demonstration of PLOW was published. 03:29

Q. And you reviewed that of course, right? 03:29

A. Yeah. 03:29

Q. You looked at the demonstration that was published? 03:29

A. No, I didn't look at the demonstration that was published. 03:29

Q. Well, you were certainly aware of PLOW, right, because this is core technology in your core business, right? 03:29

A. No, I wasn't aware of it. 03:30

MS. NGUYEN: Objection. Form. 03:30

BY MR. MACEDO: 03:30

Q. You were not aware of PLOW? 03:30

A. No. 03:30

Q. Okay. And so you actually never watched the demonstration to see whether or not the way the information was collected was using a form which you indicate is not natural language 03:30

HOMAYOON BEIGI, PhD

processing? 03:30

A. I'm reading what they specify 03:30

as -- no, it's not. No, I didn't watch it 03:30

running. 03:30

Q. Okay. Column 12 is where you 03:30

describe in -- where Allen describes the 03:30

conversation that you rely on, if that's 03:30

what you were looking for. It's at the 03:30

bottom of Column 12 starting on Line 63. 03:30

A. (Witness reviewing document.) 03:31

And -- and what are you 03:31

referring to? You're saying that I was 03:32

looking for this information? 03:32

Q. Well, that's the conversation. 03:32

So in the conversation that you relied on, 03:32

you relied upon the fact that the system 03:32

would ask what is the title of the book? 03:32

A. Yes. Okay. Yes. 03:32

Q. And if you look at Figure 6. 03:32

That's an example of how the system asked 03:32

it using the word "name" instead of title, 03:32

correct? 03:32

A. Yes. 03:33

Q. And by the way, if you look at 03:33

HOMAYOON BEIGI, PhD

the demonstration and compare it to Figure 6, you'll see that what they actually did was present a box that was like a form for the user to fill in the actual information like Figure 6 shows? 03:33

MS. NGUYEN: Objection. Form. 03:33

BY MR. MACEDO: 03:33

Q. Did you know that? 03:33

A. Did I know what? I'm sorry. 03:34

Q. That PLOW actually used a form like Figure 6 to gather the information for the conversation that you're relying on? 03:34

A. Part of the information. And it also used what is in 20 -- in 20, for example, in Figure 2 where there is a conversation back and forth. 03:34

Q. Well, the conversation that you're pointing to in Figure 2 is a training conversation? 03:34

A. Yes. 03:34

Q. Not the conversation of the chatbot conversation? 03:34

A. Right, but you're saying that it 03:34

HOMAYOON BEIGI, PhD

only requested the information -- 03:34

Q. Requested the information? 03:34

A. -- that way but I'm just saying 03:34

also requested the information in chat 03:34

form. 03:34

Q. To train, not to implement. The 03:34

bottom of Column 12 is a conversation 03:34

you're relying on to say that Allen 03:34

teaches the same type of natural language 03:35

conversation to invoke an RPA as the 03:35

WalkMe patents. But what they actually 03:35

use in Allen is what's shown in Figure 6 03:35

to collect the title of a book. And that 03:35

is a form which you said is not a natural 03:35

language conversation? 03:35

MS. NGUYEN: Objection. Form. 03:35

A. But I will read to you from the 03:35

same paragraph you are referring to: Once 03:35

the complete -- complete task is learned, 03:35

the user can employ PLOW's task database. 03:35

The next time he or she wishes to order a 03:35

book, the user will only need to say 03:35

something like -- say something like, I 03:35

want to buy a book. 03:35

HOMAYOON BEIGI, PhD

That is a conversation. That is a request. 03:35

BY MR. MACEDO:

Q. Well, actually you said in claim 15 that that is not the conversation. The conversation begins with what is the title? 03:35

MS. NGUYEN: Objection. Form. 03:36

BY MR. MACEDO:

Q. And the point that I'm making to you is that if they ask what is the title like they do in Figure 6, that's not a conversation according to your testimony today? 03:36

A. Can you tell me where -- where you're talking about in which -- first of all, which patent are you talking about? 03:36

Q. '664 claim 6 -- '664 claim 15. And to help you follow in claim 15, you need to display the user interface of the computer program, widgetco, before the conversation begins and you wouldn't display the conver- -- the widgetco user interface unless and until you say I want 03:37

HOMAYOON BEIGI, PhD

to buy a book because if you want to buy a airplane, you wouldn't go to widgetco, you go to Travelocity? 03:38

A. No. But the -- the GUI in this case -- 03:38

Q. Target system, right? The computer program is the target system? 03:38

A. The -- 03:38

Q. You are relying on Figure 3 to show what the -- 03:38

A. That's just a snapshot. 03:38

Q. I understand. I'm just telling you that's what you rely on for claim 1. 03:38

A. But for 15 -- 03:38

Q. If you look at Element 1A which you cross-reference on Page 82, you point to -- 03:39

A. Yes, I'm looking at 15 though. So I am -- here I'm really referring to Figure 1 as being what is the GUI that's being displayed prior to the conversation. 03:39

Q. So your interpretation of Allen is that the displayed user interface of the computer program is the GUI in Figure 03:39

HOMAYOON BEIGI, PhD

1, not widgetco from Figure 3? 03:39

A. Widgetco is -- is a snapshot 03:39

when some things have been filled. But 03:39

this part is what I'm referring to. I'm 03:39

referring to the browser part which is 03:39

basically 14 and -- and 12 which is part 03:39

of this bigger picture. So this is -- 03:40

this is the first thing that must show up. 03:40

Otherwise, you can't communicate with 03:40

Allen at all. Would you agree? 03:40

Q. Not at all. 03:40

So Figure 1 is not, in my view, 03:40

displaying any target. There's no 03:40

automation process in Figure 1. It is an 03:40

empty browser. And that -- and that your 03:40

read, as I understood it, in Figure 1A was 03:40

against Figure 3 and that the target and 03:40

that the computer program was widgetco 03:40

which was implemented and accessed with 03:40

the browser. If that's not your read, 03:40

then please let me know. 03:40

A. Yes, that is the location -- 03:40

that's the portion which is displayed in 03:40

Figure 1 prior to anything happening 03:40

HOMAYOON BEIGI, PhD

because had you not had Figure 1, you wouldn't be able to communicate with Allen. 03:40

And I believe I'm reading the claim correctly, but I may be -- maybe you can correct me. The method of claim 1 where in the displayed user interface of the computer program is displayed prior to the natural language conversation between natural language interface and the user -- 03:40 03:40 03:41 03:41 03:41 03:41

Q. So you -- 03:41

A. -- Figure 1 -- let me finish please -- Figure 1 with the GUI. This looks like a GUI, doesn't it. The GUI, where it has to be presented because otherwise there's no other way you can communicate with Allen. 03:41 03:41 03:41 03:41 03:41 03:41

And before the natural language understanding which is now Figure 2, for example, you can see there's natural language understanding. So Figure 1 has to be displayed. This is -- this is the way you -- and the browser part is what I'm referring to in Figure 3 which is just 03:41 03:41 03:41 03:41 03:41 03:41

HOMAYOON BEIGI, PhD

one example, one snapshot. 03:41

But this, the GUI part of it, 03:41

including you can see the -- the mouse 03:41

here, 18. So the mouse is there. There 03:41

is the graphics here which is the browser. 03:41

The browser is a GUI. 03:41

Q. So Figure 1 is generated by the 03:42

PLOW software, not by widgetco, right? 03:42

A. Yes. 03:42

Q. And so your read of claim 15 03:42

where it refers to the displayed user 03:42

interface of the computer program is that 03:42

the computer program is PLOW and the 03:42

displayed user interface is Figure 1; is 03:42

that correct? 03:42

A. Yes. 03:42

Q. And in claim 1 where it refers 03:42

to the displayed user interface of the 03:42

computer program, you also are referring 03:42

to PLOW as the computer program and Figure 03:42

1 as the display user interface; is that 03:42

correct? 03:43

A. 1D, is that what you're talking? 03:43

Sorry. Read -- tell me what part of the 03:43

HOMAYOON BEIGI, PhD

claim. 03:43

Q. So in Element 1C, your Paragraph D, Page 83, it talks about an automation process configured to perform an automation of a sequence of interactions with the displayed user interface of a computer program to simulate user interaction with displayed interface of the computer program. 03:43

And your read is that Allen -- the computer program is PLOW, and the displayed user interface is the interface shown in Figure 1? 03:43

A. 1C, right, yeah. That's what I use on Page 86. I use Figure 1 to... 03:43

MR. MACEDO: Okay. Let's take a break. Thank you. 03:43

THE VIDEOGRAPHER: We're going off the record. The time is 3:44 p.m. 03:44

MR. MACEDO: And again, we caution you not to speak to counsel during the break. 03:44

THE WITNESS: I won't. 03:44

(Recess taken.) 03:59

HOMAYOON BEIGI, PhD

(Whereupon, Beigi Exhibit 20, US Patent No. 10,503,627, was marked for identification.) 03:59 03:59 04:04

THE VIDEOGRAPHER: We are back on the record. The time is 4:05 p.m. 04:04 04:04

BY MR. MACEDO: 04:04

Q. Welcome back, Dr. Beigi. 04:04

A. Thank you. 04:04

Q. Are you still comfortable to testify? 04:04 04:04

A. Yes. 04:04

Q. And there's no reason why you can't testify right now? 04:04 04:04

A. No. 04:04

THE VIDEOGRAPHER: Counsel, are you mic'd? 04:05 04:05

MR. MACEDO: No, I am not. 04:05

BY MR. MACEDO: 04:05

Q. Let's try that again. Welcome back, Dr. Beigi. 04:05 04:05

A. Thank you. 04:05

Q. Are you comfortable to testify? 04:05

A. Yes. 04:05

Q. And there's no reason why you're 04:05

HOMAYOON BEIGI, PhD

not capable of testifying right now? 04:05

A. No. 04:05

Q. And you know you're still under 04:05

oath? 04:05

A. Yes. 04:05

Q. Okay. So during the break, we 04:05

marked as Exhibit 20 US Patent No. 04:05

10,503,627 which was Whatfix Exhibit 1018, 04:05

and that's one of the exhibits that you 04:05

relied on. 04:05

Do you recognize this? 04:05

A. Yes. 04:05

Q. And you considered Radhakrishnan 04:05

Exhibit 20 as part of your analysis for 04:05

all three IPRs? 04:05

A. Yes. 04:06

Q. And can you read the title of 04:06

Exhibit 20, the Radhakrishnan patent into 04:06

the record? 04:06

A. "Robotic process automation 04:06

enabled file dissection for error 04:06

diagnosis and correction." 04:06

Q. And where it says "for error 04:06

diagnosis and correction," do you 04:07

HOMAYOON BEIGI, PhD

understand that that was the purpose of the robotic process automation discussed in Radhakrishnan? 04:07

A. Yes, a reporting, I believe. 04:07

Q. And if you look at Column 6, starting at Line 16, maybe 17, it says: The present invention leverages robotic process automation RPA technology to overcome the technical difficulties of the problems discussed above to diagnose and rectify errors -- errors experienced during typical operation of a system or user device, right? 04:07

A. Yes. 04:07

Q. And your understanding of Radhakrishnan is that the problem it was presenting was what happens when there is a problem in performance on -- on a target system and how to use an RPA to be able to determine later on what happened and how to fix it, right? 04:08

MS. NGUYEN: Objection. Form. 04:08

A. Can you say it again? I'm sorry, the question please. 04:08

HOMAYOON BEIGI, PhD

BY MR. MACEDO: 04:08

Q. Sure. 04:08

Why don't you tell me what you think the problem that Radhakrishnan was trying to address was with respect to diagnosis and rectifying errors experienced during typical operation of a system or user device. 04:08 04:08 04:08 04:08 04:09

A. It was to reduce the amount of computing resources required to execute a task when compared with executing the same task using a traditional application programming interface, when trying to figure out the errors that would happen and diagnose them, to rectify them when, let's say, a program crashes or something happened. 04:09 04:09 04:09 04:09 04:09 04:09 04:09 04:09

Q. So if I logged into Travelocity to buy a ticket, the RPA of Radhakrishnan would be running in the background to determine why the system may have crashed it? 04:09 04:09 04:09 04:09 04:09

A. It could be. 04:09

Q. That's the typical use case? 04:09

HOMAYOON BEIGI, PhD

A. It doesn't have to necessarily run on that side. It could be running on the machine that you're using. 04:09

Q. It could be running on anything? 04:09

A. Yes. 04:09

Q. But that's an example of how the RPA is being implemented with buying a ticket? 04:09

A. To report the -- and diagnose what happened, yes. 04:10

Q. And the RPA is not being run for the purpose of actually buying the ticket? 04:10

MS. NGUYEN: Objection. Form. 04:10

A. This is a specific application that he's talking about. It's an RPA, nevertheless. 04:10

BY MR. MACEDO: 04:10

Q. Right. 04:10

A. Buying a ticket is just another automation process you could do, possibly; but he's concentrating on the specific application for errors diagnostics. 04:10

Q. Right. The problem which is being addressed is there's errors, we need 04:10

HOMAYOON BEIGI, PhD

to diagnose them, let's use an RPA to do them? 04:10

A. Yes. 04:10

Q. Okay. And is that the same problem that the three WalkMe patents are addressing? 04:10

A. They don't specifically say that it has to be a specific RPA. It could be. It's an RPA. I mean, they give examples. 04:10

Q. Well, an RPA is a computer program, and we've had those forever. 04:11

A. RPA is a robotic program, basically. We haven't had them forever. We have had them for a while. 04:11

Q. And the point is that the specific RPA or the generalized RPA that Radhakrishnan is referring to is one for error detection and for monitoring an error detection in whatever device or computer system that it's monitoring? 04:11

A. This is the example of his interest. 04:11

Q. Is there other examples? That's the only one I saw you rely on. So if you 04:11

HOMAYOON BEIGI, PhD

relied on something else, let me know. 04:11

A. It is an example. It's an RPA, 04:11

nevertheless. It's an automated process. 04:12

Q. Right. And the issue is what is 04:12

the problem that Radhakrishnan is 04:12

addressing that overlaps with the problem 04:12

that the WalkMe patents are addressing? 04:12

And I don't see that overlap, and that's 04:12

what I'm trying to get from you. 04:12

MS. NGUYEN: Objection. Form. 04:12

BY MR. MACEDO: 04:12

Q. Let me rephrase it. 04:12

Do you understand that 04:12

Radhakrishnan is addressing a different 04:12

problem than the WalkMe patents? 04:12

A. It is addressing the RPA side of 04:12

a problem. So it's concentrating on RPA 04:12

and specifically RPA that does error 04:12

correction and diagnosis. 04:12

Q. So what problem do you see in 04:12

the '732 patent -- that is identified in 04:13

the '732 patent that you think 04:13

Radhakrishnan is addressing with respect 04:13

to claim 1? 04:13

HOMAYOON BEIGI, PhD

So let me guide you to the '732 patent for second, and then you can come back and look at your report. If you turn to Column 4 -- 04:13 04:14 04:14 04:14

A. I'm sorry, which -- 04:14

Q. '732. 04:14

A. Yes. 04:14

Q. So read the first sentence on Column 4 under line -- starting at Line 59 under the detailed description. 04:14 04:14 04:14

A. One technical problem dealt with by the disclosed subject matter is to provide for a user friendly manner of defining functionality of chatbots. 04:14 04:14 04:14 04:14

Q. Okay. 04:14

A. In particular -- 04:14

Q. You can stop there. 04:14

A. Yes. 04:14

Q. Does Radhakrishnan do that? 04:14

A. Radhakrishnan doesn't handle chatbots. 04:14 04:14

Q. Okay. So the next sentence where they're talking more about chatbots, Radhakrishnan doesn't address? 04:14 04:15 04:15

HOMAYOON BEIGI, PhD

A. In particular defining automation processes to be invoked by the chatbots. They do address the automation processes part of it.

Q. But not being invoked by chatbots?

A. Not the chatbots.

Q. Right. So, again, it's not addressing the same problem?

A. It's addressing part of the problem.

Q. The problem is defining the automation processes to be invoked by the chatbots, not merely defining the automation processes, right?

A. Well, it's defining automation processes to be invoked by chatbot. So I read that as defining the automation process.

Q. But it's not the problem merely of defining the automation process. It's defining an automation process in the context of being invoked by a chatbot, right?

HOMAYOON BEIGI, PhD

A. It hasn't gotten to that point because it just says defining automation processes. It's -- it's -- 04:15 04:16 04:16

Q. No, it doesn't say that. 04:16

A. Basically it's saying that it's going to get to that point. But it's saying defining automation processes to be invoked by the chatbot. The main thing is the defining of the automation process. That's the way I read it. 04:16 04:16 04:16 04:16 04:16

Q. I would disagree because the rest of the sentence is going on for many lines is taking about chatbots? 04:16 04:16 04:16

A. I'm saying it's setting it. That's what I'm saying. I'm saying in this one specific point, he's defining the automation process. 04:16 04:16 04:16 04:16

Q. No, it's defining the automation process to be invoked by the chatbot, either dedicated chatbot such as implemented by a target system where the functionality is invoked or even by a third-party services such as Facebook Messenger where the communication platform 04:16 04:16 04:16 04:16 04:16

HOMAYOON BEIGI, PhD

for the chatbot services which later invokes the automation process itself on the target system. 04:16

A. So in that long sentence, what is the action? It's defining automation processes. 04:16

Q. No, it's defining automation processes in the context of a chatbot. 04:16

A. I understand. 04:16

Q. If you defined an automation process and there was no chatbot, there wouldn't be anyone sitting in this room right now. 04:16

A. You asked me whether Radhakrishnan handles any part -- covers any part of this and I said, yes, the defining of the -- 04:17

Q. No, I didn't ask that. That's what you want to answer. I asked does it address the same problem. And I don't think it addresses the same problem because Radhakrishnan is not about defining automation process to be invoked by chatbots. 04:17

HOMAYOON BEIGI, PhD

THE WITNESS: I'm sorry. Do you mind going back, Court Reporter? Do you mind going back to the original question that was asked about this? I remember something like does Radhakrishnan handle any or something like that. I'm paraphrasing. 04:17

BY MR. MACEDO: 04:17

Q. I said: So the next sentence where they are talking more about chatbots, Radhakrishnan doesn't address. 04:17

And then you said: In particular defining automation processes to be invoked by chatbots, they do address the automation process of -- 04:17

A. Part of it. 04:18

Q. -- part of it. 04:18

And I said: Not being invoked by chatbots, not by chatbots, right? 04:18

So again, it's not addressing the same problem. It's addressing part of the problem. 04:18

I said: The problem is defining automation processes to be invoked by 04:18

HOMAYOON BEIGI, PhD

the chatbot, not merely defining the automation process, right? 04:18

And then you started trying to parse the problem. 04:18

I never said part of the problem. I said the full problem. 04:18

A. You said does it address. And if I say, no, then he doesn't address any of that where he is addressing the chat -- the automation part. I'm just being -- I'm clarifying my answer. 04:18

Q. Okay. Let's just be clear -- 04:18

A. Yes. 04:18

Q. -- Radhakrishnan does not address chatbots? 04:18

A. I said that already. Yes, that's correct. 04:18

Q. And Radhakrishnan does not address conversations invoked by -- I'm sorry. Radhakrishnan does not address automation processes that would be invoked by a chatbot? 04:18

A. That's correct. 04:19

Q. Okay. If you go to Column 5, it 04:19

HOMAYOON BEIGI, PhD

talks about another technical problem may be to enable defining automation processes in a manner that enables them to be implemented even if its changes are performed by the underlying platform. 04:19

Do you see that? 04:19

A. I just found it, so. 04:19

Q. Column 5, Line 49. 04:19

A. Yes, I see that. 04:19

Q. And that's not the problem that claim 1 of the '732 patent is addressing, right? 04:19

You're looking at the '732? 04:20

A. The '664. I said they are very similar. Where is my -- 04:20

Q. And, Dr. Beigi, just to be clear, I'm not suggesting that one of the other patents don't address that problem. I'm saying that the '732 patent doesn't address the problem to enable defining automation processes in a manner that enables them to be implemented even if changes are performed on the underlying platform? 04:20

HOMAYOON BEIGI, PhD

A. I understand. What were you referring to then? You said go back and look at something, and I wasn't -- I saw the -- another technical. 04:21

Q. Okay. 04:21

A. I was reading, yeah. 04:21

Q. So what I'm saying is that in Column 5 that addresses a second technical problem -- 04:21

A. I see. 04:21

Q. -- and that technical problem relates to enabling defining automation processes in a manner that enables them to be implemented even if changes are performed to the underlying platform. 04:21

That's not the problem that is being addressed by the claim of '732 patent? 04:21

A. Which claim of the '732 patent? 04:21

Q. Claim 1. 04:21

A. Not claim 1. 04:23

Q. Right. So the problem that you understand claim 1 is addressing is more towards the first problem that we said 04:23

HOMAYOON BEIGI, PhD

Radhakrishnan is not involved with, right? 04:23

A. Yes, for that I use Krishnan, 04:23

yes. 04:23

Q. Okay. So with respect to claim 04:23

1 of the '734 [sic] patent, Radhakrishnan 04:23

is not addressing the problem of how to 04:23

define a conversation to invoke an RPA 04:23

process, right? 04:23

A. Right. 04:23

Q. Let's look at the Dayanandan -- 04:23

in your expert report, you summarize what 04:24

Dayanandan leaves out, right? 04:24

A. I believe I did. 04:25

Q. Look at it -- 04:25

A. I'm looking. 04:25

Q. -- and if you could just give me 04:25

a short -- a short explanation of what you 04:25

think. We are only using the '664 patent. 04:25

A. '664? 04:25

Q. Yeah. 04:25

A. Okay. Thank you. The summary 04:25

of that, you want me to read it and give 04:25

you a summary or just read this? 04:25

Q. I just want you to read it and 04:25

HOMAYOON BEIGI, PhD

just say in a sentence or two, what is the problem that Dayanandan is addressing? 04:25

A. It is addressing finding elements of a GUI, by using some -- for example, vectorial representation and by using a score based on that and then using a threshold to make a decision. 04:26

Q. And is it doing it of an active GUI, or is it doing it of a mockup of a GUI? 04:26

MS. NGUYEN: Objection. Form. 04:26

MR. MACEDO: Mockup is what the patent says, Counsel. Do you still have your objection? 04:26

MS. NGUYEN: Yes. 04:27

MR. MACEDO: What's your objection? 04:27

MS. NGUYEN: Unclear. 04:27

MR. ARJOMAND: And it's compound. 04:27

BY MR. MACEDO: 04:27

Q. Did you understand my question? 04:27

A. It was a little bit unclear for me. 04:27

HOMAYOON BEIGI, PhD

Q. Which part do you need clarified? 04:27

A. Please restate it, and I'll tell you which part. 04:27

Q. Well, you referred to Dayanandan as addressing a GUI. And I wanted to know is it addressing an active GUI or is it addressing a mockup of something which will potentially become a GUI? 04:27

MS. NGUYEN: Same objection. 04:27

A. My understanding is that -- 04:27

BY MR. MACEDO: 04:28

Q. Go ahead. 04:28

A. Should I answer? 04:28

Yes, my understanding is that it is trying to find the elements of the GUI. So the vector definitions may be based on some mockup, but actual active -- when you actually are trying to figure out which element is being used, it could be active. 04:28

Q. Right. But it's doing it in the context of trying to figure out how to map existing RPAs to a mockup that will be generated, right? In other words, the 04:28

HOMAYOON BEIGI, PhD

problem that they had is that they start off with a mockup of a new GUI and they need to figure out how do I tie this to my existing RPAs, right? 04:28

A. It's to find the element. So that there are two things, but one of them, which I'm referring to here, is to find the elements of the GUI and find out which one is the one that, let's say, the person is addressing. So it's -- it's trying to find the closest one using the vectorial representations of the elements. And, you know, I would like to read it actually just so I don't mischaracterize it. 04:29

Q. I apologize. He was supposed to have a copy, but he has to get one. 04:29

A. I'll read from my declaration. 04:29

Q. You can read from your notes, if you want. That's absolutely fine. 04:29

A. Yes, from my declaration -- so -- 04:29

Q. You don't need to read out your declaration. 04:29

HOMAYOON BEIGI, PhD

A. No, just this part which in reference to this. So what I'm saying is that Dayanandan discloses representing different aspects or parameters of the data object or UI elements using a multidimensional vector. Each available data object may be represented by a multidimensional vector, data object vector where the vector for a data object represents different aspects of the data object. 04:29 04:29 04:29 04:29 04:29 04:30 04:30 04:30 04:30

Q. So you're talking about the solution, not the problem. 04:30 04:30

A. The problem is to find the elements. 04:30 04:30

Q. No. The problem is you have a mockup and in the mockup, they need to map something to elements. And so what they are doing is they are using a similarity score to say that this element in the mockup corresponds to something that I already know about? 04:30 04:30 04:30 04:30 04:30 04:30 04:30

A. Into a real GUI -- in a real GUI. 04:30 04:30

HOMAYOON BEIGI, PhD

Q. Right. 04:30

A. But that real GUI is a live GUI. So you have a mockup, and you're trying to map the live GUI because you use both live and mockup so I'm just trying to verify. The live GUI items to map to the mockup -- this is just expectation that they have. And using this vectorial representation, using thresholding and using the score. 04:30 04:30 04:30 04:30 04:30 04:31

Q. And in the '664 patent, are they concerned about mockups of websites or GUIs? 04:31 04:31 04:31

A. Since you said '664, I just want to specifically -- we have three patents and I want to -- 04:31 04:31 04:31

Q. I understand. The only technical problems addressed are the ones you read before, but you're welcome to look. 04:31 04:31 04:31 04:31

A. I've got to find it. What is the exhibit number? I have it. I have it. I found it. 04:31 04:31 04:32

Q. So we are looking at Exhibit 8 which is the '664 patent, and you're going 04:32 04:32

HOMAYOON BEIGI, PhD

to tell me whether the '664 patent poses as a problem how to find elements in a mockup of a GUI. 04:32

A. Yeah, so Part 1 of claim 9 in '664 where it says: Automation process defines an operation to be performed with respect to an element in the displayed user interface wherein the automation process identifies the element based on -- identifies beyond based on the plurality of parameters of the element. 04:34

Q. And does that say mockup? 04:34

A. The word "mockup," no. 04:34

Q. Does it say the concept mockup? 04:34

A. Well, it implies it here in the second part of the claim, where it says: Wherein said identifying the element comprises computing a similarity score for each element in the displayed user interface, the live one, using the plurality of parameters of the element, the vector, and selecting a selected element having a highest similarly score -- selected element. 04:35

HOMAYOON BEIGI, PhD

Selected element being in a reference. It has to have a reference to compare to. 04:35

Q. It's not a mockup. Those are both live systems, right? 04:35

A. Name it what you will, but there is a reference. 04:35

Q. It's not what I'm naming it. It's what the patent and prior art names it. 04:35

In other words, the problem that Radhakrishnan is addressing is for -- is to how to map a mockup of a potential GUI to a future GUI? 04:35

A. I'm sorry. We're talking about the Radhakrishnan again? 04:36

Q. I'm sorry. Dayanandan. I'm sorry. Let me restart that. 04:36

A. Yes, please. 04:36

Q. The problem that Dayanandan is addressing is they receive a mockup and they have to figure out how do I make the elements of this mockup link to other things? 04:36

HOMAYOON BEIGI, PhD

A. Or vice versa. 04:36

Q. Or like other things to the mockup one way or the other? 04:36

A. Which is what I read here. 04:36

Q. No. Because what you read there, there is no mockup. There is no GUI that hasn't been posted yet? 04:36

A. There is a reference element. 04:36

Q. But the reference element is the existing element, not a mockup? 04:36

A. Which is defined by parameters. 04:36

Q. But the reference element is from an automation process against an actual target system? 04:36

A. Yes. 04:36

Q. It's not a mockup? 04:36

A. That's what I'm saying. It's a comparison of two possible GUI elements so you have a live one and then you have another one and you're trying to compare whether this element is the same element or it refers to the same thing. 04:36 04:37 04:37 04:37

Q. You're confusing the technical solutions with the technical problems. 04:37

HOMAYOON BEIGI, PhD

The technical problem that's being addressed is invoking a -- a RPA in the context of using a chat. That's the technical problem. That's not the same problem that Dayanandan is addressing, right? 04:37

A. I am referring to Dayanandan -- 04:37

Q. Answer my question. Is it the same or different problem that Dayanandan is addressing? 04:37

A. What is the same or not? Sorry. Can you read that back? 04:37

Q. The problem in Dayanandan is starting off with the mockup of a new GUI -- I'm sorry. Hold on. Sorry. 04:38

A. By the way, do I have Dayanandan? 04:38

Q. I think we do now. Do we have Dayanandan? 04:38

MR. HART: It was 12. 04:38

BY MR. MACEDO: 04:38

Q. Oh, we've marked it as 12. You have it. 04:38

A. Yes. 04:38

HOMAYOON BEIGI, PhD

Q. The problem in the '664 patent is we're trying to define a conversation in a user friendly way and tie it to invoke an automated process, and part of that is they have to select the process that's going to invoke and go forward and then invoke it in claim 1, right? 04:38 04:39 04:39 04:39 04:39 04:39 04:39

And then the dependent claim which you're relying on Dayanandan is talking about how they are using the parameters to implement the process. 04:39 04:39 04:39

A. How they are identifying -- 04:39

MS. NGUYEN: Objection. Form. 04:39

A. How they are identifying specific, in their words, wherein, so they say -- I'm just going to read it again. 04:39 04:39 04:39

Wherein the automation process defines an operation to be performed with respect to an element in the displayed user interface, wherein the automation process identifies -- that's the main point, right, main goal -- identifies the element based on plurality of parameters of the elements. 04:39 04:39 04:39 04:39 04:39 04:40

HOMAYOON BEIGI, PhD

So each element has plurality of parameters that defines the element, and it's identifying the element. 04:40

Q. And what would be a parameter of an element, right where you are, from the '664 patent? You're still looking for the parameter? 04:40

A. Yes. 04:41

MR. MACEDO: I'll tell you what, I'm going to withdraw that question. I'm going to go on to a new line. I don't really want to take a break, but if you're going to want to take a break in 15 minutes, I'd rather do it now. But I'd like to keep it short. 04:41

MS. NGUYEN: How long will the new line of questions be? 04:42

MR. MACEDO: Knowing me, I never know. I think lines are short, but they don't always end up that way with witnesses. 04:42

MS. NGUYEN: Yeah, let's take a break. 04:42

MR. MACEDO: Okay. Let's keep 04:42

HOMAYOON BEIGI, PhD

it under five, please. 04:42

MS. NGUYEN: Okay. 04:42

MR. MACEDO: Okay. Thank you. 04:42

THE VIDEOGRAPHER: We're going 04:42

off the record. The time is 4:43 p.m. 04:42

(Recess taken.) 04:42

(Whereupon, Beigi Exhibit 21, US 04:42

Patent Application No. 2017/0250930, 04:42

was marked for identification.) 05:07

THE VIDEOGRAPHER: We are back 05:07

on the record. The time IS 5:08 p.m. 05:07

BY MR. MACEDO: 05:07

Q. Welcome back. 05:07

A. Thank you. 05:07

Q. Are you capable of continuing? 05:07

A. Yes. 05:07

Q. Great. We marked as Exhibit 21 05:07

US Patent Publication 2017/0250930 A1 to 05:07

Ben -- and I'm going to mispronounce it, 05:07

but it's Itzhak is how I got it. And it 05:08

was marked as Whatfix Exhibit 1034, and I 05:08

believe you used it in the '732 IPR. 05:08

And first just tell me if you 05:08

recognize Ben-Itzhak. 05:08

HOMAYOON BEIGI, PhD

A. Yes. 05:09

Q. Yes, you do recognize 05:09

Ben-Itzhak? 05:09

A. Yes. 05:09

Q. And this is the reference you 05:09

relied on in the '732 IPR, correct? It's 05:09

Exhibit 1034. 05:09

A. Yes. 05:09

Q. Now, if you could just read the 05:09

title into the record. 05:09

A. "Interactive Content 05:09

Recommendation Personalization Assistant." 05:09

Q. Okay. And your understanding is 05:09

that Ben-Itzhak is about a personalized 05:09

content recommendation provision and 05:10

method? 05:10

A. Yes. 05:10

Q. And the technical field was 05:10

content recommendation that -- where it's 05:10

set forth in Paragraph 2 of Ben-Itzhak, 05:10

right? Again, looking at Exhibit 21. 05:10

A. A bit more because it says at 05:10

the present disclosure relates to content 05:10

recommendation networks, as you said, and 05:10

HOMAYOON BEIGI, PhD

more particularly went into interactive content recommendation personalization communication assistant engaging in interactions, example conversations with users to identify appropriate content recommendation to provision, to users, and electronic environment. 05:10 05:10 05:10 05:11 05:11 05:11 05:11

Q. The problem is figuring out what is the content that the user should watch? 05:11 05:11

A. Yes. 05:11

Q. And that's not a problem that's presented in the '732 patent with respect to the disclosure there, right? 05:11 05:11 05:11

A. So '732 does not give as an example, if I recall correctly, an example of content recommendation. 05:11 05:11 05:11

Is that what you're asking? 05:11

Q. Yes. 05:11

A. Yes. 05:11

Q. Okay. And so Ben-Itzhak is directed to a different problem and a different field of endeavor than the '732 patent? 05:11 05:11 05:11 05:12

A. I wouldn't say that because of 05:12

HOMAYOON BEIGI, PhD

the specific part that I just read, more particularly, to an interactive content recommendation personalization communication assistant engaging in interactions, conversations with users to identify appropriate content recommendations to provision, to users, and electronic environment. 05:12

So while the example that -- of their interest is content recommendation, the relevant part is not that. The relevant part is automating that using an interactive conversational system. 05:12

Q. Well, it's an interactive conversation element to identify personalized recommendations? 05:12

A. That's the problem they are set out to solve. 05:12

Q. Which is different than the '732 patent. I think you already agreed to that. Feel free to look at anything you want. 05:12

A. I said it wasn't an example that was used. If that's still the question, 05:13

HOMAYOON BEIGI, PhD

then I did agree with that. 05:13

But I felt a different question 05:13

this time. Can you repeat that? Is it 05:13

the same? I thought it was different 05:14

slightly. 05:14

Q. You said that the problem that 05:14

was set to be solved in Ben-Itzhak was 05:14

interactive conversation almost to 05:14

identify personal recommendations. And I 05:14

said that that was different than the '732 05:14

patent, and I just want to confirm that 05:14

you agreed that they are directed at 05:14

different problems. 05:14

A. The '732 doesn't specifically 05:14

say what information process. So this 05:14

could be an automation process that I 05:14

would say they would do because it's 05:14

just -- the technical field that they 05:15

specify in '732 is the present disclosure 05:15

relates to user interfaces and 05:15

computerized systems in general and to 05:15

user interfaces for automatic processes, 05:15

this being one, that utilized chatbots in 05:15

particular. 05:15

HOMAYOON BEIGI, PhD

Q. Is Ben-Itzhak an automated process? I read Ben-Itzhak as improving a conversation that resulted not in an automated process but in providing a better recommendation. 05:15

A. That providing a better recommendation is a process that it's trying to achieve. 05:15

Q. But it's not -- 05:15

A. -- achieve -- sorry. It's a -- it's a chatbot system that's trying to achieve that. 05:15

Q. But not an RPA? It's not an automated process in the sense of an RPA or in the sense of any of the WalkMe patents, right? The context of the WalkMe patents -- 05:15

MR. MACEDO: I'll withdraw the last question. 05:16

BY MR. MACEDO: 05:16

Q. The context of the WalkMe patents is to automate processes to replace humans in doing things, for example, right? 05:16

HOMAYOON BEIGI, PhD

A. Yes. 05:16

Q. And that's not what Ben-Itzhak's process is. They are trying to make a better recommendation engine, not replace someone who answers questions about what movies I should watch, right? 05:16

A. Well, just give me one second. 05:16

Q. And if you could just identify for the record what you're looking at. 05:18

A. I'm looking at my argument regarding claim 61621 of '732. 05:18

Q. And are you doing it with respect to Symons, William, and Ben-Itzhak or with respect to Allen over Ben-Itzhak? 05:18

A. At this point, I'm looking at the Allen one. 05:18

Q. The Allen one? 05:19

A. Yes. 05:19

Q. Okay. Okay. Have you found any discussions so far in your review relating to what problems are being addressed by Ben-Itzhak? 05:19

A. That wasn't what I was looking for. I was looking for -- trying to 05:19

HOMAYOON BEIGI, PhD

answer your question where you're saying that a human -- replacement of a human because recommendation system can presumably be, of course, a human can make recommendations. So I was trying to make sure that I answered that properly. 05:19

Q. Okay. I wasn't trying to focus on the human part of it, just to be clear. 05:19

A. That's what I catch -- sorry -- caught. Can we go again though? 05:20

Q. Sure. What I'm trying to understand is that the point of Ben-Itzhak was to make a better recommendation system, not to automate some other existing process with a -- with a RPA bot. 05:20

A. So to come up with that better recommendation system, there is a conversation going on and he's automating that process. But not -- not a RPA in that sense, yeah. 05:20

Q. Right. So there's no RPAs involved? 05:20

A. Well, there is the fact that it can provide, for example, links to things 05:20

HOMAYOON BEIGI, PhD

that can then provide, you know, whatever you're -- the actual act that you're looking for, which is the -- you know, the contents that you're looking for, so depending on if you look at that as the thing being automated or not. And that's why I just wanted to be sort of specific about that. 05:20 05:20 05:20 05:20 05:21 05:21 05:21 05:21

Q. Okay. So the -- the reason why you're relying on Ben-Itzhak is to say that you could modify Allen to leave the GUI in Figure 1, which you think is the most important GUI that we've been discussing, and connect it to -- to a third-party messaging service which is somebody else's chat, right? 05:21 05:21 05:21 05:21 05:21 05:21 05:21 05:21 05:21

A. For -- for a third-party message, yes. 05:21 05:21

Q. Right. And why would a POSITA in 2017 want to move to Facebook Messenger when they are trying to implement the Allen invention? 05:21 05:21 05:21 05:21

And you're still looking in the same portion of your expert report? 05:23 05:23

HOMAYOON BEIGI, PhD

A. Yes, I was going to continue. I have to review some of this, if you don't mind. 05:23

Q. You don't know why the combination makes sense? 05:23

A. I have to refer to my declaration. 05:23

Q. Okay. You're not going to say anything different than what you put in your declaration then? 05:23

A. Depends. 05:23

Q. Whatever motivation you put in your declaration is the motivation you're going to offer? 05:23

A. It depends. I would like to see what I said in the declaration and then opine on it, if -- if you would me like to. 05:23

Q. If that's how we're going -- I need to get your answer so if that's the way you have to do it, that's fine. 05:23

A. So can you ask the question again now, now that I have reviewed this. 05:25

Q. Do you know why the combination 05:25

HOMAYOON BEIGI, PhD

makes sense in Allen, when Allen has a very special chatbot in it that is being used particularly to train and implement the system that is disclosed? Why would it make sense to move it over to Facebook Messenger? 05:25

A. Well, because it would basically expand the possibilities of the different things that it can do because it can use a third-party messaging system in order to do that, which -- which would basically -- it means it will expand its realm. 05:25 05:26

Q. So would Facebook Messenger have the ontological framework that Allen relies upon in its chatbot? 05:26

A. I haven't spoken about Facebook Messenger. But are you specifically talking about Facebook Messenger? 05:26

Q. Well, it's one of the most popular messengers. Is there a different messenger service that you would say it would be obvious to change Allen to? 05:26

A. So what is -- what is being referred to in -- in Ben-Itzhak is 05:26

HOMAYOON BEIGI, PhD

actually the ones that I'm -- I wasn't familiar with the Kik, but I was familiar with Telegram, Wipr, WhatsApp, and Apple Messenger. So these are some of the ones that -- that he talks about. 05:26

Q. And do any of those apps use the same ontological framework that Allen does? 05:26 05:27

A. So these other systems the -- if they implement a chatbot basically, then what it's saying, it might be able to extend that and be able to use that, utilize that. So if there is a conversational system that they could use, then -- then basically... 05:27

Q. So if you use WhatsApp as your chatbot instead of 20 in Figure 1, would you still have the display of 12 in Allen as modified by you? 05:27

A. Exhibit 12, oh, you mean -- I'm sorry. What do you mean "by display of 12?" 05:28

Q. In -- in Allen, you have the chat conversation that you refer to in Box 05:28

HOMAYOON BEIGI, PhD

20.

A. Yes.

Q. And you also have the widgetco screen which you have in Box 12?

A. Right, the boxes.

Q. And so in Allen, if you were to use WhatsApp as the messenger service instead of Box 20, would WhatsApp display the equivalent of what's in Box 12 of Allen?

A. So the conversation agent would then go -- my presumption would be it would go where the bottom part is -- and I don't remember the number now because I don't have it in front of me, Allen. But there is a bottom part that says conversation. There is a user --

Q. You have it?

A. No, I don't have it in front of me.

Q. Oh, it's in your expert report if you want to look at the picture.

A. Yes.

Q. I'm looking on Page 82 of the

HOMAYOON BEIGI, PhD

'664.

A. Okay. Thank you.

Q. I think it's --

A. Yeah, so I'm talking about the bottom part which is the 20.

Q. Box 20?

A. 20, yes.

Q. So Box 20 is Allen's proprietary chat engine, right?

A. Yes.

Q. And Box 12 is the GUI where they are mirroring whatever widgetco or Amazon or whatever, right?

A. Yes.

Q. And that's different than WhatsApp or any of the other messaging services because they don't have the equivalent of 12?

A. The -- the actual, yeah.

Q. Right.

A. Yeah, I'm still looking at the wrong figure, but 12 being the -- the browser part.

Q. Right.

HOMAYOON BEIGI, PhD

A. Yes. 05:30

Q. And so if you modified Allen to replace its messaging service with WhatsApp or any of the other ones you -- you had, then you would lose Box 12 because it wouldn't be in Messenger or the others which is why you need the link that's being tied in Ben-Itzhak, right? 05:30

A. Yeah, so, based on the -- based on Box 20, which is a conversation, of course, the conversation could be third-party conversation going on. 05:30

Q. But not in Allen because Allen is teaching you that you use their chatbot? 05:30

A. But this is a modification. Using that it's like modifying Allen, right, so -- 05:30

Q. Right. You're proposing to remove -- to move the conversation that implements the -- the RPA into the Messenger app and when you do that -- WhatsApp or whichever one want you want to choose? 05:31

HOMAYOON BEIGI, PhD

A. Yes. 05:31

Q. When you do that, those apps do not include the equivalent of GUI 12 in the browser? 05:31

A. But that's where you would actually have a link that would take you to the right place. But the browser can actually go to a link. The browser allows you to end up in a link. 05:31

Q. But you don't have the browser anymore so you can't meet the independent claim because there's no browser under your modification? 05:31

A. The chat that's going on using the third party, it's a conversation, right. Chatbot, it's processing. Text goes out. Text comes back in. Let's say we're just doing text. Text goes out. Text comes back in responses. And it could provide links to -- you know, so basically could provide a link to a URL or URI, which then, we can actually, even under Allen, execute because we do have a browser under Allen in a combination, in a 05:31 05:31 05:31 05:31 05:31 05:31 05:31 05:32 05:32 05:32

HOMAYOON BEIGI, PhD

combined version. 05:32

Q. No longer -- no, in the combined version you're replacing the Figure 1 interface with an interface using WhatsApp or one of the other messenger services. So those -- those messenger services don't have 12. 05:32

A. But you're just really placing the conversation part. 05:32

Q. Right. And when you're doing the conversation -- 05:32

A. Conversation is on the bottom. 05:32

Q. -- you don't have 12. There's no displayed user interface -- 05:32

A. But you can monitor that. 05:32

Q. I'm sorry? 05:32

A. But you can monitor that conversation. 05:32

Q. On WhatsApp? 05:32

A. You can monitor the conversation, the conversation that's going through WhatsApp under Allen. You can if you wanted to. 05:32

Q. It doesn't teach that. You're 05:33

HOMAYOON BEIGI, PhD

just assuming you could do that? 05:33

A. I'm saying you could combine. 05:33

You could basically -- if you took the 05:33

conversation that is coming back in the 05:33

text response that's coming back, 05:33

you're -- the whole point is that with 05:33

Allen you have to monitor it, of course, 05:33

right, because there is a messaging going 05:33

back and forth. 05:33

Q. Well, you have to monitor for 05:33

training. You don't have to monitor it 05:33

for implementation? 05:33

A. Well, even for implementation, 05:33

there is a request that's being made, if 05:33

it's a conversational request. You have 05:33

to figure out what the person is asking if 05:33

it is a request going through messaging 05:33

services system, like a conversational 05:33

system. 05:33

Q. That's different than 05:33

monitoring. 05:33

A. Oh, no, monitoring the 05:33

conversation between the chat system. 05:33

Q. Okay. So the issue is you're 05:33

HOMAYOON BEIGI, PhD

replacing the conversation using Allen's very specific chat functions with Telegram and WhatsApp. And when you do that, are you replacing all of Figure 1 with WhatsApp, or are you going to keep Figure 1 with WhatsApp? 05:33 05:33 05:34 05:34 05:34 05:34

A. No, I would say it's the -- just the natural language interface part of the Figure 1. 05:34 05:34 05:34

Q. And did you say that in your expert report? 05:34 05:34

A. Yes, I say the -- hence, Ben-Itzhak's conversation agent is a natural language interface implemented by a third-party messaging service. Sorry, let me go back. 05:34 05:34 05:34 05:34 05:34

Q. So while you're looking, what I'm asking you is: Did you say how you're going to change Allen in view of Ben-Itzhak? Like, Allen says this but I'm going to change it to do that. That's what I'm looking for. 05:34 05:34 05:34 05:34 05:34 05:35

A. So here the conversation agent is replaced -- is implemented by a third 05:35 05:35

HOMAYOON BEIGI, PhD

party. So I say that in the conversation agent, natural language interface part -- natural language interface is implemented by a third-party messaging service such as Kik, Telegram, Wipr, WhatsApp, Apple Messages. The user may be associated with one or more third-party applications, platforms, devices, systems, or network IDs and associated with a user ID from a third-party system. 05:35 05:35 05:35 05:35 05:36 05:36 05:36 05:36 05:36

So because they are associated with this on that -- on their system and if you're monitoring this, you would be able to pick up on what -- in Allen, then you would be able to pick up what sort of automation, what -- where you would sent them. 05:36 05:36 05:36 05:36 05:36 05:36 05:36

Q. So here's my question. 05:36

A. Yeah. 05:36

Q. Is the user logging in to WhatsApp or whichever app you choose to have the conversation in that native app, in the context of your modification of Allen, or is it using Figure 1 to interact 05:36 05:36 05:36 05:36

HOMAYOON BEIGI, PhD

in -- as Allen taught? 05:37

A. I would say Figure 1 to 05:37
communicate with a system with which it 05:37
has a user ID. Then it can go through 05:37
that and go to the messaging system and 05:37
come back and then it can monitor what's 05:37
going on and then do whatever it needs to 05:37
do on top of that. 05:37

Q. And is it doing that through the 05:37
browser in 12, or is it substituting for 05:37
the specific natural language generator in 05:37
20? 05:37

A. So I would say the natural 05:37
language interface part is the 20, which 05:37
is basically conversing and it's being 05:37
replaced by some third-party system which 05:37
has some idea about who this person is 05:37
because they have a user ID. 05:37

And based on the conversation 05:37
that is being monitored, Allen can, you 05:37
know, take whatever information that they 05:38
sent back in a URL or whatever, and then 05:38
it does have a browser at its disposal. 05:38
It can actually implement it using that 05:38

HOMAYOON BEIGI, PhD

browser because if it goes through its system, then it can monitor the conversation. 05:38

Q. And the paragraph you're reading from is what paragraph number? 05:38

A. 212. 05:38

Q. And other than what you wrote in 212, there's no place else where you describe what you just said as the modification that you're proposing for Allen? 05:38

A. Other than 212? So 213 is also describing in the context of Ben-Itzhak. It says: Ben-Itzhak discloses that personalized contact recommendation system receives one or more messages, text, video, video gesture, et cetera, from the user in an active conversation -- so this could be actually Allen receiving it -- or user session, and generate one or more personalized content recommendations. 05:38 05:39

Q. So you're saying that you would modify Allen to have a conversation to generate personal recommendations, as 05:39

HOMAYOON BEIGI, PhD

taught in Ben-Itzhak, because that's the sentence you just read me? 05:39

A. Yes. 05:39

Q. That's your proposed modification of Allen? 05:39

A. That is one way you can modify it, yes. 05:39

MR. MACEDO: Okay. I thank you for your time. And I have no more questions at this time. 05:39

But I reserve the right to redirect, if there's any questions asked by your counsel or if you do any modifications to your report -- 05:40

THE WITNESS: Okay. 05:40

MR. MACEDO: -- or your testimony. 05:40

THE WITNESS: Okay. Thank you. 05:40

MR. MACEDO: I appreciate your time. Thank you. I know it's been a long day. 05:40

Counsel? 05:40

MS. NGUYEN: Can we take a break? 05:40

HOMAYOON BEIGI, PhD

MR. MACEDO: Sure. 05:40

THE VIDEOGRAPHER: We are going 05:40
off the record. The time is 5:54 p.m. 05:40
[sic]. 10:40

(Recess taken at 5:40 p.m.) 10:40

THE VIDEOGRAPHER: We are going 06:03
back on the record. The time is 06:03
6:04 p.m. 06:03

MS. NGUYEN: As I was saying, 06:03
it's really close to the end of the 06:03
day, and we believe we have redirect 06:03
so we think this is a good natural 06:03
stopping point. 06:03

MR. MACEDO: We don't agree. If 06:03
you want to keep going, if you have 06:03
redirect, get going. We'll finish it 06:03
tomorrow if we don't finish it 06:03
tonight. We have at least a half an 06:03
hour that we set aside, so go for it. 06:03

MS. NGUYEN: No, we -- 06:03

MR. MACEDO: If you don't do 06:04
your redirect now, we're going to 06:04
treat the deposition as closed and we 06:04
can call the PTAB if you want. 06:04

HOMAYOON BEIGI, PhD

MS. NGUYEN: Happy to call PTAB. But this does not mean the deposition is closed. 06:04

MR. MACEDO: Do you have any questions to ask now? 06:04

MS. NGUYEN: That's not what we're talking about. 06:04

MR. MACEDO: Yes, it is. Do you have any questions to ask now? 06:04

MS. NGUYEN: I don't see why I have to answer that question. 06:04

MR. MACEDO: If you can't answer the question, I'm assuming you have no questions to ask now and the deposition's over. 06:04

MS. NGUYEN: That's your assumption. It's probably a wrong assumption; but if you'd like, we can call the board. 06:04

MR. MACEDO: Okay. Contact the board. Let's get it going because we're not going to continue this deposition beyond today if you don't start your redirect now. 06:04

HOMAYOON BEIGI, PhD

MS. NGUYEN: Let's call the board. We've got six hours of redirect. 06:04

MR. MACEDO: Not if you don't start now. 06:04

MS. NGUYEN: That was not part of the deposition. 06:04

MR. MACEDO: Yeah, you don't get to take the night off -- 06:05

MS. NGUYEN: We're not taking the night off. 06:05

MR. MACEDO: Excuse me. You spent the last 20 minutes -- you could have done your redirect over the last 20 minutes. You could have done -- I give you a warning more than an hour and a half ago that we're going to have this available to do today. 06:05

If you have redirect, you can get started now and we'll finish it tomorrow. 06:05

If you can't get started now, then I don't think we need to go on with this deposition and the 06:05

HOMAYOON BEIGI, PhD
deposition is terminated. 06:05
MS. NGUYEN: Let's call the 06:05
board if that's how you feel. If you 06:05
feel that you have the -- if you feel 06:05
that you have the opportunity to cut 06:05
us off from the redirect which we're 06:05
entitled to -- 06:05
MR. MACEDO: I'm not cutting you 06:05
off. 06:05
MS. NGUYEN: You are. 06:05
MR. MACEDO: I'm enabling you to 06:05
do it right now. 06:05
MS. NGUYEN: No, you literally 06:05
said we can finish this deposition 06:05
now. So let's call the board. 06:05
MR. MACEDO: If you -- yeah. I 06:05
literally I said that if you can't 06:05
take your redirect now then -- 06:05
MS. NGUYEN: No. That's just 06:05
like how form objections were not 06:05
stipulated by the parties. There's 06:05
nothing in the deposition notice that 06:05
says, oh, if, you know, petitioner 06:05
wants to cut off the deposition at 06:05

HOMAYOON BEIGI, PhD

appropriate stopping point, that Charles Macedo -- Macedo gets a chance to stop the deposition. Let's call the board. 06:06

MR. MACEDO: No. The deposition is -- 06:06

MS. NGUYEN: I want to call the board. 06:06

MR. MACEDO: No, we will call the board. He's getting the number right now. 06:06

MS. NGUYEN: Okay. Let's do it. 06:06

MR. MACEDO: My point to you is that the deposition is meant to continue. You are stopping the deposition. 06:06

MS. NGUYEN: I'm not stopping it. It's 6:00. We talked about earlier -- 06:06

MR. MACEDO: It wasn't 6:00 when we took a break. We talked about 6:30. There's a half an hour -- 06:06

MS. NGUYEN: We did not. You said 6:00 to 6:30. 06:06

HOMAYOON BEIGI, PhD

MR. MACEDO: Yeah, and we broke at 5:40 so we had 20 minutes at that point for you to ask questions. 06:06

You've wasted a lot of people's time, and we're going to ask for costs. You're making people stay an extra day because you are not asking your questions now, so we're going to ask for costs. 06:06

Okay. We can go off the record. 06:07

THE VIDEOGRAPHER: You said go off the record? 06:07

MR. MACEDO: Yep. 06:07

THE VIDEOGRAPHER: Before I go off the record, I just want to confirm that Amster has a standing order for an MPEG sync. 06:07

MR. MACEDO: I don't understand what you said. 06:07

THE VIDEOGRAPHER: I just wanted to confirm that you guys have a standing order for video? 06:07

MR. MACEDO: We have ordered the video, yes. 06:07

HOMAYOON BEIGI, PhD

THE VIDEOGRAPHER: Okay. And for the other firm, I just want to -- would like to know if you guys are ordering. 06:07

MS. NGUYEN: Yes. 06:07

THE VIDEOGRAPHER: Yes. 06:07

MS. NGUYEN: Yes. 06:07

THE VIDEOGRAPHER: Okay. And will you need it synced with the -- synced with the transcript? 06:07

MS. NGUYEN: Yes. 06:07

THE VIDEOGRAPHER: Okay. We are going off the record. The time is 6:08 p.m. 06:07

(Recess taken.) 06:07

THE VIDEOGRAPHER: We are going back on the record. The time is 6:16 p.m. 06:15

MR. MACEDO: So we're back on the record. 06:15

Unfortunately, Dr. Beigi, we think that your counsel should have done your redirect tonight. They didn't. 06:15

HOMAYOON BEIGI, PhD

It is too late for us to get ahold of the board because it is after hours because they waited until after 6:00 to tell us that they weren't going to do the redirect today. 06:15

So as far as we're concerned, they've had the opportunity to provide whatever examination they wanted of you and elected not to go forward with it. 06:15

They want to, I presume, go forward tomorrow. And if we do, it's going to be subject to our objection and we will be moving to quash. 06:16

If they want to go forward and they want the PTAB to authorize them to go forward, they can write to the court and get permission. 06:16

Otherwise, we consider your deposition terminated and complete. And we appreciate your time. 06:16

And we gave your counsel the opportunity which they elected not to take to provide your redirect. I wish 06:16

HOMAYOON BEIGI, PhD

you the best of luck. 06:16

MS. NGUYEN: Okay. And we just 06:16

want to state for the record that we 06:16

did not elect to provide redirect and 06:16

we will -- we also do not believe we 06:16

have to seek authorization from the 06:16

PTAB to be granted the six hours of 06:16

redirect that we are entitled to. And 06:16

we can resolve this off the record 06:16

with the board. 06:16

THE VIDEOGRAPHER: This 06:17

concludes today's deposition of 06:17

Homayoon Beigi. We are going off the 06:17

record at 6:18 p.m. 06:17

THE COURT REPORTER: Counsel, 06:17

what are your orders for the record? 06:17

MS. NGUYEN: Realtime rough, 06:30

regular final. 06:30

MR. MACEDO: Daily final and 06:30

same day rough. 06:31

(Time noted: 6:17 p.m. EDT.)

ACKNOWLEDGEMENT OF DEPONENT

I, HOMAYOON BEIGI, PhD, do hereby acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct and complete transcription of the testimony given by me, and any corrections appear on the attached Errata sheet signed by me.

_____ _____

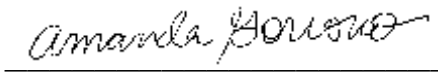
(DATE) (SIGNATURE)

CERTIFICATE OF SHORTHAND REPORTER

NOTARY PUBLIC

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

IN WITNESS WHEREOF, I have hereunto set my hand this 25th day of June, 2024.



AMANDA GORRONO, CLR
CLR NO: 052005 - 01
Notary Public in and for
The State of New York
County of Suffolk
My Commission No. 01G06041701
Expires: 01/07/2027

Reference No.: 11386269

Case: WHATFIX vs WALKME LTD.

DECLARATION UNDER PENALTY OF PERJURY

I declare under penalty of perjury that I have read the entire transcript of my Deposition taken in the captioned matter or the same has been read to me, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the DEPOSITION ERRATA SHEET hereof, with the understanding that I offer these changes as if still under oath.

_____

Homayoon Beigi, PHD

NOTARIZATION OF CHANGES

(If Required)

Subscribed and sworn to on the _____ day of

_____, 20____ before me,

(Notary Sign)_____

(Print Name) Notary Public,

in and for the State of _____

Reference No.: 11386269
Case: WHATFIX vs WALKME LTD.

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

SIGNATURE:_____DATE:_____
Homayoon Beigi, PHD

Reference No.: 11386269
Case: WHATFIX vs WALKME LTD.

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

Page No._____Line No._____Change to:_____

_____

Reason for change:_____

SIGNATURE:_____DATE:_____
Homayoon Beigi, PHD

$

$100
37:4,5

$20
119:4

$21,000
34:3

$500
32:3,22
33:11
36:10

(

(0)
212:24

-

--you
122:9

1

1
7:4 8:12
10:20,22
11:4,15,
24 12:6
13:5 20:5
114:22
175:12,14
176:25
178:19
179:20
180:3,9
181:3
182:19
183:10
186:10,13
187:7
239:4
246:10
253:20
261:14,21
262:2,13,
15,25
263:2,7,
13,14,22
264:8,15,
18,22
265:14,16
272:25
279:12
280:21,
22,24
281:6
287:5
291:8
301:13
304:18
309:4
311:5,7,
10 312:25
313:3

1-8
46:25
47:18
50:3

10
8:7 14:4,
11,20
15:7,12
21:23
23:20
172:22,25
216:20

10,503,627
6:8 266:3
267:9

10,819,664
8:2 12:24
158:9,13
159:20
160:18

10,838,699
51:12,16

100
39:16
223:21

1003
19:14
21:2,14
163:19
164:22

1006
126:21
127:3,25
212:20

1008
107:24
108:19
109:9
125:2

1014
48:12

1015
51:5,20

1018
267:9

102
180:24,25

1034
43:7,15
44:5
293:22
294:8

10590
9:24

10:41
57:5

10:54
57:8

10th
43:20

11
48:4,5,
10,15
163:12,19
255:10

11,258,732
8:5
13:15,20
22:25
158:17
161:15

11,558,317
6:2 8:8
14:4,10,
19 23:16
158:21
162:6

12
51:10,11,
15 92:7,8
93:12
94:5
163:11
164:21
257:6,10
259:8
262:7
290:21,23
304:19,
21,23
305:5,10
306:12,
19,23
307:6
308:4
309:8,14
313:11

12-16
46:25
47:18
50:3

124
49:16

125
36:20

129
49:13,14,
15,23
50:16

12:39
157:3,6

13
34:4,7
108:5,6,
18 109:6,
11 110:6
114:22
115:7,17
116:24
117:9
123:3
125:3

1368
12:3
108:11
163:2

14
126:20,25
127:6
128:3
208:22
209:11
212:21
215:9
217:7
262:7

15
158:7
159:12,17
160:3
162:22
163:6,18
173:20
174:13
214:15,25
215:9
260:6,19,
20

261:15,19
264:11
292:15

150
50:5

16
11:6
38:3,4
95:18
158:11
159:12
160:15,21
161:5
164:21
173:20
268:7

169
6:16

17
59:12
158:15
159:12
161:13
174:17
176:2
268:7

175
36:20

177
181:13,
22,23,24
182:12
183:17

18
34:3
49:10
158:19
159:13
162:4,12
217:20
264:5

18-23
46:25
47:18
50:3

19
6:3 49:11
111:3,10
152:22
191:18,
20,24
192:18
195:2
197:7
198:5
205:19
206:3
209:4
217:20

191
6:3

1950
204:16,22
205:3,6,
12

1981
95:15

1987
95:3

1990s
203:11,13

1995
95:9

1:44
158:3

1:49
158:25

1A
261:16
262:17

1C
265:3,15

1D
264:24

2

2
7:7 10:20
11:6,17
13:19
23:9 30:5
52:4
109:14
164:23
181:17
253:20
255:22,23
258:17,20
263:20
294:21

20
6:8 34:17
94:11
124:19,25
172:23,25
258:16
266:2
267:8,15,
19 304:18
305:2,9
306:6,7,
8,9
307:11
313:13,15
318:14,16
321:3

2000
37:25

2002
93:8

2003
40:9
68:25
92:8
93:9,11
94:4
198:23,24

2006
198:20

2015
38:3,4

2015ish
93:13

2017
66:4 93:8
96:24
98:20
106:14
110:2,7,
20 111:3,
6,7,10
114:6
126:9
132:9
133:2
144:17
152:22
164:17
188:16,23
189:14
191:12
192:9
203:7,24
205:22
210:24
211:8
222:19
301:21

2017/
0250930
6:10
293:9,19

2019
6:4
191:21
192:2,8,
25 195:23
199:12
203:6

202
49:9

2021
110:8,17

2023
40:16,19
41:5,8,10

2023-01368
9:6 11:5
12:5 13:4
18:22
19:15
159:19

2023-01379
9:5 11:8
13:19
23:3
161:15

2023-01443
20:22
21:2,13
160:17

2023-1368
108:3,7
109:7

2024
11:6

2024-00065
14:18
23:16
162:6

2024-0065
9:6 11:10
14:8

20th
40:16
43:22,23
44:6

21
6:10
32:10
94:12
293:8,18
294:22

212
314:7,9, 13

213
314:13

21st
41:5,8, 13,14,17, 21,23 42:5 44:9

22
164:6,12 175:14

229
50:5

23
94:11 165:3 166:16 167:25 168:10,20 169:24 172:3 174:14

230
49:15 52:4,8

23rd
41:12

24
21:23 52:13 165:3 166:16 167:25 168:10,20 169:24 172:3 174:14

242
52:9

25
6:15 21:21 42:22 46:25 47:18 50:3

250
36:19,23 38:7

26
46:25 47:19 50:3

266
6:7

28-31
46:25 47:19 50:3

29
6:4 191:21,25

293
6:9

2A
165:5 174:16,17 176:2,7, 16,17 177:2,23 178:16 180:5,20, 21 182:2, 7 183:13, 24 185:19

2B
184:5

2C
184:6

3

3
7:10 10:20 11:9,19, 24 14:8, 17 109:15 127:24 128:4 178:2,16 179:14 180:4 182:4,15 183:2,24 184:2 185:19 186:10, 12,22 261:10 262:2,18 263:25

30
34:18 40:19 41:10 125:19

30th
41:25 42:2

317
14:23 23:18,19 58:5 59:13 96:23 162:13 174:5

320
178:3 179:15

33
47:2,19 50:4

330
179:16

340
179:18

350
36:20,23 38:10

371
15:15

3:00
248:18

3:44
265:20

4

4
7:13 18:2,7,21 19:13 20:5,24 21:7 35:8,13 36:10 40:21,22 41:8 42:3,12 43:4 46:16 47:7,9,25 48:20 50:5 52:11 54:21 140:25 162:25 163:10 164:24 166:16 168:3 172:5 273:5,10

40
35:5 255:9

400
32:3,22 33:11 38:8

412-3456
212:24

42
52:5

43
104:13

44
95:22

49
9:23 279:9

4:05
266:6

4:43
293:6

4A
184:7

4B
184:7

5

5
7:16 20:19 21:6,8, 10,11,21 41:4,6 42:6,10, 16,21 43:21 94:13 95:19 134:9

163:23
164:17
278:25
279:9
280:9

50
39:2

500
35:8,13
38:11

55
52:11,16,
20 54:6,
21 55:8

56
53:4

57
53:9

58
53:12

59
53:16
273:10

5:08
293:12

5:40
316:6
321:3

5:54
316:4

5A
184:8

5B
184:9

5C
184:9

5D
184:10

5th
224:21

6

6
7:19
22:22
43:15
44:2
54:22
105:16
110:24
123:15
173:17
174:2,10,
12
181:12,18
186:15
257:20
258:3,6,
12 259:13
260:13,19
268:6

60
53:20
125:20

61
53:23

61621
299:12

62
54:2,6,21
55:8

63
174:22
257:10

644
183:8
185:13,17

664
12:14,19
13:7,10
15:15
16:12,18
17:18
18:23
19:2,15
20:6,20
21:3
22:5,8
40:11,17,
24 41:10
42:4,6
43:5
46:15
52:24
108:11,13
109:8
141:15
160:5
162:22,24
163:10,25
165:3,25
166:8
167:14
168:3,13
172:2
173:4
174:22,23
178:6,19
180:9,12,
22,24
183:9
185:17
187:4,6,
10 207:6,
12 260:19
279:15
281:19,20
286:11,
14,25
287:2,6
291:2
292:7
306:2

665
163:24

6:00
320:19,
21,25
323:5

6:04
316:9

6:08
322:15

6:16
322:19

6:17
324:22

6:18
324:15

6:30
320:23,25

7

7
7:22 18:2
23:13,17
57:23
58:4
123:21
212:22

7,983,997
48:6,11

732
13:24
15:15
23:6,9
40:17
43:13
44:4
161:24
173:17,19
174:15,21
175:11,15
176:24
177:13
178:2
179:15,20
180:4,25
181:18,19
182:2,4
183:2,8
184:3
186:10,
13,14,24
232:22
236:10
239:3
272:22,23
273:2,7
279:12,
14,20
280:18,20
293:23
294:7
295:13,
15,23
296:20
297:11,
15,20
299:12

734
281:6

78
46:24
47:2
48:20

8

8
7:25
12:19,23
13:6,14
15:7,12
20:6
162:24
164:7
286:24

80
102:11

82
47:3
261:17

305:25

83
265:4

86
265:16

88ish
95:3

9

9
8:4
13:15,21
15:7,12
23:10
50:17
52:7
175:12,15
216:14,25
217:7,22
287:5

90
39:15

9:36
8:11

A

a.m.
8:11
57:5,8

A1
293:19

abilities
120:10,13
159:6

ability
27:7,12
121:23

absolutely
22:16
37:18
49:4
195:7,14
284:21

accept
247:9

accepted
172:7

access
61:8,15
84:18

accessed
262:20

accessible
179:24
224:17

account
230:10

accurate
122:21

achieve
238:8,9
298:9,11,
13

achieving
237:13

act
245:12
301:3

action
60:13
276:6

active
105:13,16
106:2
110:23
112:22
202:19
282:9
283:8,19,
21 314:19

actual
18:9
30:16,20
71:19
77:22
80:20
90:14
213:23
214:8
245:12
258:5
283:19
289:15
301:3
306:20

add
229:15
230:20

added
172:18

additional
42:15
167:14

address
9:21,23
60:25
136:21
139:7
240:7
242:6
269:6
273:25
274:4
276:21
277:12,15
278:8,9,
16,20,21
279:19,21

addressed
270:25
280:18
286:18
290:3
299:22

addresses
276:22
280:9

addressing
271:7
272:7,8,
15,17,24
274:10,11
277:21,22
278:10
279:12
280:24
281:7
282:3,4
283:7,8,9
284:11
288:13,22
290:6,11

adjunct
33:18,22

administered
205:7,10

administrative
119:22

administrator
87:6

advancing
47:21

advantage
155:5

advantages
154:10,20

advise
29:2

advised
16:22

affidavit
117:10

affiliations
8:22

afterthought
17:6,11,
12 40:24
41:4,7
42:6,10
44:8
160:24
161:4

age
95:18

agent
30:15,25
31:8,23
305:12
311:14,24
312:3

agree
180:2
189:2
191:9
193:6,16,
24,25
203:9,10
205:18
206:9,20,
21 262:11
297:2
316:15

agreed
26:18
296:21
297:13

agrees
206:2,20

ahead
55:22
103:17,19
145:19
184:11
217:16

238:23
283:14

ahold
323:3

AI
151:3,10
153:24
193:11,
12,18
194:2,5,9
196:6
197:9
205:20

airplane
261:3

AIS
194:12

albeit
134:20

Allen
45:23
46:7,8,
17,20,22,
24 47:2,
19,25
48:2,10,
16,22
50:4,9
52:6
53:14
81:4
246:22
248:7
249:4
251:23
252:2,12,
13,19,22
253:2,24
254:4,16,
18,22
255:4,7,
9,10,15
257:7
259:9,13
261:23
262:11
263:4,18
265:11
299:15,
17,18
301:12,23
303:2,15,
23 304:8,
19,24
305:7,11,
16 307:3,
14,18
308:24,25
309:23
310:8
311:20,21
312:15,25
313:2,21
314:12,
20,24
315:6

Allen's
249:7
251:5
254:6
306:9
311:2

allowed
72:12
120:15,22
121:8,12
122:5
171:9

allowing
65:8
169:15

alternative
96:14
98:12
99:24
100:25

Amanda
8:18

Amazon
250:23
306:13

amount
119:17
269:10

Amster
9:2
321:17

analysis
21:22
29:25
46:17,20,
23 48:25
167:3
186:13
188:14
267:15

analyst
110:9

answering
28:25

answers
72:3
221:18,22
255:2
299:6

anticipated
23:10

anymore
308:12

anyplace
187:9

API
92:15
220:22
222:2

apologize
70:7
135:4
189:20
284:17

app
307:23
312:22,23

apparent
186:18

Apple
68:2,16
304:4
312:6

application
6:9 92:16
212:17
269:13
270:15,23
293:9

applications
312:8

applied
109:20
111:6
193:11,12

appointment
82:5 84:9

approve
172:14

approved
89:10
91:2

approximately
33:21

apps
304:7
308:3

architect
110:19

area
211:23

argument
299:11

arguments
45:16

Arinti
134:14
144:10
147:10
153:24
155:24

Arjomand
9:11
282:20

arrive
106:3

art
42:16
43:17
44:5
46:22
48:23
49:19
50:9,10,
13,18
52:12,13,
18,24
95:24
96:10
104:6
105:6,9,
10 110:5
111:9
113:18
132:9
141:4
152:19,20
210:24
223:5,22
288:10

article
6:3 53:4
104:8,11
110:25
111:8
112:8
123:15

127:16
129:3
149:6
150:4,7,
21,24
151:20,23
152:5,22
155:15
191:20,24
194:15,22
195:17
222:18
224:14,20
225:7
227:9,11,
19,23
228:14,20
229:19

article's
148:10

articles
56:4
123:4
226:8,20
227:4

artificial
150:9
153:17
193:8
196:9

Arya
45:9

asks
76:14
128:9
137:10
200:12

aspects
285:5,11

asserted
117:22

assess
187:20,24

assist
19:23

assistant
294:13
295:4
296:5

associate
179:17
227:15,
17,23
229:8
230:15,21
235:3,13,
16,17,22
237:7,8,
16
238:13,15
239:6,19
240:15
241:11
242:11
246:13,19
247:18,
21,23,24

associating
175:21
179:21
228:10
236:15
241:14,16
243:12
244:5,6
246:16
247:13,17

association
228:8,14
231:2,3
241:10

assume
74:11
129:5
205:17
215:19
236:25

assuming
74:6 80:8
82:19
310:2
317:14

assumption
164:15
205:23
206:2
219:13
317:18,19

attached
110:5
123:4

attaches
217:24

attachment
123:14

attention
178:18
222:11

attorney-client
121:2

August
6:4 39:24
40:14,19
41:10,25
42:2
191:21,25

authenticity
209:3

author
61:8
195:21
197:6

authorization
324:7

authorize
323:17

auto
34:15

automate
123:19
129:4
154:10,20
249:8
252:22
298:23
300:15

automated
58:23
106:25
124:2,4
233:15,
18,23
235:18
236:16
239:7,9
240:5
247:8
248:9
250:6
272:4
291:5
298:2,5,
15 301:7

automatic
297:23

automating
124:5,16,
23 296:13
300:19

automation
97:10
98:2
110:9,12,
13,18
149:15,24
152:2
153:16
179:17,22
221:5
233:24,25
234:5,9,
17,18
236:7,18
239:13,
15,18
241:16
243:2,6
244:14
245:20
246:5,11,
14 249:2,
3,6,20,24
252:8,9,
14 262:15
265:4,6
267:21
268:3,9
270:21
274:3,4,
14,16,17,
19,22,23
275:3,8,
10,18,19
276:3,6,
8,11,24
277:14,
16,25
278:3,11,
22 279:3,
22 280:13
287:6,9
289:14
291:18,21
297:17
312:17

automations
110:16
148:3

average
33:25

aware
10:15
256:13,
16,19

B

B2
48:11
161:15
162:6

Babylon
223:20

bachelor's
94:21
96:2,24
97:13
99:8,17
106:4
107:10
109:20
111:5,16
112:6
113:7
114:4
142:11
143:5,17,19

back
29:3
37:19
52:3,10
54:12
57:7,10
58:6
73:9,13
82:4
91:23
108:12
127:12
135:13,14,15,25
137:15
138:6,8
146:16
158:24
159:3
166:18,20
167:21
172:16,19
190:21
191:4
198:20
204:14,16,22
216:12,14
236:2
242:3
243:17
245:4
258:18
266:5,8,21 273:4
277:3,4
280:3
290:13
293:11,14
308:18,20
310:5,6,10 311:17
313:7,23
316:8
322:18,20

background
58:8
97:23
100:23
101:2
104:5,9,12
107:15,16,22
109:14,18
254:7,10
269:21

backup
9:8

backward
237:20

bad
10:9

Baetens
56:9

ballpark
36:4

bank
69:11

based
73:12
75:16
77:10
79:20
82:18
111:25
114:9
147:23
160:6
161:6
174:24
196:7
210:9
220:5
224:23
234:19
254:11
282:7
283:18
287:10,11
291:24
307:10
313:20

basic
72:11

basically
32:19
33:15
59:18
60:4
72:15
73:3,16
78:7,9
79:11
84:20
86:19
88:11
91:10
106:23
113:6
124:16
139:19
165:19
177:17
180:18
181:2
183:19
218:9
250:24
252:11
262:7
271:14
275:6
303:8,12
304:11,16
308:22
310:4
313:16

basing
56:3

basis
101:5

began
128:23

begin
42:9

beginning
73:4 77:6
147:4
187:11
237:21,22

begins
8:12
46:24
138:13
260:7,23

behalf
9:12

behavior
193:12,13

Beigi
6:7,9
7:1,4,6,7,9,10,12,13,14,16,17,19,20,22,23,25 8:1,4,7,14 9:1,13,14,23 10:1,3 11:1,3,5,7,10 12:1 13:1 14:1 15:1 16:1 17:1 18:1,22 19:1 20:1,25 21:1,12 22:1,24 23:1,15 24:1,2 25:1 26:1 27:1 28:1 29:1 30:1 31:1 32:1 33:1 34:1 35:1 36:1 37:1 38:1 39:1 40:1 41:1 42:1 43:1 44:1 45:1 46:1 47:1 48:1,5 49:1 50:1 51:1,11 52:1 53:1 54:1 55:1 56:1 57:1,10 58:1 59:1 60:1 61:1 62:1 63:1 64:1 65:1 66:1 67:1 68:1 69:1 70:1 71:1 72:1 73:1

74:1 75:1
76:1 77:1
78:1 79:1
80:1 81:1
82:1 83:1
84:1 85:1
86:1 87:1
88:1 89:1
90:1 91:1
92:1 93:1
94:1 95:1
96:1 97:1
98:1
99:1,2
100:1
101:1
102:1
103:1
104:1
105:1
106:1
107:1
108:1,6,
18 109:1,
6 110:1
111:1
112:1
113:1
114:1,22
115:1,7,
17 116:1,
23 117:1,
8 118:1
119:1
120:1,24
121:1
122:1
123:1
124:1
125:1,3,
23 126:1,
25 127:1,
6 128:1
129:1
130:1
131:1,13
132:1
133:1
134:1
135:1
136:1
137:1
138:1
139:1
140:1
141:1
142:1
143:1
144:1
145:1,18
146:1
147:1
148:1
149:1
150:1
151:1
152:1
153:1
154:1
155:1
156:1
157:1
158:1,7,
11,15,19
159:1,3
160:1
161:1
162:1
163:1
164:1,23,
24 165:1
166:1
167:1
168:1
169:1,2
170:1
171:1
172:1
173:1
174:1
175:1
176:1
177:1,18
178:1
179:1,7
180:1
181:1
182:1
183:1
184:1
185:1
186:1
187:1
188:1
189:1
190:1
191:1
192:1
193:1
194:1
195:1
196:1
197:1
198:1
199:1
200:1
201:1
202:1
203:1
204:1
205:1
206:1
207:1
208:1,21
209:1
210:1
211:1,11
212:1,21
213:1
214:1
215:1
216:1
217:1,7
218:1
219:1
220:1
221:1
222:1
223:1
224:1
225:1
226:1
227:1
228:1
229:1
230:1
231:1
232:1
233:1
234:1
235:1
236:1
237:1
238:1
239:1
240:1
241:1
242:1
243:1
244:1
245:1
246:1
247:1
248:1
249:1
250:1
251:1
252:1
253:1
254:1
255:1
256:1
257:1
258:1
259:1
260:1
261:1
262:1
263:1
264:1
265:1
266:1,2,
8,21
267:1
268:1
269:1
270:1
271:1
272:1
273:1
274:1
275:1
276:1
277:1
278:1
279:1,17
280:1
281:1
282:1
283:1
284:1
285:1
286:1
287:1
288:1
289:1
290:1
291:1
292:1
293:1,8
294:1
295:1
296:1
297:1
298:1
299:1
300:1
301:1
302:1
303:1
304:1
305:1
306:1
307:1
308:1
309:1
310:1
311:1
312:1
313:1
314:1
315:1
316:1
317:1
318:1

319:1
320:1
321:1
322:1,22
323:1
324:1,14

Belgium
110:10

belong
168:21
170:2

belonging
218:14

Ben
293:20

Ben-itzhak
21:24
42:24
43:2,15
44:5,12,
14 293:25
294:4,15,
21 295:21
297:8
298:2,3
299:14,
15,23
300:13
301:11
303:25
307:9
311:21
314:14,15
315:2

Ben-itzhak's
299:3
311:14

Bie
134:8,11,
13 214:12
216:18
217:3,9,
19,23
219:9,10,
15,20

Bie's
215:17

big
221:11

bigger
262:8

bill
31:3,4

binder
22:22
174:7

binders
173:25

biography
223:9
224:15
226:7

bit
217:17
282:24
294:23

black
22:22
173:25
174:6

Bless
50:23

blog
228:11

blogging
226:19

board
92:20
170:13
171:22
205:18
206:2,8,
20
317:20,22
318:3
319:4,16
320:5,9,
11 323:3
324:11

body
46:9
185:2,8,
10,12
187:6
228:9

book
95:17
249:23
250:2,4,
7,10,14,
15,16
251:2,13
252:6,23
253:4
257:18
259:14,
23,25
261:2

books
223:21

boost
154:12,21

Bornet
45:10

bot
64:20
87:22
134:18
135:7,11
136:14
197:9
198:4
200:11
202:4,6
204:25
207:4,8,
17 214:23
220:22
222:2
300:16

bothered
155:16

bots
123:16
150:5
151:2,21
152:24
154:3,6
193:12,14
196:6,13
197:10
198:18
199:20
205:20

bottom
12:18
53:4
123:21
128:4
153:21
163:15
164:6
257:10
259:8
305:14,17
306:6
309:13

bought
92:9

Bouton
9:23

box
61:5,6,12
62:3
251:13,14
252:4
258:4
304:25
305:5,9,
10 306:7,
9,12
307:6,11

boxes
250:21
305:6

brain
155:11
243:10

branch
113:9

Brayamz
8:16

break
26:23
27:3 39:9
54:16
56:23
57:2
125:13,
19,24
145:2,4,
5,13,22
156:8
159:12
254:25
255:3
265:18,23
267:7
292:13,
15,24
315:25
320:22

breakup
173:11

bring
253:15

broke
321:2

browser
86:2
218:10
262:6,16,
21 263:24
264:6,7
306:24

308:5,8, 9,11,13, 25 313:11,24 314:2

buddy 240:10

build 130:12,16

building 110:15 130:18 148:2

built 132:12,16 254:17

business 110:9 117:15,19 119:23 120:2 256:15

busy 38:17

button 62:4 197:21 231:23

buttons 196:13, 14,23 197:3,8 199:20, 23,24,25 204:25 208:15

buy 248:17,22 249:23,25 250:4,10, 13,24 251:2,4, 13 252:6, 23 259:25 261:2 269:20

buying 246:20 247:24 250:7 252:23 270:8,13, 20

C

C+ 70:19,23

C++ 70:21,22, 24,25 71:4,8,18 76:17,22, 24 86:6, 17 87:3,4 88:25 94:14 95:20

call 31:16 58:20 68:4,6,17 69:21 71:13 75:7,11 85:6,10 90:11 133:19 199:16 203:25 235:8 250:21 255:5 316:25 317:2,20 318:2 319:3,16 320:4,8, 10

called 9:14 67:25 150:4 179:11 203:18,22 204:5 206:13

caller 72:16 77:15 90:13

calling 69:19 203:21,23 212:7

calls 67:21 73:4 189:18

capabilities 132:17, 19,23 133:24,25

capable 27:6 129:17 130:3 267:2 293:16

car 130:12, 16,19 134:3

care 118:8 239:25 240:2

carving 197:11,19

case 35:6,14 36:2,15 37:11 58:11 72:5,6 73:16 74:2,3,18 83:10 120:11 153:18 156:3 168:16 210:5 215:19 227:16, 18,24 234:8 251:22 261:6 269:25

case-by-case 101:5

cases 84:6 182:19 188:15 227:2

catch 300:10

categories 80:23,25

categorize 16:8

category 102:7

caught 300:11

caution 265:22

cell 136:22 137:15,20 138:5,6,7 139:8 196:25 197:2 212:23

center 67:19 68:5,7

centers 68:17

CEO 107:11,12

cetera 314:18

chance 320:3

change 138:4,7, 11 232:2 303:23 311:20,22

characterization 85:7 87:24 204:11 208:3

characterize 137:7 194:18 206:18

characterizing 154:15 181:5 204:5 207:15

charge 30:18 32:14

33:6

charges
32:22
33:12

charging
31:21
35:18
37:5

Charles
320:3

Charley
8:25
10:11

chat
134:9
201:24
202:7
204:13,24
206:14,
16,23
207:20,
21,22
214:11
216:17
217:10
219:10,
15,16
230:9
241:21
242:16
246:4
259:5
278:10
290:4
301:17
304:25
306:10
308:15
310:24
311:3

chatbot
59:2,3,20
60:5,13
67:18,22
68:20
69:17
72:15
73:15,17,
24 75:8
82:12
83:7,9
128:5,9,
25
129:12,
13,15,17
130:11
131:22
132:5
134:14
135:13
139:12,
15,16,17,
25 140:7,
8 141:10,
11,14,20
142:3
144:4,6,
10,12
146:2
147:6,11,
13
148:10,
20,21
151:20
152:24
153:24
155:2,20,
24 176:10
188:16,23
189:4,5,
14,20,22,
24
194:23,24
195:4,18,
20,22,24,
25 196:5,
16
197:12,20
198:19
199:12,13
201:3,18,
20,23
202:3,5
203:3,4,
19,22,24
204:6,12,
13 205:3,
11
206:13,
14,17
207:13,16
208:4
209:17,21
210:3,22
211:8
212:25
217:13
218:6,7,9
220:22
221:3,25
232:13,
18,24
236:5,19
240:13
242:9
244:12,22
245:3,4,
12 246:4,
24 253:16
258:24
274:18,24
275:9,20,
21 276:2,
9,12
278:2,23
298:12
303:3,16
304:11,18
307:16
308:17

chatbots
6:5 58:21
59:17
67:8,9
111:12
113:5
123:15
144:17
149:7
150:4,9
151:2,8
152:2
153:16
154:3,4,
7,8,16
187:14
191:10,22
192:2,16,
19 193:7,
10 194:12
201:17
202:13,
20,21,22
203:16
204:22,23
205:9,21
206:4
210:15
224:7
273:15,
22,24
274:4,7,
8,15
275:14
276:25
277:12,
15,20
278:16
297:24

chatting
201:25

check
12:11
41:13
141:21
213:22

checked
82:5

checking
142:8

choice
66:10

choose
87:13,14
210:10
307:25
312:22

circle
215:6

circled
215:11

circumstances
143:14

citations
174:21,23

civil
95:13

claim
49:10
50:16
52:7
175:12,
13,14
176:25
179:20
180:3
181:3
182:14,
18,19,23
183:10
185:14,25
186:2,10,
13,17,19
187:3,5
239:4
246:10
260:5,19,
20 261:14
263:6,7
264:11,18
265:2
272:25
279:12
280:18,

20,21,22, 24 281:5 287:5,17 291:8,9 299:12 308:13

claimed
180:3 184:21 186:24

claims
21:23 45:23 46:25 47:18 50:3 182:13 183:4 185:3,10 239:4,11

Clair
45:10

clarified
283:3

clarify
28:5,7 136:6

clarifying
278:12

classes
97:12,21

classroom
106:23

clear
14:15 28:14 45:8 151:17 170:14 189:12 190:6 200:5 238:18 278:13 279:18 300:9

click
200:17

client
69:5 70:13 71:23 72:8 73:14,15 74:22 75:6,7 76:23 81:24 82:10,11, 14 83:7, 10,16,17 84:20 88:9,13, 14 90:24 92:6,7 115:5,16 119:25

clients
88:13,16 92:17 103:6,14, 21,22 106:9,22 124:11 127:22 129:6 133:13

climber
215:22 216:20

climber's
219:3

climbing
216:5

close
316:11

closed
316:24 317:4

closest
284:12

cluster
124:9 127:20

code
94:11,14, 17 95:20 97:5,7 107:11 142:4,5

codes
211:23

coding
95:15,18

cofounder
32:18,21

collaborative
167:5,6, 12 168:6

colleague
9:7,10 118:17

colleagues
67:3 102:2,7

colleagues'
105:20

collect
240:6,13 242:4,5 251:16 253:6,9, 10,12 259:14

collected
147:14 219:16 253:8 256:24

collecting
218:6

collection
245:12

collectively
46:13

collects
139:25

college
146:2 147:3

Columbia
33:18,20

Column
175:14 257:6,10 259:8 268:6 273:5,10 278:25 279:9 280:9

combination
17:13 52:6 150:19 151:16 155:4,9 182:20, 21,23 206:6 302:6,25 308:25

combine
150:13 151:9,25 154:2,6 310:3

combined
153:19 188:7 309:2,3

combines
150:23

combining
150:15 151:8 152:24 154:10,20

comfortable
266:10,23

comment
220:23,25 221:6,8, 13,14,24

comments
220:14 221:17, 20,21 222:4,9, 11,12,15, 16 224:25

commit
244:15,16

communicate
60:23 61:24 62:12 69:22 90:12 122:11,14 140:11 262:10 263:3,18 313:4

communicates
59:20 140:9

communicating
110:14
148:2
198:10
204:19

communication
64:17,19
65:13
148:5
170:3,9,16 275:25
295:4
296:5

communications
131:14
168:25
169:10

companies
24:14
92:21
102:23
120:3

company
32:9,20,21,24
33:5,11
75:7
88:15
92:9,19,25 93:2,20 106:17
110:11
120:7
144:10
146:3
147:10
148:16,17
149:10

company's
76:4
142:18
143:23,24

compare
113:3
174:20
179:14
258:2
288:4
289:21

compared
183:8
269:12

comparing
176:4

comparison
289:19

compensated
29:23
31:11
114:18,20,23
115:22,25
116:2,4
117:14,15,23
118:5,7

compensating
116:7

compensation
30:2,8,13
36:19

competent
57:12

complete
15:8,23
25:16
259:20
323:21

completely
248:2

compound
282:21

comprises
287:19

computer
60:2,10
64:6
65:15
72:24,25
79:18
82:10
84:18
86:14
95:11
96:3,7,25
97:12,15,19,21
99:9,18,20 100:14
101:3
102:14
107:9
109:23
113:8
143:18
144:14,22
214:12,13,19
216:19
217:3,9,20 219:4,18 260:22
261:8,25
262:19
263:9
264:13,14,20,21
265:8,10,12
271:11,21

computerized
297:22

computers
219:14

computing
269:11
287:19

concentrating
270:22
272:18

concentration
94:23

concept
62:23
133:20
134:3,4
202:7
204:14
218:25
232:5,6,12 287:15

concepts
153:13
233:7

conceptualization
133:16

concerned
17:21
65:17
113:24
114:5
182:24
286:12
323:7

concludes
324:13

condition
77:5,23,25 82:2
128:19

conditions
73:11
79:6,13
146:14,15

conducting
217:10

configured
126:11,12
265:5

confirm
18:11
21:14
51:17
55:16,19
159:15
297:12
321:16,22

confirmed
79:22

confirming
48:22

conform
196:11

confused
15:3
19:25
63:4,5

confusing
289:24

conjecture
114:7
116:16
117:3
219:22,24

conjectures
132:20
225:15

conjunction
88:3
107:3

connect
70:2
85:22
91:24
301:15

connected
75:12

Connections
33:2

considered
43:17
54:23
55:3
105:4
115:8,12
121:16,21
171:8,10,
13,16,20
267:14

constantly
124:13

constituents
242:24

consultant
120:11

consultation
32:14,23
33:7,12
37:2

contact
82:7
314:16
317:21

contemplated
130:11

content
30:3
166:15
294:12,
16,20,24
295:3,6,
10,17
296:3,7,
11 314:22

contents
301:5

context
46:20
59:4 70:9
88:2
184:2
194:5
236:10
239:3
274:24
276:9
283:23
290:4
298:17,22
312:24
314:14

continue
48:14
52:25
57:12
302:2
317:23
320:16

continuing
218:4
293:16

contradicts
189:11

contrast
45:2
55:10
197:9

control
232:6,7
233:8,9,
10,12

convenience
48:9
253:16,21

conver-
260:24

conversation
61:18
66:16,18
67:10,11,
15 68:19
69:3
70:3,16
71:3,5,
10,19,21,
25 72:4,
14 73:12
81:15,18
87:19
88:5
89:14,19,
22 90:16,
18,21
91:11,14
92:3
121:5,14
123:9
133:3
134:6
136:8,12,
24 138:13
176:7,9,
11,12,24
177:4,25
178:4,15
179:16,
18,19,21,
22,24
180:10,
23,25
181:2
183:9
187:9,12,
16 197:13
198:21
205:5
213:20
216:17,25
217:8,21
232:13,
15,16,23
233:4,6,
14,15,17,
21 234:6
236:2,6,
15,16,17
238:19,
22,23
239:6,7,
20 240:25
241:9,13,
21 242:2,
3,8,16
243:4,13
244:9
245:2,11,
19 246:4,
13,16,18,
20,25
247:6,11,
14,20,22,
23 248:2,
12,15,21
250:20
252:19,
20,21
253:6,8,
17,22
257:8,15,
16
258:13,
18,19,21,
23,24
259:8,11,
16 260:2,
6,7,14,23
261:22
263:10
281:8
291:3
296:16
297:9
298:4
300:19
304:25
305:12,18
307:11,
12,13,21
308:16
309:10,
12,13,19,
22 310:5,
24 311:2,
14,24
312:2,23
313:20
314:4,19,
24

conversation's
180:11

conversational
203:11
249:15
296:14
304:15
310:16,19

conversations
93:16
187:8
278:20
295:5
296:6

converse
75:14
79:25
189:7

conversing
313:16

convey
188:2

conveyed
188:3

cool
155:7

coordinate
23:8

copied
218:13

220:7

copies
15:23

copy
61:8,15
99:16
108:15
126:17
284:18

copying
218:18
219:4

core
256:14,15

corporation
33:14

correct
11:25
13:7 15:9
26:18,20
28:8
33:18
35:20
39:24
42:8
43:24
47:11
50:6,7,9,
21 53:4
54:8
81:16
83:8
93:23
98:18
99:25
137:11
140:18,21
160:5
161:5
165:5,16
166:3
168:7
180:20
181:13,21
183:4
188:18
196:25
197:23
199:14
202:22
206:19
213:19
215:17
217:3,10
219:21
240:17
245:15
257:23
263:7
264:16,23
278:18,24
294:7

correction
14:12
267:23,25
272:20

correctly
10:5
102:10
136:5
154:15
242:10
263:6
295:16

corresponds
285:22

costs
321:7,10

counsel
8:21 9:8
15:21
17:14
26:4,11,
17 28:20
29:7
30:18
31:2,4
35:10
44:15,19
45:2
54:14
55:11,16
56:19,22
63:3
108:25
114:12
116:12,
17,22
117:7,11
119:13,25
120:14
121:7
122:16
125:12,
15,22
131:4
139:21
144:24
145:3,21
155:18
156:14,19
166:19
167:4
168:7,20
169:11,
16,24
171:18,19
172:10
229:22
254:24
265:22
266:16
282:14
315:14,23
322:23
323:23
324:16

counterpart
196:18

country
213:14

couple
24:10
224:15

courses
101:3

court
8:18 9:19
24:6,19
27:16
28:2,13
51:10
65:5
66:17
127:11
146:19
191:18
277:3
323:19
324:16

cover
18:17
23:2

covers
276:16

crash
234:22
240:19

crashed
269:22

crashes
269:17

create
86:3
128:6,14
129:14
130:5
134:19
136:15
138:19,23
240:13
246:24
247:25

created
72:11
84:16,20
187:8

creating
123:20
124:6
130:21
185:15

credibility
30:21

Cronos
124:9,17,
23 125:6,
9 126:7
127:20
128:7,14,
21 129:14
130:3,5,
13 132:3
134:19
136:16
147:8
153:25
208:19
219:5

cross-reference
261:17

crux
183:10

CTO
107:12

current
121:10

customer
68:20
69:4,10,
13 71:12
72:4 73:4
83:5
87:21
88:3 93:7
94:5

customers
69:11

103:6
110:15
148:2
211:21
234:13

cut
28:24
55:22
75:20
319:6,25

cutting
319:9

CV
58:7

D

Daily
324:20

Danish
134:20,24

data
74:21
147:14
285:6,8,
9,10,11

database
74:21
259:21

date
41:2
42:2,5
111:3
144:18
150:19
164:4,11,
16 205:14
225:2
228:15,16
229:21

dated
11:5
41:10,22
43:19

dates
37:17,21
39:25
164:5,14

day
43:20
315:22
316:12
321:8
324:21

Dayanandan
50:20,22,
25 51:2,
3,16
52:2,6
53:18
281:11,13
282:3
283:6
285:4
288:18,21
290:6,8,
10,14,18,
20 291:10

De
134:8,11,
13 214:12
215:16
216:18
217:2,9,
19,23
219:8,9,
10,15,19

dealt
120:6
133:12
273:12

decades
24:13

decide
210:6

decided
153:23
155:14

decides
80:22

deciding
112:14
173:7

decision
73:18
79:20
80:10
82:18,20,
21 87:23
137:8
158:8,12,
16,20
159:18
160:3,7,
15
161:13,
18,23
162:4,16,
18 163:5
190:13
282:8

decision-making
113:20

decisions
159:13

deck
48:15
95:23

declarant
112:2

declaration
7:14,17,
20,23
16:11,20
17:3,4,8,
10,17
18:17,21,
24 19:12,
18 20:20,
25 21:3,
12,15
22:24
23:5,14,
18 29:22
39:3,10
40:11
41:3,7,9
42:11
43:3,5,
12,14,19,
21 44:3,8
46:10,15
52:4
58:6,7
59:12
107:25
108:7
114:13,24
115:6,8,
16,23
116:14,23
117:8,21
118:10,
18,21
119:4,6,
9,11,19
131:21
147:17
163:2
166:17
169:14
170:19,
22,24
171:5
172:4,8,
14 181:11
225:13
284:19,
22,25
302:8,11,
14,17

declarations
15:14
16:7,15,
18 18:4,
13 39:5,
7,8 40:3
43:7
56:20
57:19
121:25
122:7

dedicated
275:21

deeper
92:18

define
15:2
68:19
69:2
77:11
83:17,22
113:4
177:4,24
178:3,15
179:16
187:12
198:21
233:16,21
234:16,19
235:3,4,
13,16,17,
19,21
237:7,8,
15,17
238:13,
14,19,20,
22,23
239:5,20
241:12
242:11
244:25
245:18
247:6,19,
21,22
281:8
291:3

defined
67:10
69:5 79:7
80:25
81:3,4
83:23
88:4
90:21
139:16
176:13
187:8
199:19
234:14
241:10
244:14
246:3,5,
6,7,14,23
247:13,15
248:11
276:11
289:12

defines
77:3
141:15
196:6
246:22
287:7
291:19
292:3

defining
59:19
64:12
92:3
112:9
175:20
176:7,21,
23 179:21
180:11,
23,25
196:2,4,
15,17,18
236:9,14
243:12
244:5,6
246:11
247:11,12
248:8,9
273:15
274:2,13,
15,17,19,
22,23
275:3,8,
10,17,19
276:6,8,
18,24
277:14,24
278:2
279:3,21
280:13

definition
98:11,12,
17,19
99:7,23
140:7
142:13
148:10,12
149:7
181:2
183:10
197:22
198:5,9
201:24
245:10

definitions
99:24
180:10
283:18

degree
60:20
94:18
96:2,6,24
97:11,13,
15,20
98:12,16,
18,19
99:8,12,
17
100:14,17
106:4
109:20,
22,23,24
111:6
114:4
142:12
143:5
144:15

degrees
102:6
106:15

delivering
124:10
127:21
128:12

demo
140:5

demonstrate
133:3
147:13

demonstrate
s
206:4

demonstrati
ng
217:8

demonstrati
on
132:5,10,
11 256:4,
5,9,12,22
258:2

denying
158:12
160:16

department
95:11,12,
13,14
102:18

depend
30:2

dependent
291:9

depending
73:11
91:16,19
301:6

depends
125:18
198:7
212:17
213:6
302:12,16

deployed
132:4

deposed
24:9,12,
16,24

deposition
7:5,8,11
8:13,19
10:21,23
11:4,7,9,
23 12:6
13:5,18
14:16
16:3 20:5
23:9
24:18
25:4,5,
17,25
27:15,22
37:3
38:25
40:11
316:24
317:3,24
318:8,25
319:2,15,
23,25
320:4,6,
15,17
323:21
324:13

deposition'
s
317:16

depositions
26:8

describe
165:2
179:4
186:19,20
207:13
232:19
257:7
314:10

describes
257:7

describing
173:18
174:13
182:3
314:14

description
6:14
165:9
167:14,19
168:13
172:2
174:19
176:23
186:12
187:2
221:4
230:14
273:11

design
70:15

designed
70:18
81:24
82:13
83:15

detail
143:12
160:11
182:11,19
186:2

detailed
86:12

273:11

details
185:25
216:9

detection
94:9
271:19,20

determination
73:23

determine
78:10,21
87:19
89:22
91:3
104:15,25
165:14
268:21
269:22

determined
84:8

determines
77:10
78:23
227:6

determining
105:5
112:25

developed
79:11
90:24
106:22
198:19
210:16

developer
110:9

developing
93:17
110:12

developments
193:9

device
220:3,4
268:14
269:9
271:20

devices
312:9

devise
205:3

devised
205:15

diagnose
268:11
269:16
270:10
271:2

diagnosis
267:23,25
269:7
272:20

diagnostics
270:23

diagrams
71:13

dialog
65:7

dictate
166:14

differ
193:13

difference
178:8
187:14
221:11
237:6
238:4
247:4

difficult
28:2,11

difficulties
268:10

digits
210:19
211:2,18
212:3,4,7,9
213:12

direct
90:13
178:18

directed
295:22
297:13

directly
50:11

disagree
275:12

disciplines
102:13

disclosed
176:16
180:12
185:2
273:13
303:5

discloses
285:4
314:15

disclosure
184:19,20,23
294:24
295:14
297:20

discovered
153:14

discuss
52:5
156:12
183:24
184:2

discussed
29:20
52:23
236:14
268:3,11

discussing
301:15

discussion
163:10
237:3

discussions
299:21

display
260:21,24
264:22
304:19,22
305:9

displayed
261:22,24
262:24
263:8,9,23
264:12,15,19
265:7,9,13 287:8,20 291:20
309:15

displaying
262:14

disposal
313:24

dispute
24:13

disqualified
98:6

dissection
267:22

distinct
188:9

distinction
195:3
203:6,10
205:21

distinguish
232:14
233:5

distinguishes
205:19

distinguishing
202:19

divulge
30:16,20
31:5
116:5

divulging
76:4

document
48:17,18
49:6
51:25
58:13
116:19
140:22
163:14
165:21
166:11
172:7
177:15
189:10
217:24
218:13,14,16
245:22
257:11

documentation
37:16

documents
173:10
245:23

254:8

draft
167:16,20
168:14

drafted
169:13

drafting
170:24
171:3
173:10

drafts
172:13

draw
71:13

drawing
203:6

drill
96:4

drive
91:11

due
139:18

duly
9:15

Dutch
134:25
135:2,3,4

E

e-mail
73:20
74:4,5,7
123:20
124:6,17,
24 125:6,
9 126:7,8
128:21
129:4,7,9
131:24
132:3
136:21
139:7
147:8
217:17,
22,24,25
219:7,11,
19 240:7
242:6

e-mailed
219:7

earlier
40:23
53:16,19
144:15
147:3
149:5
160:24
209:16
320:20

early
195:23

ease
20:4

easier
14:25
22:8
34:16
86:10
88:23

easiest
20:9
39:11

easily
114:11
224:11

easy
18:18
20:16
23:23
27:19
92:24

Ebenstein
9:2

edit
86:8,9
231:25
233:5
236:2
242:16,17
243:17

edited
90:25

editing
172:16
237:11

editor
85:14,17
189:14,
20,24

editors
188:17,23

EDT
324:22

education
105:13,
16,20
107:6

educational
97:22
105:8
106:21
109:14,18

effort
167:5

elect
324:5

elected
323:10,24

electrical
95:10
107:8

electronic
86:13,20,
23,24
295:8
296:9

element
261:16
265:3
283:21
284:6
285:21
287:8,10,
12,18,20,
22,24,25
288:2
289:9,10,
11,13,22
291:20,24
292:2,3,
4,6
296:16

elements
85:21
282:5
283:17
284:9,13
285:6,16,
19 287:3
288:24
289:19
291:25

else's
17:12
301:17

embodiment
186:24

emerging
153:8

employ
259:21

employed
148:16

empty
262:16

enable
85:18
279:3,21

enabled
267:22

enables
65:14
279:4,23
280:14

enabling
280:13
319:12

encompasses
176:8

encountered
105:9

encourage
120:25

end
27:23
39:24
40:14
73:8,14
75:6,9,11
79:15
91:20
110:21,22
140:16
217:18
237:22,23
292:21
308:10
316:11

endeavor
295:23

engaged
116:22
117:7

engaging
295:4
296:5

engine
76:25
78:8

82:15,16
83:23
84:4,7
85:23
86:5
88:21
89:13
92:13
106:10
107:4
299:5
306:10

engineer
97:6

engineering
94:19,22
95:10,12,14 96:3,5,6,25
97:16
99:9,17
100:14
102:13
109:22

engineers
107:8

engines
107:2

England
212:8,12

English
62:13
126:15,22
127:2
134:21
200:17
212:21

English-language
208:22
209:10

enormously
193:13

enter
237:24

entire
165:3,9

entitled
151:20
319:8
324:9

environment
295:8
296:9

equivalent
65:24
305:10
306:19
308:4

error
267:22,24
271:19,20
272:19

errors
268:12
269:7,15
270:23,25

Esquire
8:19

establish
188:22

established
172:20
243:8

Esteban
221:9

Europe
213:11

eventually
90:25

evidence
142:12

evidenced
144:16

evolve
87:20

evolving
153:6

exact
205:14

examination
9:25
323:9

examined
9:17

examples
64:25
193:10
227:3
271:10,24

Excellent
29:22

exception
104:7

Excuse
318:13

execute
269:11
308:24

executing
269:12

exemplifies
62:7,8

exhibit
6:3,8,10
7:4,7,10,13,16,19,22,25
8:4,7
10:22
11:4,6,9,15,17,19,24 12:19,23 13:6,14,15,19,21 14:4,8,11,17,20 15:12
18:7,21
19:13,14
20:3,5,6,19,24
21:2,6,7,8,10,11,14,21
22:22
23:10,13,17,20
40:21,22
41:4,6,8
42:3,6,10,12,16,21 43:4,7,15,21
44:2,5
46:16
47:6,7,9,25 48:5,10,12,15,20 50:5
51:5,11,15,18,20
52:11,14
54:21
57:23
58:4
107:24
108:5,6,14,18,19,22,24
109:2,6,9,11
110:6,25
114:22
115:7,17
116:24
117:9
123:3
125:2,3
126:20,21,25
127:2,6,7,25
128:2,3
140:25
158:7,11,15,19
159:17,21,24
160:3,15,21 161:5,9,13
162:4,12,22,24,25
163:10,19
164:22
166:16
168:3
172:5
173:17,23
174:2,10,12
175:12,15
181:12,18
186:15
191:16,20,24
192:18
195:2
197:7
198:5
205:19
206:3
208:22,25
209:4,7,11 212:20
215:9,11
217:7
266:2
267:8,9,15,19
286:22,24
293:8,18,22 294:8,22 304:21

exhibits
10:20

18:2
22:16
43:16
47:3
159:12
267:10

exist
121:14
150:8
151:13
188:12
189:14
203:24
211:19

existed
66:5
189:2
191:10
195:22
203:6
205:22

existence
188:23

existing
155:10
283:24
284:5
289:11
300:16

exists
243:13

expand
197:15
303:9,13

expanding
130:8

expansive
94:7

expect
148:15,19
210:24
211:8
229:13
232:3

expectation
286:8

expected
67:17
98:20
135:12,23
142:7,8
149:6
209:22

expenses
29:25

experience
97:2,9,25
98:8,13
99:10,11
100:12,
13,17,20,
22 107:6
111:11,
17,24
112:7
113:11,12
143:6,16
144:16
194:17

experienced
268:12
269:8

expert
6:3 9:13
36:14
60:17
63:12,18
105:2
111:11
120:11
135:2
146:10
154:14
162:17
164:16
170:11
171:10
186:15
191:20,25
281:12
301:25
305:22
311:12

expertise
103:22,23
194:16
225:19

explain
60:20
70:5
148:24
187:18

explaining
59:19
64:13
155:21

explains
60:4

explanation
281:18

explore
154:2

Explorer
61:7,13

exploring
124:13

extend
304:13

extended
226:6

extending
130:8

extension
212:9,16

extensive
34:12

extent
168:24

extra
16:23
321:8

extract
188:4

extraordinary
152:19

F

---

face
94:9

face-to-face
208:10

Facebook
230:9,10
231:10,11
275:24
301:21
303:6,14,
17,19

fact
50:15
113:25
128:10,13
152:6
183:6
188:12
201:22
207:16,23
222:23
229:20
242:20
257:17
300:24

factors
104:24
105:4,7

fair
47:20
85:6 91:8
151:22
238:15

falls
78:11

familiar
104:10
304:3

farfetched
130:19

fast
124:13

fee
24:13
32:13
36:10

feed
67:22

feel
20:8
23:23
28:12
41:18
57:12
296:22
319:4,5

felt
297:3

Ferscht
45:10

field
96:22
101:23
102:3,8
105:14,17
106:2,10
112:22
202:19
294:19
295:23
297:19

fields
98:9

figure
73:21
80:7
82:21,25
141:8
165:5,16
166:3
174:16,17
176:2,7,
16 177:2,
12,23
178:2,15,
16,19
179:14
180:2,4,
9,13,17,
18,19
182:2,4,
9,15,21,
22 183:2,
12,15,23,
24 184:2,
5,6,7,13
186:10,
11,12,17,
22,23
187:7
188:11
217:15
255:25
257:20
258:2,6,
12,17,20
259:13
260:13
261:10,
21,25
262:2,13,
15,17,18,
25 263:2,
13,14,20,
22,25
264:8,15,
21
265:14,16
269:15
283:20,23
284:4
288:23
301:13
304:18
306:23
309:4
310:17
311:5,6,
10 312:25
313:3

figures
80:19
168:12
184:17
185:19
207:8

figuring
295:9

file
86:21,23,
24 215:10
231:5
267:22

filed
18:6
19:20

filing
164:4,11

fill
60:24
201:2
251:9,14
258:5

filled
200:15
262:4

filling
124:17
177:7

final
167:16,20
168:14
324:19,20

finally
166:21

find
14:25
19:8 50:8
54:11
69:24
75:15
204:17
205:2
244:17
253:3
254:8
283:17
284:6,9,
12 285:15
286:21
287:3

finding
45:3
282:4

fine
25:22
26:24
34:2
39:10
49:18
58:3
59:10
70:25
72:13
117:4
152:25
160:14
193:17,21
255:4
284:21
302:22

finish
28:19
54:18
125:14
126:3
129:24
145:5,11,
12 263:13
316:17,18
318:21
319:15

finished
145:10

firm
322:3

fit
85:2

five-digit
213:14

fix
268:22

flexible
253:3

flipped
15:16

flow
71:10
72:4 73:4
77:19
89:23
90:16,18,
21 91:11,
14 176:12
178:4
179:16
180:19
241:17
243:4
244:13
245:11,19
246:4,18,
25 248:2
249:15

flowchart
85:6,9,
12,19,21
87:18
90:23
234:14,
16,19

flows
70:16

focus
75:21
90:16
93:3
95:25
96:15
124:10
127:20
186:9
300:8

focused
94:6

focuses
110:11

focusing
99:11
231:8

Foerster
9:11
29:10

follow
176:11
260:20

forces
153:23

forefront
34:25

forever
271:12,14

Forget
152:4

forgive
10:7 51:3
174:4

form
26:10,13
30:23
45:17
46:14
54:7
60:24
62:24
64:18
66:19
71:11
72:20
74:8
76:20
80:11
81:6
85:12
89:12
91:6
98:25
101:20
104:16
111:14
112:3
114:14
115:2
117:17
118:11
124:18
129:10
137:6
139:14
140:19
142:16
143:8
144:5,6,
20 146:7
147:15
148:14
149:13
165:6,17
167:7
177:5
178:17
180:6
183:5
189:3,6
196:3
197:21
198:6
199:15,
16,17,21
200:3,12,
15,24
201:2,6,
7,12,18,
22 202:23
207:5
209:6,19
211:4,10
214:2,17
215:23
218:3
219:23
222:21
223:24
224:22
226:5
228:12
232:17
237:18
238:17
240:22
244:10
245:8
247:2
250:19,21
251:6,14,
18 252:4
256:17,24
258:4,7,
11 259:6,
15,17
260:9
268:23
270:14
272:11
282:12
291:14
319:21

format
201:3

formed
46:11
171:7
211:15
237:25

forms
200:16

formulating
172:4
187:16

forward
291:7
323:10,
13,16,18

found
44:14,15,
16,18,19,
21 45:2,
5,9 49:19
54:5 56:2
114:11,15
141:5
165:12
279:8
286:23
299:20

foundation
30:6

framework
303:15
304:8

Francisco
248:18,24

free
20:8
23:24
28:12
41:18
296:22

fresh
77:7

friendly
273:14
291:4

front
10:19
12:16
22:23
40:3 68:4
305:16,20

full
37:20
203:11
278:7

function
240:7

functionality
273:15
275:23

functions
311:3

future
128:16
129:18
130:15
151:3,9
153:15
288:15

futuristic
134:3

G

gather
146:6
248:13
252:4
258:12

gathering
147:6

gave
19:20
23:25
46:7
84:21
224:5
323:23

general
36:8
101:6,11
166:23
297:22

generalized
271:17

generally
25:3
59:11
102:21

generate
73:20
81:14
85:13,18,
20 126:8
129:8
135:9
136:11
219:18
314:21,25

generated
82:17
83:4 86:8
218:17
264:8
283:25

generates
218:11

generating
129:2
131:24
171:10
218:18,20
246:20

generator
124:18,24
125:6,10
126:7

128:21
129:4,7
132:3
147:8
313:12

genius
101:9

gentleman
113:13,14

geographic
213:6

gesture
314:18

give
19:24
37:19,23
83:12
99:2
106:13
133:15
190:19
201:14
211:11
213:25
221:4
240:14
250:25
251:3
271:10
281:17,23
295:15
299:8
318:17

giving
30:5

Global
36:15
37:10

goal
123:18
291:23

good
10:3,4,7
28:17
87:24
143:12
316:13

Google
224:12

Gorrono
8:18

grab
51:5
126:17

graduated
111:5
142:11
144:13
147:3

grammar
188:12

grammatical
188:14

granted
324:8

granting
158:8,16,
20 159:18
161:13
162:4

graph
73:7
77:2,3
79:3 81:2
84:14,15
85:7,22
86:18
87:18
91:19,21

graphic
85:23

graphical
72:21

graphically
83:25
86:9

graphics
82:17
84:21
264:6

graphs
77:11

great
11:14
14:25
23:11
293:18

ground
45:22
46:3 50:2
111:9

grounds
47:21
48:21

group
64:10
124:9
127:20
153:25

growing
124:12

guessing
39:17
254:14,15

GUI
88:9,19,
20,22
261:5,21,
25
263:14,15
264:3,7
282:5,10,
11 283:7,
8,10,17
284:3,9
285:24,25
286:3,5,7
287:4
288:14,15
289:8,19
290:16
301:13,14
306:12
308:4

guide
46:23
67:10,12,
15,23
77:19
89:24
273:2

guidelines
68:8,10
70:14
156:11

GUIS
286:13

guys
321:22
322:4

H

half
34:5
125:21
316:19
318:18
320:23

hand
242:25

handed
128:2

handle
84:6
89:14,16
90:12
126:4
145:16,17
207:2
273:21
277:7

handles
276:16

handwriting
95:7

handwritten
84:17

hang
77:8

happen
72:10
84:24
229:5
238:6
239:3
240:3,25
242:14,20
244:3,7
245:7
269:15

happened
74:17
268:21
269:18
270:11

happening
72:14
262:25

happy
145:15
317:2

hard
244:17

harder
39:13

Hart
9:8
290:21

heading
21:22

47:13,16

hear
28:4

heard
10:11
56:12
61:4
132:25
156:2
164:7
204:15

helped
68:19

helps
21:20
22:13
41:19

higher
37:4
105:21

highest
287:24

hint
37:24

hired
114:12
115:5,15
143:20,
21,22
146:4
147:4,9
149:4,12

historical
58:8

history
194:8

hit
230:17,21
237:24

hitting
231:23

Hold
290:16

holistic
182:9
183:13

Holland
212:13

Hollywood
89:3,4

Homayoon
7:1,5,8,
11,14,17,
20,23
8:1,13
9:1,14,23
10:1,24
11:1,5,7,
10 12:1
13:1 14:1
15:1 16:1
17:1
18:1,22
19:1
20:1,25
21:1,12
22:1,24
23:1,14
24:1 25:1
26:1 27:1
28:1 29:1
30:1 31:1
32:1 33:1
34:1 35:1
36:1 37:1
38:1 39:1
40:1 41:1
42:1 43:1
44:1 45:1
46:1 47:1
48:1 49:1
50:1 51:1
52:1 53:1
54:1 55:1
56:1 57:1
58:1 59:1
60:1 61:1
62:1 63:1
64:1 65:1
66:1 67:1
68:1 69:1
70:1 71:1
72:1 73:1
74:1 75:1
76:1 77:1
78:1 79:1
80:1 81:1
82:1 83:1
84:1 85:1
86:1 87:1
88:1 89:1
90:1 91:1
92:1 93:1
94:1 95:1
96:1 97:1
98:1 99:1
100:1
101:1
102:1
103:1
104:1
105:1
106:1
107:1
108:1
109:1
110:1
111:1
112:1
113:1
114:1
115:1
116:1
117:1
118:1
119:1
120:1
121:1
122:1
123:1
124:1
125:1
126:1
127:1
128:1
129:1
130:1
131:1
132:1
133:1
134:1
135:1
136:1
137:1
138:1
139:1
140:1
141:1
142:1
143:1
144:1
145:1
146:1
147:1
148:1
149:1
150:1
151:1
152:1
153:1
154:1
155:1
156:1
157:1
158:1
159:1
160:1
161:1
162:1
163:1
164:1
165:1
166:1
167:1
168:1
169:1
170:1
171:1
172:1
173:1
174:1
175:1
176:1
177:1
178:1
179:1
180:1
181:1
182:1
183:1
184:1
185:1
186:1
187:1
188:1
189:1
190:1
191:1
192:1
193:1
194:1
195:1
196:1
197:1
198:1
199:1
200:1
201:1
202:1
203:1
204:1
205:1
206:1
207:1
208:1
209:1
210:1
211:1
212:1
213:1
214:1
215:1
216:1
217:1
218:1
219:1
220:1

221:1
222:1
223:1
224:1
225:1
226:1
227:1
228:1
229:1
230:1
231:1
232:1
233:1
234:1
235:1
236:1
237:1
238:1
239:1
240:1
241:1
242:1
243:1
244:1
245:1
246:1
247:1
248:1
249:1
250:1
251:1
252:1
253:1
254:1
255:1
256:1
257:1
258:1
259:1
260:1
261:1
262:1
263:1
264:1
265:1
266:1
267:1
268:1
269:1
270:1
271:1
272:1
273:1
274:1
275:1
276:1
277:1
278:1
279:1
280:1
281:1
282:1
283:1
284:1
285:1
286:1
287:1
288:1
289:1
290:1
291:1
292:1
293:1
294:1
295:1
296:1
297:1
298:1
299:1
300:1
301:1
302:1
303:1
304:1
305:1
306:1
307:1
308:1
309:1
310:1
311:1
312:1
313:1
314:1
315:1
316:1
317:1
318:1
319:1
320:1
321:1
322:1
323:1
324:1,14

home
9:22
33:13
35:13,16

hope
68:9

hosting
250:19

hour
32:3,16
33:12,21,
24 35:8,
13 36:10
54:15
119:14
125:13,
20,25
144:25
156:23
316:20
318:17
320:23

hourly
36:3

hours
33:25
34:5,6
35:2,3,5
39:2,3,16
172:23,25
318:3
323:4
324:8

human
60:2,3,
10,14,20
61:2 68:3
83:16
86:15,25
88:24
204:21
205:4
207:25
208:5,6
253:21
300:3,5,9

humans
62:15
298:24

hypothecating
226:4,25

hypotheses
146:11,12

hypothesis
146:8

hypothetical
146:24
147:23,24

hypothetically
119:3
145:24

I

ibizz
124:9
127:19

IBM
56:13
95:6 98:4
101:12,
14,22
102:7,18,
25 104:8
105:19
106:6
203:12

ID
312:10
313:5,19

idea
35:19
111:23
117:13
120:4
205:16
211:23
213:17
313:18

identical
180:24
183:24

identification
7:6,9,12,
15,18,21,
24 8:3,6,
9 48:7
51:13
108:8
127:3
158:10,
14,18,22
192:4
266:4
293:10

identified
55:10,17
105:21
176:25
272:22

identifies
109:13
287:10,11
291:22,23

identify
46:19

47:25
50:17
109:2
155:10
159:14
295:6
296:7,16
297:10
299:9

identifying
287:18
291:13,15
292:4

IDS
312:10

ill
10:8

illustrated
217:2

image
186:20

immaterial
235:5
237:4,5

impact
119:5,10,
18

implement
76:24
83:20
133:17
176:10
248:14,15
249:13,
16,18
251:17
252:22
259:7
291:12
301:22
303:4
304:11
313:25

implementation
310:13,14

implemented
68:20
71:3
76:16
82:11,15
131:23
137:5
148:8
149:11
252:3
262:20
270:8
275:22
279:5,23
280:15
311:15,25
312:4

implementing
93:17

implements
307:22

implicit
176:14
178:6

implicitly
177:13
201:19

implies
287:16

important
28:17
165:13,25
166:8
181:25
185:9,16
238:5
242:24
243:14
245:5
301:14

impression
120:22
121:6,12

improper
156:12

improving
298:3

IMS
35:14,20

include
17:4,7
62:3
105:7
181:6
182:10
184:5,6,
7,8,9,10,
12 308:4

included
44:4
48:12
62:13
110:14
147:25
166:9,15

includes
168:24
169:10
172:3
232:7

including
156:13
179:3
181:12,20
264:4

incorrect
196:25

independent
239:4
308:12

indication
210:2
225:4

indirectly
50:12

individual
59:21
75:15
93:4
106:19,20

informatics
109:21
110:15
111:6
112:6
113:8
144:19,21
149:16,23

information
17:7,14
31:5
68:14
85:24
86:3
111:25
112:14,16
137:10,11
138:12
139:25
140:17
146:6
147:7
185:9,13,
16 187:24
188:2
212:19
213:23
218:6
219:16
225:14
233:11
240:12
241:22
242:4
243:3
248:13
250:13
251:4,15
252:5
253:7,8,
9,11,13
254:12
256:23
257:14
258:5,12,
15 259:2,
3,5
297:16
313:22

informed
96:20
105:3,6

inherent
177:2
243:11,
20,25
244:5

innovations
105:11

innovative
150:25
151:6,7,
25 152:3,
10,23

input
89:11,18,
21 196:11

insert
99:3
211:12

insightful
150:13

Insights
6:3
191:21,25

instance
136:14

institute
160:4

161:24
162:16,18

instituted
16:21,22
17:21
18:25
21:17
22:5,11
42:4
161:5
162:12,23

institution
158:8,12,
16,20
159:18
160:16
161:14
162:5
163:5

instruct
169:2

instructing
169:7

Instruction
6:16
169:5

intelligenc
e
150:9
153:17
193:8
196:9

intelligent
110:12,17

intelligibl
e
199:6

intended
132:13

intent
10:8

inter
10:16
16:4
23:15
26:8
158:8,12,
16,20
159:19
160:4,16
161:14
162:5,12

interact
65:15
89:23
312:25

interacting
64:20

interaction
59:25
60:9
88:17,18
214:9
265:9

interaction
s
88:12
265:6
295:5
296:6

interactive
70:7,10
75:13
294:12
295:2
296:3,14,
15 297:9

interacts
106:24

interest
102:16
152:8,12
271:23
296:11

Interesting
221:9

interface
64:10,14,
15 65:12,
14 66:5,
8,9 67:2
72:21
83:24
92:16
179:25
232:24
260:21,25
261:24
263:8,11
264:13,
15,19,22
265:7,9,
13 269:14
287:9,21
291:21
309:5,15
311:9,15
312:3,4
313:15

interfaces
297:21,23

interfacing
217:13

interfere
27:11

intermediat
e
88:7

internal
90:9,10

internally
79:11

internals
214:5,7

Internet
33:2
61:7,13

interns
106:7

interpret
71:9 90:7

interpretat
ion
113:21
261:23

interpreted
84:4

interpreter
86:19

interprets
77:2
106:23

interrupt
28:4 29:2
145:6

interruptin
g
145:21

Intervoice
32:6

introduce
8:22

introducing
193:9

invalidity
45:16

invented
152:15

invention
180:3
182:3
184:19,22
193:2
268:8
301:23

inventions
175:5

inventors
105:8

invoice
135:10

invoices
135:14

invoke
259:11
281:8
291:5,7,8

invoked
274:3,6,
14,18,24
275:9,20,
23 276:24
277:15,
19,25
278:20,22

invokes
276:3

invoking
290:3

involve
16:6

involved
93:16
120:3
219:14
281:2
300:23

involves
26:25
109:7

IPR
9:5,6
10:13,15
11:5,8,10
12:4,5,9
13:4,10,
11,19,24
14:8,18,
23 15:15

16:10,13, 14 18:9, 14,22,24, 25 19:14, 16,17,22, 24 20:21 21:2,13, 16 22:5 23:2,6, 15,18 31:21 37:23 41:4 42:4,7,10 44:4,12 58:5 108:2,7, 11 109:7 159:19 160:17,23 161:4,14 162:5,23 163:2 293:23 294:7

IPRS
9:5 11:25 16:9,15 18:5 24:24 30:9,15 42:17 45:16 58:20 100:4 109:3 125:2 126:21 159:13 267:16

irrelevant
248:3

irrespective
135:21

irrespectively
137:4

issue
26:14 272:5 310:25

items
104:14,20 286:7

iteration
89:10

Itzhak
293:21

IVR
69:21 70:4 71:4 73:16 75:12,24 77:19 83:5 88:6 89:24

IX
52:13,17

J

January
110:8,17

Jean
9:9

job
34:23 110:13 142:10 143:4 144:13 145:25 146:10 147:25 148:22,25 155:8

join
153:23

joined
95:6

judgment
122:12

jump
73:10 77:12 91:24 217:16

justified
38:15

K

Kernighan
95:16

key
111:8

Kik
304:3 312:6

kind
64:7 92:22 144:22

knew
155:17 161:8

knowing
213:22 292:19

Krishnan
53:22 281:3

L

landscape
153:5

language
15:2 59:17,21, 24 60:3, 8,11,15, 21 61:2, 9,17,21, 22,23 62:2,8, 11,13,14, 17,18,19, 23 63:10, 13,16,23 64:2,4,5, 10,13,15, 16,22 65:9,12 66:5,21 67:2 69:14,16 76:23 77:24 78:10,20 79:10,14, 21 80:14 81:13 82:6,23 83:3,14 84:12 85:2 86:16 87:20 88:5 89:2,5,6, 9 92:15 94:7 96:14,17 97:9 98:2 101:13, 14,18,21, 24 102:3, 8,24 103:18, 21,23 106:11,15 107:3,7 113:6 126:22 133:5 135:18 136:3,7,8 139:20 140:4,10, 12,13 141:17 179:25 187:15, 19,22,23 188:5,8, 10,18,20, 25 189:6, 16 190:3, 8,11,14, 15 191:11 194:24 195:19 196:19 198:10, 11,13,14, 17,22 199:4,7 200:13,14 201:24 202:25 203:2,17 204:18 205:5,8 206:5 207:24,25 208:5 232:24 250:20 253:11,17 256:25 259:10,16 263:10, 11,19,22 311:9,15 312:3,4 313:12,15

languages

75:4

late
195:22
199:12
323:2

launched
218:11

lawyer
185:4

lay
71:22

layer
71:21
72:2

Le
45:9

lead
79:15

learned
259:20

learning
94:23,25
95:2

leave
301:12

leaves
216:16
281:13

led
134:8

left
16:23
166:6

legitimate
139:10

lesson
34:12

letting
40:8

level
76:23
87:5
88:20
105:8,13,
16,20

levels
106:12

leverages
268:8

library
223:20,22

life
20:9,15
23:23

limit
62:9
211:25

limited
128:25
206:24
232:9

linearly
242:12,21

lines
34:24
94:14
95:20
275:14
292:20

link
36:15
37:10
227:22
228:23
229:7,9,
15 231:6,
15,16
234:10
288:24
307:8
308:7,9,
10,22

linked
228:15
245:2,3

Linkedin
230:11,14
231:12,
13,14

links
300:25
308:21

list
53:3,7
104:14,19

listed
55:9

literally
319:14,18

live
24:20,22
286:3,5,7
287:21
288:6
289:20

LLP
9:2

load
90:5

loaded
67:14
191:13,15
193:19
194:3,10
200:25

located
173:19

location
79:16
213:7
262:23

logged
269:19

logging
312:21

logic
73:3
79:18,19
84:13,15,
18 87:2,5
235:24
241:18

logical
70:17
219:12

long
21:19
26:3
34:14
51:22
224:21
276:5
292:17
315:22

longer
125:16
145:7,8
309:3

looked
17:22
40:13
88:25
104:11
107:21
127:17
131:5
142:5
161:9
186:16,17
223:4
224:3,10
256:9

lose
307:6

lot
34:15
38:22
98:4
101:9
106:5,8
172:15
173:8
185:14
321:5

lots
97:21
223:12

loud
60:7
153:21

low
76:22
87:5

lower
128:4

luck
324:2

lunch
156:8,16
157:5

M

Macedo
7:2 8:24,
25 10:2,
12 25:21
26:17,21,
22 31:9
45:20
48:3,8
51:8,14
54:9,16,
19 56:25
57:9 63:2
67:4
68:15
74:9
80:16
81:9

89:17
91:7 99:4
104:18
108:4,9
111:21
112:11
114:16
115:3
117:18
118:16
119:15
120:20
121:4,10,
18 122:17
125:14,17
126:2,19
127:5,11
129:22
131:11,16
138:24
139:2
140:2,20
143:2,9
145:3,9,
20,23
146:9,19,
22 147:18
149:3
150:2
156:7,16,
22,25
159:2
165:8,23
167:9
169:6,12,
20 170:4,
10,17,23
171:6,15,
19,24
177:10
178:20
181:9
183:22
186:4,8
191:3,8,
16,19
192:6
196:21
198:15
200:10
202:9,24
203:14
207:9
209:5,8,
24 211:6
212:10
214:3,21
216:2
220:10
223:2
224:18
225:8
226:14
228:18
232:20
238:10,21
240:23
244:20
245:14
247:3
251:7,19
254:21
255:2,8,
13 256:18
258:8
260:4,10
265:17,21
266:7,18,
19 269:2
270:18
272:12
277:9
282:13,
17,22
283:13
290:22
292:10,
19,25
293:4,13
298:19,21
315:9,17,
20 316:2,
15,22
317:5,9,
13,21
318:5,9,
13 319:9,
12,17
320:3,6,
10,14,21
321:2,14,
19,24
322:20
324:20

machine
66:25
69:8
72:16
204:20
270:4

machinery
64:7
76:25
77:2
141:18

made
16:21
25:20
69:7
73:24
82:20,22
88:23
105:11
155:9
166:19
169:5
221:17
224:24
226:21
240:12
310:15

main
17:17,19
275:9
291:22,23

make
14:15
15:8 17:3
18:18
19:9
20:15
23:23
28:11
47:5
48:15
51:6 63:5
73:18
79:20,21
82:18
96:8
97:22
113:19
116:15,16
117:11
136:4
137:8
141:22
167:15,20
168:14
179:12
189:11
190:12
223:22
238:24
240:11
241:17,18
245:13
282:8
288:23
299:4
300:5,6,
14 303:6

makes
20:9
130:6
302:6
303:2

making
84:10
132:20
225:15
260:11
321:7

managed
106:5,7,8

management
155:12

manner
67:17
273:14
279:4,22
280:14

map
283:23
285:18
286:5,7
288:14

mapped
199:5

mark
48:10
126:19
170:13
191:19

marked
7:6,9,12,
15,18,21,
24 8:2,5,
8 10:22
11:3,6,8,
23 12:23
13:6,14,
18,21
14:3,11,
17,20
15:7
19:13
20:19
21:2,6,11
23:13,19
43:6,14
46:16
47:4,9
48:6
51:12
107:24
108:8,18

109:8
115:7,17
116:23
117:8
124:25
125:2
126:20
127:3
158:10,
14,18,22
159:12
163:5
175:12
181:11
186:15
192:3
215:8
254:19
255:10
266:3
267:8
290:23
293:10,
18,22

marking
51:15

master's
94:21
107:10

matched
69:20

material
16:24
239:13

materials
54:22
171:8,9,
13,16,20

matter
8:14
136:13,
16,18,20,
21,25
183:25
190:5
198:3
224:19
225:19
237:10
238:14
239:22
273:13

matters
237:23
240:2
245:6

maturing
153:13

meaning
91:22

means
34:24
45:19
60:21
64:14
73:7 87:7
128:15
132:15
133:23,24
152:7
172:8
207:17,19
303:13

meant
20:10
24:3,4
79:23
129:19
186:23
200:4
320:15

mechanical
94:19,22
95:12
96:6 97:6

Media
8:12

medications
27:11

Medium
220:12
222:6
223:8,9,
10,12,15
224:16,21
225:23
226:3,8,
9,16
227:6,10
230:7
231:5,7

meet
97:13,22
123:16
150:4
151:2,21
308:12

Mehran
9:10

Melendez
45:11
141:12
224:4

members
102:21

memory
20:10
24:4 90:9
255:19

mentioned
45:14

message
74:14
301:19

messages
312:7
314:17

messaging
301:16
303:11
306:17
307:4
310:9,18
311:16
312:5
313:6

messed
211:3

messenger
275:25
301:21
303:7,14,
18,19,22
304:5
305:8
307:7,23
309:6,7

messengers
303:21

met
120:4

method
176:21
263:7
294:17

meticulous
202:15

mic'd
266:17

milestone
113:3

million
94:13
95:19
119:4
223:21

mimic
64:6
88:11,18

mimicking
205:4

mimics
207:25
208:5,6

mind
22:10
37:17
96:18
127:8
147:21,22
155:14
215:6
236:7
277:3,4
302:4

mindset
243:10

mine
17:13
177:22

minute
18:12
20:23
249:17

minutes
125:20
292:15
318:14,16
321:3

mirroring
306:13

mischaracterization
169:18

mischaracterize
284:15

mispronounce
10:8 51:4
293:20

misrepresenting

199:2

missing
19:9,17
215:4
234:12

misspoke
21:5

mistakes
79:22

misunderstanding
103:8

misunderstood
55:4
129:16
167:22

misuse
202:2

mockup
282:10,13
283:9,19,
24 284:3
285:18,22
286:4,6,7
287:4,13,
14,15
288:5,14,
22,24
289:4,7,
11,17
290:15

mockups
286:12

modal
61:5

modification
307:17
308:14
312:24
314:11
315:6

modifications
315:15

modified
304:20
307:3

modify
72:12
86:10
233:12
236:3
301:12
314:24
315:7

modifying
307:18

moment
73:12
128:6,13
129:13,
21,25
130:4,13
134:18
136:15
138:18,22

money
119:17

monitor
309:16,
18,21
310:8,11,
12 313:7
314:3

monitored
313:21

monitoring
271:19,21
310:22,23
312:14

months
17:23
39:18,19

moon
132:21

morning
10:3,4

Morrison
9:11
29:10

motivation
302:13,14

mouse
264:4,5

mouth
193:22

move
22:21
78:13
80:2
186:5
208:25
301:21
303:6
307:21

movies
299:7

moving
323:15

MPEG
321:18

multidimensional
285:7,9

multiple
154:12

N

names
10:9
288:10

naming
288:9

narrow
196:16

native
312:23

natural
59:16,21,
24 60:3,
8,11,14,
21 61:2,
9,17,21,
22,23
62:2,8,
11,14,17,
18,19,23
63:9,13,
16,23
64:2,3,5,
9,13,14,
16,22
65:9,12
66:4,21
67:2
77:24
78:9,20
79:10,13,
14,20
80:14
81:13
82:23
84:25
88:5
92:14
94:7
97:9,25
101:13,
14,18,20,
23 102:3,
8,24
103:18,
21,23
106:10,14
107:3,7
113:6
133:4
135:18
136:3,7
139:20
140:4,9,
11,12
141:17
179:25
187:14,
19,23
188:4,7,
8,10,18,
20,24
189:6,15
190:3,7,
11,14,15
191:11
194:24
195:19
196:19
198:10,
11,13,14,
17,22
199:4,7
200:13
203:17
204:18
205:8
206:5
207:24
232:24
250:20
252:10
253:11,16
256:25
259:10,15
263:10,
11,19,21
311:9,15
312:3,4
313:12,14
316:13

NDA
30:24
31:7,22
35:25

36:5

necessarily
18:14
68:9 98:5
112:9
113:23
142:19
148:6
150:17
151:13
198:16
202:6
210:5
211:19,25
212:5,15
213:4,13
245:11
246:18
270:2

needed
89:15
103:21
123:11
146:2

Negi
220:19

Neha
220:19

Netherlands-based
110:11

network
94:23,25
95:2,4
312:9

networks
294:25

neural
94:23,24
95:2,4

newer
153:14

Nguyen
9:9 26:20
30:23
45:17
54:7,14
62:24
66:19
68:13
74:8
76:20
80:11
81:6
89:12
91:6
98:25
104:16
111:14
112:3
114:14
115:2
117:17
118:11
119:13
120:18,24
121:7
122:16
125:12,16,23
129:10
131:10,13
137:6
139:14,21,23
140:19
142:16
143:8
144:20,24
145:8
146:7
147:15
148:14
149:13
165:6,17
167:7
168:23
169:9,17,22 170:8,15,20
171:2,12,17,21
177:5
178:17
180:6
183:5
189:3
196:3
198:6
200:3
201:7
202:23
203:8
207:5
208:24
209:19
211:4,10
214:2,17
215:23
218:3
219:23
222:21
223:24
224:22
226:5
228:12
232:17
237:18
238:17
240:22
244:10
245:8
247:2
251:6,18
254:24
256:17
258:7
259:17
260:9
268:23
270:14
272:11
282:12,16,19
283:11
291:14
292:17,23
293:3
315:24
316:10,21
317:2,7,11,17
318:2,7,11 319:3,11,14,20
320:8,13,18,24
322:6,8,12 324:3,18

night
318:10,12

NLP
6:6 66:7
80:20
97:2
111:12,24
191:23
192:3
194:24
195:4,19,24 196:6
197:9
199:13
202:13,21
203:4
205:20

node
73:8
77:4,13
79:12,17
80:2
84:22,23
135:15

nodes
73:9 79:5
84:2

Nods
74:16

normal
29:24
30:7,12
31:12,15,17,25
32:4 35:8
36:2,3
71:23
88:12,17
89:2
201:10

Notary
9:15

noted
158:3
324:22

notes
23:24
41:16
166:20
284:20

notice
7:5,8,11
10:23
11:4,7,9
12:6
13:5,18
14:16
20:5 23:9
319:23

noticed
15:5
38:18

notices
10:21
11:23
16:3

November
114:6
126:9
164:17
222:19
224:21

number

12:9
16:10,13,
14 19:15,
17,25
23:2
33:25
49:17
51:8
60:25
108:24
113:10,12
136:23
137:16,20
138:6,7
139:8
160:17
191:17
210:15,
19,20
211:2,16,
18 212:6,
8,9,24
213:10,19
222:24
240:8
286:22
305:15
314:6
320:11

numbered
47:3

numbers
12:9
18:9,14
36:22
37:23
109:2
163:15
213:11,15

Numeral
52:12,17

O

oath
57:16
156:10
159:9
267:5

object
81:12
94:9
209:3
285:6,8,
9,10,12

objection
28:20
30:23
45:17
54:7
62:24
66:19
68:13
74:8
76:20
80:11
81:6
89:12
91:6
98:25
104:16
111:14
112:3
114:14
115:2
117:17
118:11
120:18
129:10
131:10
137:6
139:14
140:19
142:16
143:8
144:20
146:7
147:15
148:14
149:13
165:6,17
167:7
168:23
169:21
177:5
178:17
180:6
183:5
189:3
196:3
198:6
200:3
201:7
202:23
203:8
207:5
209:19
211:4,10,
12 214:2,
17 215:23
218:3
219:23
222:21
223:24
224:22
226:5
228:12
232:17
237:18
238:17
240:22
244:10
245:8
247:2
251:6,18
256:17
258:7
259:17
260:9
268:23
270:14
272:11
282:12,
15,18
283:11
291:14
323:14

objections
26:10,12
99:3
209:6
319:21

objective
69:23

observations
166:19

observe
72:7

obvious
21:23
45:23
47:2,19
50:4
142:2
303:23

obviousness
48:21

occurred
176:17

occurs
67:11

October
40:8,9,13
110:7
111:3,7,
10 126:9
144:17
147:5
152:22
203:24

offer
302:15

office
35:2 82:7
87:6

online
95:7
200:16

ontological
81:5,8,11
303:15
304:8

onward
92:8
110:20

open
18:6

opened
218:10
220:6

operating
244:23

operation
268:13
269:8
287:7
291:19

opine
302:18

opinion
46:11,14
111:11
152:21
171:7
183:18,23
185:7
193:23
200:19,
21,23
222:19

opinions
21:22
30:3

opportunity
319:6
323:8,24

opposing
30:24

opposite
209:21

option
87:13,14
247:16

options
87:11
200:9

order
12:21
39:15
89:15
100:23
116:13
137:3
196:12
199:18
231:18
235:2
236:22
243:12,15
247:10,12
259:22
303:11
321:17,23

ordered
321:24

ordering
203:12
322:5

orders
324:17

ordinary
95:24
105:5
113:17
152:18
210:23

organizations
154:13

organize
20:8

organized
26:3

origin
211:24

original
39:6
167:3
220:11
222:6
235:25
277:4

outcome
115:24
118:4

outcomes
30:3

outlier
85:3,4

output
89:19

overcome
268:10

overlap
272:9

overlaps
272:7

owner
9:3,5
10:13
25:25
32:22

P

---

p.m.
157:4,6
158:3,25
265:20
266:6
293:6,12
316:4,6,9
322:15,19
324:15,22

paged
15:7

pages
19:3
181:13
182:12
183:17
224:16

pagination
173:20

paid
30:22
32:5,15,20 33:9
34:3
35:15
117:23
118:9,13,18 119:3,9 131:21

paper
12:8
86:21
95:2

paragraph
30:5,9
49:9,15
52:4,11,15,16
53:9,12,16,20,23
54:2
59:12
100:7
104:13
109:14
114:18,22
153:20
164:6,11
165:4
192:15,20
194:20
259:19
265:3
294:21
314:5,6

paragraphs
50:5 52:8
54:6 55:9
165:3,15
166:2,15,25 167:2,25
168:10,20
169:23
172:3
173:14
174:14
181:24

parallel
242:14

parameter
292:5,8

parameters
285:5
287:12,22
289:12
291:12,24
292:3

paraphrasing
196:14
277:8

parsable
86:4

parse
82:16
83:24
86:14
87:18
88:23
90:8
278:5

parser
86:17

parses
79:3

part
32:22
65:20
71:17
73:6
75:21
81:15,18
82:23
92:10
118:8
119:22
121:20
124:8
127:19
143:11
171:2
173:13
181:7
184:20,23
188:10
190:10
197:11,15,19
208:11
209:17
253:2
258:15
262:5,6,7
263:24
264:3,25
267:15
274:5,11
276:16,17
277:17,18,23
278:6,11
283:2,5
285:2
287:5,17
291:5
296:2,12,13 300:9
305:14,17
306:6,24
309:10
311:9
312:3

313:15
318:7

partes
10:16
16:4
23:15
26:8
158:9,13,
17,21
159:19
160:4,16
161:14
162:5,12

parties
24:25
319:22

partner
8:25

parts
91:20
98:10
211:17

party
308:16
312:2

pass
241:21
243:5

pass-through
33:15

passed
219:17
243:3

passes
216:18

past
24:25
94:11

paste
61:15

patent
6:8,9
8:2,5,8
9:3,4
10:13
12:9,14,
19,23
13:7,11,
15,20
14:4,10,
19 15:9
16:19
19:16
20:6
22:25
23:9,16,
19 25:25
40:24
41:10
42:4 43:5
48:2,6,
10,11
51:12,16,
22 52:24
96:23
108:11
109:8
141:15
158:9,13,
17,21
159:20
160:5,17
161:15,24
162:6,13,
18,22,25
163:11,
24,25
165:3,10,
14,25
166:8
167:15
168:3,13
172:2
173:4,9,
17,19
174:15,
22,23
175:11,
15,25
176:5,25
177:7,13
178:2,7
179:3,15,
20 180:4,
15 181:7,
18,19
182:2,4,8
183:2
184:3,21,
24 185:2,
8 186:10,
13,14,25
232:21
236:11
255:18
260:18
266:3
267:8,19
272:22,23
273:3
279:12,20
280:19,20
281:6,19
282:14
286:11,25
287:2
288:10
291:2
292:7
293:9,19
295:13,24
296:21
297:12

patented
185:23

patents
15:6,13
16:4,16
56:5 59:4
100:8
174:24
180:21
183:7
185:15
187:10
197:5
245:22
259:12
271:6
272:8,16
279:19
286:15
298:17,
18,23

patents-in-suit
90:17
112:23

path
87:14,15

pay
33:20
222:11

paying
155:18

peers
66:6

pen
19:24
23:25

pending
27:2

people
29:11
56:16
62:20
63:6,10,
16,22
64:11
67:21
91:17
101:17
102:14
104:5
106:5
122:15
123:2
142:21
150:15,
18,20
151:18
221:24
222:17,
22,25
223:7,10
224:6,7,
24 225:3,
4,6
226:18,22
321:7

people's
321:5

perfect
12:21

Perfectly
25:22

perform
265:5

performance
268:19

performed
279:6,24
280:16
287:7
291:19

period
133:2
192:8
237:20

permission
137:18
323:19

person
28:18
63:21
75:9
77:16
88:14
95:24

96:10
97:4
101:6,8
105:5
112:10
113:17,19
117:12
120:7
128:7
137:12
152:18,19
187:25
194:11,14
195:2
202:18
204:19
207:21,22
210:7
284:11
310:17
313:18

person's
240:6

personal
297:10
314:25

personalization
294:13
295:3
296:4

personalized
294:15
296:17
314:16,22

personally
54:5
56:14

perspective
66:14
152:3
238:11

pertinent
252:20

petition
96:21,22

petitioner
9:12
29:16
96:21
109:9
319:24

Phd
7:1 8:1
9:1,14
10:1 11:1
12:1 13:1
14:1 15:1
16:1 17:1
18:1 19:1
20:1 21:1
22:1 23:1
24:1 25:1
26:1 27:1
28:1 29:1
30:1 31:1
32:1 33:1
34:1 35:1
36:1 37:1
38:1 39:1
40:1 41:1
42:1 43:1
44:1 45:1
46:1 47:1
48:1 49:1
50:1 51:1
52:1 53:1
54:1 55:1
56:1 57:1
58:1 59:1
60:1 61:1
62:1 63:1
64:1 65:1
66:1 67:1
68:1 69:1
70:1 71:1
72:1 73:1
74:1 75:1
76:1 77:1
78:1 79:1
80:1 81:1
82:1 83:1
84:1 85:1
86:1 87:1
88:1 89:1
90:1 91:1
92:1 93:1
94:1,22
95:1,13
96:1 97:1
98:1 99:1
100:1
101:1
102:1,12,
15,18,21
103:1
104:1
105:1
106:1
107:1,13
108:1
109:1
110:1
111:1
112:1
113:1
114:1
115:1
116:1
117:1
118:1
119:1
120:1
121:1
122:1
123:1
124:1
125:1
126:1
127:1
128:1
129:1
130:1
131:1
132:1
133:1
134:1
135:1
136:1
137:1
138:1
139:1
140:1
141:1
142:1
143:1
144:1
145:1
146:1
147:1
148:1
149:1
150:1
151:1
152:1
153:1
154:1
155:1
156:1
157:1
158:1
159:1
160:1
161:1
162:1
163:1
164:1
165:1
166:1
167:1
168:1
169:1
170:1
171:1
172:1
173:1
174:1
175:1
176:1
177:1
178:1
179:1
180:1
181:1
182:1
183:1
184:1
185:1
186:1
187:1
188:1
189:1
190:1
191:1
192:1
193:1
194:1
195:1
196:1
197:1
198:1
199:1
200:1
201:1
202:1
203:1
204:1
205:1
206:1
207:1
208:1
209:1
210:1
211:1
212:1
213:1
214:1
215:1
216:1
217:1
218:1
219:1
220:1
221:1
222:1
223:1
224:1
225:1

226:1
227:1
228:1
229:1
230:1
231:1
232:1
233:1
234:1
235:1
236:1
237:1
238:1
239:1
240:1
241:1
242:1
243:1
244:1
245:1
246:1
247:1
248:1
249:1
250:1
251:1
252:1
253:1
254:1
255:1
256:1
257:1
258:1
259:1
260:1
261:1
262:1
263:1
264:1
265:1
266:1
267:1
268:1
269:1
270:1
271:1
272:1
273:1
274:1
275:1
276:1
277:1
278:1
279:1
280:1
281:1
282:1
283:1
284:1
285:1
286:1
287:1
288:1
289:1
290:1
291:1
292:1
293:1
294:1
295:1
296:1
297:1
298:1
299:1
300:1
301:1
302:1
303:1
304:1
305:1
306:1
307:1
308:1
309:1
310:1
311:1
312:1
313:1
314:1
315:1
316:1
317:1
318:1
319:1
320:1
321:1
322:1
323:1
324:1

Phds
102:11,16
103:25
105:24

phone
68:2
136:23
137:15,20
138:5,7
139:8
212:8,23

phrase
78:2 99:5
140:6
170:2

physically
76:16

physicists
98:4

physics
97:11,17,
20 102:15

pick
57:18
61:16
180:16
312:15,16

picked
183:12

picture
175:25
262:8
305:23

piece
46:21
50:18
86:21

pieces
43:16

pile
12:18
209:12

place
152:15
223:6
308:8
314:9

places
230:6
253:3

placing
309:9

plans
34:13

plate
38:21,23

platform
223:18
275:25
279:6,25
280:16

platforms
312:9

PLOW
248:8
249:6,8,
22,25
250:3,9,
12,18
251:5,11,
20,25
252:3
253:19,20
254:17
255:16
256:5,14,
19 258:11
264:9,14,
21 265:12

PLOW's
259:21

plurality
287:11,22
291:24
292:2

point
25:8
46:12
49:11,25
55:14,19
79:6,8,19
80:10
87:23
112:8
119:16
135:16
149:2
152:14
168:17
182:22
192:10
195:8
215:5
216:10
227:25
241:4
245:22
248:6
252:8,12,
13,25
253:2
260:11
261:17
271:16
275:2,7,
17 291:23
299:16
300:13
310:7
316:14
320:2,14
321:4

pointing
195:8

258:20

pop
61:6

pops
61:13

popular
303:21

portal
65:13

portion
48:24
141:3
168:19
169:23
215:9
262:24
301:25

poses
287:2

POSITA
96:22
97:23
98:21
99:23
100:18
101:7,11
104:15,25
105:6
112:9,12,15 113:2,4,16,22,24 114:6
128:15
130:7
141:19
142:2,7,13,15
143:6,15
144:3
148:13
149:8,9,20 192:24
194:10,11
201:20
254:4,13
301:20

positing
153:3

position
32:6 82:2
169:13
170:12

positions
102:20

possibilities
124:14
154:2
303:9

possibly
55:13
111:18
116:4
148:23
270:21

post
226:17
228:2
229:12
230:17,21
231:17
236:23

Post-its
41:18

posted
220:15
225:10,22
226:8,13
228:5
230:8,13
235:7
289:8

posting
226:12

potential
288:14

potentially
91:16
96:9
149:8
283:10

practice
26:7
156:11
193:11

Prakash
221:2

preamble
175:19
246:10

predefined
196:11

prefer
12:13

prefix
212:12

Premark
7:2

premarked
10:20
12:18
17:25
18:21

premise
150:7
151:10,23
152:5
181:3
207:23

preparation
39:6

prepare
34:10
115:16
116:22
117:7
118:14
131:21
147:5

prepared
23:6
34:25
126:23
186:14

preparing
34:20,22
39:3,4
114:24
115:22
242:2

present
185:20
258:4
268:8
294:24
297:20

presented
112:5
126:22
139:19
141:13
167:19
187:4
251:12
263:16
295:13

presenting
142:17,24
143:23
148:3,4
150:22,24
185:21
268:18

presents
197:8

pressed
138:2

pressing
197:21

presume
68:7
323:12

presumed
234:7

presumption
305:13

prevalent
223:8

previous
137:23,24
139:11

previously
23:13

price
251:3

primarily
93:2

primary
41:9
45:14,19

prior
42:15
43:17
44:5
46:22
49:19
50:9,10,13,18
52:12,13,17,24
104:6
105:10
110:4
111:9,18
143:17
144:17
155:10
223:5,22
261:22
262:25
263:9
288:10

priority

164:5,11,
14

privilege
26:14,25

privileged
31:5
131:15
169:10,14
170:7,18

privileges
121:3

problem
31:16
268:17,19
269:5
270:24
271:6
272:6,7,
16,18,21
273:12
274:10,
12,13,21
276:21,22
277:22,
23,24
278:5,7
279:2,11,
19,21
280:10,
12,17,23,
25 281:7
282:3
284:2
285:14,
15,17
287:3
288:12,21
290:2,5,
6,10,14
291:2
295:9,12,
22 296:18
297:7

problems
105:9,10
268:11
286:18
289:25
297:14
299:22

procedure
29:19

proceeding
30:4
115:24

proceedings
10:14,16,
17 16:5
26:9
118:5

process
66:12
69:5 70:3
71:19
72:7
84:5,25
88:21
89:13,16
90:14
110:8,13
123:19,25
124:4,6,
15,22
129:4
130:8
131:23
133:16,17
149:15,
22,23,24
151:25
153:16
154:21
166:24
168:6
171:3
179:18,23
187:15
190:6
198:21
208:12,14
210:9
213:23
217:18
227:8
228:4
230:2
231:9
233:15,
18,23,24
234:2,5,
9,17,18
235:19
236:7,16,
19 239:7,
9,14,16,
19 240:5,
11,15
241:11,
12,16
243:2,6
244:14
246:5,11,
12,14,17,
21,23
247:7,8,
12,13
248:9,11,
13 249:2,
4,7,9,12,
14,21,24
250:7
252:9,14,
24 262:15
265:5
267:21
268:3,9
270:21
272:4
274:20,
22,23
275:10,
18,20
276:3,12,
24 277:16
278:3
281:9
287:6,10
289:14
291:5,6,
12,18,22
297:16,17
298:3,5,
8,15
299:4
300:16,20

processed
63:25

processes
58:23
80:19
98:3
130:21,24
154:11
249:10
274:3,5,
14,16,18
275:4,8
276:7,9
277:14,25
278:22
279:3,22
280:14
297:23
298:23

processing
59:17,22,
25 60:9
61:9
62:2,18,
19,23
63:10,13,
16,23
64:5,7
65:9
78:10,20
79:15
80:15
81:14
82:24
88:21
92:14
94:7
97:10
98:2
101:13,
15,18,21,
24 102:4,
9,24
103:19
106:11,15
107:3,7
113:7
133:5
135:18
136:3,7
139:20
140:4,13
141:18
149:5
187:20,23
188:5,8,
11,15,18,
20,25
189:6,16
190:4,7,
12,14
191:11
194:24
195:19
196:19
198:17
199:5,7
200:14
203:17
205:8
206:5
230:5
257:2
308:17

produce
17:14

produced
113:15

produces
137:11

product
68:24

productivity
154:12,22

products
113:6
142:23

professional
109:20
111:10
122:13

professor
33:18,22

proficiency
69:14,16
74:19

program
70:12,19
71:5,8
92:16
242:8
260:22
261:8,25
262:19
263:9
264:13,
14,20,21
265:8,10,
12 269:17
271:12,13

programmed
71:2
76:17
133:4
135:17
136:2,6
221:10

programmer
71:24
110:19

programming
221:12
269:14

project
110:4
114:2

promising
153:15

promptly
25:23

prompts
81:23

pronouncing
10:9

proof
112:19

proofread
19:6

proper
67:17
83:14
84:8
113:18
122:14,19
205:21
208:3

properly
26:4
155:22
242:18
243:8
300:7

properties
81:5,11

proposed
96:21
168:12
315:5

proposing
307:20
314:11

proprietary
85:14,17
91:3
306:9

prototype
106:20

provide
26:13
36:9
89:20
164:14
186:23
229:7
273:14
300:25
301:2
308:21,22
323:8,25
324:5

provided
82:11
87:21
112:2
117:10
121:25
122:7
137:12
225:13
254:11

providing
149:24
225:18
298:5,7

provision
294:16
295:7
296:8

PTAB
26:9
31:16
42:12
156:10
160:3
316:25
317:2
323:17
324:8

public
9:16
223:6

Publication
293:19

publicly
222:20,23
223:25

publish
179:19
223:19
227:7
228:2
229:12
230:17
231:22,23
232:13
235:14,
17,18,20,
21
236:20,23
238:5,12,
20 239:8,
24
240:18,
19,20,24
242:9,10,
12,15,20
243:8,16
244:16
246:7

published
111:8
223:3
227:5,10
229:21,25
230:3,6
235:25
237:10,14
244:23
245:7
255:16,21
256:3,4,
5,10,12

publishing
152:21
155:8
175:22
179:23
232:5,23
233:4
236:17,25
244:7

pudding
112:20

pull
37:17
255:8

purpose
129:2
268:2
270:13

purposes
164:15
223:5
237:2

pursuant
11:22

put
17:5
20:12
22:7
23:22,24
48:21
72:24
75:8
167:13
168:20
169:24
172:10
177:14
181:11
193:22
206:25
211:2

228:22
229:15
230:16
231:15,16
241:24
253:4
302:10,13

putting
147:7
168:12
177:6
180:13
236:8
253:12

Q

qualifications
149:20

qualifies
52:23

qualify
97:4,7
101:19

quash
323:15

question
17:2
25:12
26:25
27:2
28:19,21
29:2
30:10
44:23
54:24
55:5,6,7
63:4
67:24
75:24
76:19
78:17
83:3,4
89:25
99:5
109:10
115:13,14
117:5
121:8,11
122:3
124:21
127:9,13
128:23
129:16
135:21
137:3
138:8,10
139:11,12
140:16
141:20
145:6,11,12 147:20
169:8,22
170:20
171:13,14
174:11,25
176:20,22
177:21
178:10,11,14,21
179:10
184:14
186:3
190:22
191:4,14
198:3
200:12,16,25
201:5
205:24
208:20
211:14
216:23
217:4
229:23
239:21
241:15
243:18
246:15
247:10,20
255:3,14,20 268:25
277:5
282:23
290:9
292:11
296:25
297:3
298:20
300:2
302:23
312:19
317:12,14

questioning
66:9,10
125:15

questions
29:19
67:20
71:14
72:2
98:22
136:12
139:10,13
144:4,7
221:16
292:18
299:6
315:11,13
317:6,10,15 321:4,9

quick
17:15

quickly
15:17
136:10

quote
39:22

quotes
168:11

R

Radakrishnan
54:2

Radhakrishnan
267:14,19
268:4,17
269:5,20
271:18
272:6,15,24
273:20,21,25
276:16,23
277:7,12
278:15,19,21
281:2,6
288:13,17

raised
38:6,10

raising
38:15

rapidity
105:11

rapidly
153:6

rate
29:24
30:20
31:12,15,18,25
32:5 35:8
36:18
38:7,11,15

rater
69:20,24
70:2 75:2
76:5,14,18 77:9,13 78:18,19 79:24
80:4

raters
75:3
88:16

rates
30:17
36:3 37:2

rating
72:8
74:19

read
6:15
25:19
42:20
47:16
52:20
59:23
60:6
96:11
104:23
114:17
123:3
127:12,14,17,18
146:16,21
147:16
153:21
154:25
155:20
190:21
191:4,6
192:12,14,20
195:5,11,13,15
196:20
202:10
226:8,22
259:18
262:17,21
264:11,25
265:11

267:18
273:9
274:19
275:11
281:23,
24,25
284:14,
19,20,24
286:19
289:5,6
290:13
291:17
294:10
296:2
298:3
315:3

readable
86:15,25
88:24

readily
40:2

reading
152:18
154:14
173:8
192:11,
17,18,22
196:10
206:3
257:3
263:5
280:7
314:5

real
285:24
286:3

reality
244:19,21

realize
87:7

realm
130:18
303:13

Realtime
324:18

reason
27:5
138:14
139:9
159:5
266:13,25
301:10

reasonable
119:20
228:4

recall
37:15
39:12
44:17,20,
25 45:4,
12 102:10
115:19
118:23,24
173:5
189:19
222:15
231:6
295:16

recap
52:8

receive
288:22

received
109:25
111:16
119:18
217:22

receives
314:17

receiving
219:11
314:20

recess
57:6
157:5
265:25
293:7
316:6
322:16

reclaimed
183:19

recognition
32:6,11,
16,19
33:10
62:22
63:7,21
78:9
94:8,9,12
95:8,9,20
101:16,20
103:2
106:6

recognize
12:25
23:17
108:10,17
109:11
159:16,23
160:21
161:21
162:9,11
267:12
293:25
294:3

recollection
22:4 45:6
56:3
58:12

recommendation
294:13,
16,20,25
295:3,7,
17 296:4,
11 298:6,
8 299:5
300:4,14,
18 314:16

recommendations
296:8,17
297:10
300:6
314:22,25

record
8:11 9:21
10:23
22:18
25:10
28:5,8,14
42:21
47:17
52:21
57:4,8
59:7 70:2
86:14
104:23
107:19
127:14
146:21
157:3
158:24
160:12
190:8
191:6
192:15
193:4,24
195:12
202:11
209:2
215:8
265:20
266:6
267:20
293:6,12
294:11
299:10
316:4,8
321:11,
13,16
322:14,
18,21
324:4,10,
15,17

rectify
268:12
269:16

rectifying
269:7

redirect
315:13
316:12,
17,23
317:25
318:4,15,
20 319:7,
19 322:24
323:6,25
324:5,9

reduce
269:10

refer
9:4 12:3,
7,13
13:9,10,
23 14:22
50:12
53:11,14,
18,22,25
54:4 67:3
81:7
178:23
205:13
253:23
302:7
304:25

reference
14:9
42:19
45:15
46:2 51:7
53:12,15,
19,23
54:2,10
255:24
285:3
288:3,8
289:9,10,

13 294:6

referenced
42:16,17
161:4

references
44:18,19,
25 46:10
52:23
53:3,8
54:5,21
55:8,9
56:2
139:18
141:13
208:2
224:5

referred
12:5
40:23
53:19
72:18
149:7
160:24
227:18
283:6
303:25

referring
12:4 13:4
18:23,25
42:19
51:19
53:3,8
78:2 85:8
93:8
100:9
108:23
127:15
128:24
134:7
163:13,16
180:9
192:7
257:13
259:19
261:20
262:5,6
263:25
264:20
271:18
280:3
284:8
290:8

refers
59:25
60:9
264:12,18
289:23

reflect
22:18,19
25:11

reflected
66:16

reflecting
66:17
192:25

reflects
59:7
137:9

refresh
22:3
58:11
255:19

regular
324:19

reimbursement
29:24

relate
58:20

related
130:17
144:23
149:17
184:21
186:21

relates
50:2
280:13
294:24
297:21

relating
299:21

relationship
244:12

relationships
120:2

relevance
209:4

relevant
58:8
112:18,23
164:16
180:2
215:24
296:12,13

relied
257:16,17
267:11
272:2
294:7

relies
303:16

rely
104:6
110:5
111:2
257:8
261:14
271:25

relying
45:15
46:3
48:24
117:20
122:20
258:13
259:9
261:10
291:10
301:11

remember
17:15
22:14
40:15
42:23
51:24
102:17
110:22
136:9
168:15
172:15,
17,19
194:8
205:13
207:7
212:4
216:9
220:18
221:7
222:10
234:14
255:14
277:6
305:15

remind
156:9
159:8

remote
220:3

remove
167:18
307:21

removed
172:13,17

repair
68:2

repeat
55:6
297:4

repeated
83:5

rephrase
21:9 63:3
67:5
74:10
90:3
99:22
109:5
122:2
167:23,24
179:12
272:13

replace
298:24
299:5
307:4

replaced
311:25
313:17

replacement
300:3

replacing
309:4
311:2,5

replication
165:4
166:2

report
37:7 62:3
105:2
162:17
163:19
164:16,21
170:11
171:11
172:23
175:25
176:3
182:16
186:15
270:10
273:4
281:12
301:25
305:22

311:12
315:15

reporter
8:18 9:19
24:6
27:16
28:3,13
51:10
65:5
66:17
127:12
146:20
191:18
277:3
324:16

reporting
268:5

reports
63:18

represent
9:3 100:6

representation
282:6
286:9

representations
284:13

represented
29:6
285:8

representing
8:19
10:12
29:14,15
31:2,23
285:4

represents
285:11

request
25:19
169:4
260:3
310:15,16,18

requested
129:18
259:2,3,5

requesting
210:8

require
140:15

required
269:11

requirements
97:13

requires
100:11,13
240:5

research
95:6
102:11,18,20,25
203:12

researcher
56:5

reserve
315:12

reserved
26:11

resolve
324:10

resources
269:11

respect
11:24
13:5,20
14:7,18
15:6
16:18
22:4,25
44:3
48:22,24
52:7
56:19
121:2
166:8
168:9
183:2
269:6
272:24
281:5
287:8
291:20
295:13
299:14,15

respond
67:16
72:3 76:9
81:25
82:10
89:25
91:4,19
127:10
136:4

responded
64:3
84:19
91:17
221:20

responding
54:25
141:21

responds
128:7
134:18
136:14

response
61:21
70:8,10
75:13
83:6,9
84:8 91:5
135:6,10
138:16,19,21
139:4,6
142:9
144:7
199:8
201:4,8,10 207:3
212:24
213:2
310:6

responses
26:2
83:11,19,20 308:20

responsibilities
110:14

responsibility
147:25

responsive
186:6

rest
275:13

restart
288:19

restate
283:4

restated
183:20

restricted
121:23
122:5

result
237:14
251:16

resulted
90:25
298:4

results
199:5,6

review
10:16
16:5
23:15
25:15
26:8
59:16
158:9,13,17,21
159:19
160:4,16
161:14,24
162:5,12
255:18
299:21
302:3

reviewed
117:11
256:6
302:24

reviewing
48:14,19
49:3,6
51:25
140:22
166:11
257:11

revivers
95:4

reworded
172:18
183:19

rise
193:8

Ritchie
95:16

RNT
129:12

Road
9:24

Roborana
110:10,19
124:8

127:19
129:12

robot
123:22
151:25

robotic
110:8,13
149:15
153:16
267:21
268:3,8
271:13

rock
215:22
216:5,20
219:3

role
136:19
139:5

Roman
52:12,17

room
276:13

Rothstein
9:2

rough
324:18,21

RPA
111:24
123:16
124:10,12
127:21
128:12
149:5
150:4
151:2,21
152:24
154:2,6
155:3
214:13
218:7,9,
10,11,17,
19 219:3,
4,17
221:3,10,
11 240:11
241:2,22
244:13,22
259:11
268:9,20
269:20
270:8,12,
16 271:2,
9,10,11,
13,17
272:3,17,
18,19
281:8
290:3
298:14,15
300:16,20
307:22

RPAS
58:24
111:7,13
143:20
146:4
147:9
150:8
151:8,25
154:17
224:7
283:24
284:5
300:22

rule
77:23
188:12

rule-based
6:5
77:18,21
187:15
188:6,15,
17,24
189:15,25
190:13
191:10,23
192:3
194:23
195:4,18,
23 196:5,
16 197:9,
22 198:4
199:13,18
200:11
202:4,5,
13,20
203:3,21,
23 205:20
206:5,13
208:9,12

rules
25:5
187:21
188:12
196:12
198:20
199:7
206:24
207:2
208:13

run
89:21
91:10
219:3,17
223:14
234:23
270:3,12

running
214:13,23
217:12
218:9
220:2,3,4
257:5
269:21
270:3,5

résumé
37:18
57:20
94:14
181:12,20

S

Sachin
221:2

Salem
9:24

San
248:18,24

saver
216:4,7,
19

saves
250:6

scenario
76:2
150:23

scenarios
72:10
78:11
84:23
85:3
211:20

scenes
65:21

science
64:6
95:11
96:3,25
97:12,16,
19,21
99:9,18,
21 100:14
101:3
102:14
109:23
113:8
143:18
144:14,22

scientists
107:9

score
282:7
285:21
286:10
287:19,25

screen
137:14,
23,25
216:4,7,
19 305:5

script
70:11
71:11
72:17,20,
24 73:2,
3,6 80:6,
8 81:4
82:9,16
83:18
84:4,11
86:4,8,
11,13
87:21
88:4,7,
22,23
89:3,4,9,
10,20
90:5,24
138:16
140:14
198:2

scripted
135:20

scripting
78:25
82:22
83:4
84:12
89:2,5,6,
9,24
93:17,18,
21

scripts
68:4,9,12

scrolling
137:23,25

search
24:5
224:13
226:23

searchable
224:11

secretarial
102:19

section
47:21
52:12
163:23
164:3,10
173:18

sector
124:12

sectors
124:12
127:23
128:11,12
129:7

seek
324:7

sees
223:13

select
176:9
200:8,18
291:6

selected
287:23,25
288:2

selecting
287:23

selection
83:18
200:7

selective
177:9

semantics
190:5

semester
33:23
34:4 35:5

send
219:19

Senne
107:25
113:14
217:23

sense
62:21
64:6
241:18
298:15,16
300:21
302:6
303:2,6

sentence
52:21
60:5,7
81:12
97:14
114:17
170:6
187:23
194:6,20
195:16
237:20,
22,23,24
273:9,23
275:13
276:5
277:10
282:2
315:3

sentences
168:11

separate
175:19
210:9
229:4
236:13

separately
99:11
188:22

September
40:16
41:5,8,
21,23
42:5
43:20,22,
23 44:6,9

sequence
265:6

Server
33:2

service
33:6
35:9,14,
17,21
301:16
303:22
305:8
307:4
311:16
312:5

services
32:23
33:22
275:24
276:2
306:18
309:6,7
310:19

session
314:21

sessions
34:5,8

set
74:22
83:10,11
84:21
126:10
176:24
249:4
294:21
296:18
297:8
316:20

setting
128:17
129:15,19
130:20
275:15

share
227:7

shared
180:21

she'll
28:20

shocked
68:11

short
25:24
177:6
180:12
281:18
292:16,20

shortly
54:17

show
107:23
115:9
124:20
132:13
141:9
152:12
174:15
181:25
189:10
249:25
252:7,9,
11 261:11
262:9

showcase
123:19
132:6,8,
10,18,22
133:2,6,
15,22
138:15
142:18
146:2
147:6
148:4
149:22

showcasing
132:18,23
142:20
143:23
148:8,18,
20,22
149:17,
18,21,25
151:4,12,
15 152:7,
13 153:18

showed
133:15

showing
132:16
133:23,25
147:6
151:15
218:22
219:2
252:9

shown
131:22
150:17
178:15,16
259:13
265:14

shows
94:15
138:2
258:6

sic
25:12
185:13
281:6
316:5

side
64:21
270:3
272:17

sign
6:15
25:16,20
172:11

signature
40:5,6
73:21
74:5,7
123:20
124:7,17,
24 125:6,
10 126:7,
9 128:7,
8,15,21
129:2,14
130:3,6,
22 131:24
134:20
135:6
136:16
138:19
181:21
217:25
218:12
219:5,20

signatures
74:5
130:14
135:16

signed
17:23
18:18
30:25
31:7 40:4
41:7 42:3
43:21
44:3,6,9
118:2
172:6

similar
59:14
111:18
174:20
279:16

similarity
285:20
287:19

similarly
287:24

simple
71:11
179:13
252:13

simplest
146:5
147:13

simply
221:10,12

simulate
265:8

single
129:2
180:13
181:7
182:11
184:12

sir
97:19

sister
149:10

sit
19:7 37:6
72:8

sitting
15:12
27:18
29:11
65:5
111:22
166:7
208:10
223:21
276:13

skill
95:24
96:10
105:5
132:9
152:18,20
210:24

skills
113:17

slide
216:11

slightly
90:3
297:6

small
213:14

smarter
194:14,18

snapshot
94:15
261:12
262:3
264:2

snapshots
58:2

so-called
112:19

software
59:18,20
60:12
61:8
64:8,17
70:20
71:4,9,18
73:14,15,
19,25
76:16,18,
22 78:8,
17,19
83:21
84:16
85:25
87:17
89:11,20,
21 91:3
94:19
96:7
124:20
129:7
132:12,
13,19,24
141:18
143:24,25
208:6
213:2
219:5,8
220:2
254:17
255:16
264:9

solution
110:18
285:14

solutions
8:20
105:10
289:25

solve
296:19

solved
297:8

someone's
117:21

sophisticat
ion
105:12

sort
67:9
71:14
72:13
77:22
86:3
222:23
301:8
312:16

sound
83:16

sounds
90:22

South
9:24

speak
26:19
28:18
62:16
92:24
122:22,25
265:22

speaker
94:8

speaking
61:19
66:15,22
81:19,20,
21,22

speaks
185:10

special
303:3

specialized
153:24

specific
30:14
72:6 76:2
78:25
79:7
82:22
84:12
92:6,11
93:21
96:17
101:8
112:10
139:11
140:15
144:14
148:23
152:14

154:9,19
190:10
196:7
201:13
211:16
227:24
249:9
255:20
270:15,22
271:9,17
275:17
291:16
296:2
301:8
311:3
313:12

specifically
31:21
35:25
46:6,8,12
50:17
98:7
100:13
107:21
117:24
141:11
142:20
148:7
153:4
196:8,15
230:7
231:7
244:2
253:24
271:8
272:19
286:15
297:15
303:18

specification
69:17
164:20
167:4
168:2
173:4
180:15
182:8

specifications
165:19
175:3,4
177:8,16
178:9
183:15

spectrum
124:11
127:22

speech
64:23
65:2,10
66:11
78:8
80:18
94:8 95:8
101:16,20

spell
28:11,13

spend
20:23
34:19,22
35:2,4
39:4
248:8

spent
39:2
172:22
173:2,13
318:14

spoke
46:11
63:25
116:10,17
131:7

spoken
46:9
56:15,18
116:13
125:8
208:18
303:17

staff
102:20
208:19

stake
115:23
118:4

stand
24:19
37:3

standard
62:16

standing
321:17,23

start
73:8
79:12
105:15
110:3
144:18
146:23
159:17
162:21
192:14
213:11
234:4
284:2
317:25
318:6

start-up
32:7,8
133:15

start-ups
133:11

started
36:13
88:8,9
95:15
111:7
156:3
228:9
278:4
318:21,23

starting
48:20
52:16
77:7
138:12
163:12
175:20
197:14
257:10
268:7
273:10
290:15

state
9:16,20
28:20
98:7
100:19
166:22
187:22
193:4
209:2
324:4

state-of-the-art
193:2

stated
97:3
99:20
130:4
182:20
183:17
212:3

statement
61:20
95:25
192:11,
21,23,24
193:5,16
206:19

statements
86:25
195:6

states
109:19,25
110:7

stating
244:18

statistic
225:6,10

stay
321:7

stayed
93:11

step
73:19
176:15,23
177:24
178:3,15
179:15,
16,18,21,
23,25
241:20
246:12

steps
176:6
183:3
236:14

sticks
168:17

stipulated
26:12
319:22

stop
75:17
76:12
145:20
273:18
320:4

stopping
316:14
320:2,16,
18

straight
145:25

straightforward
179:11

strictly
131:15

strike
138:24
186:5

strongly
30:19

structure
90:10

structures
90:9

students
35:3

studied
15:13
149:16,23

stuff
101:10
132:21

subject
183:25
273:13
323:14

submission
39:23
171:4

submit
25:24
170:18
226:20

submitted
15:14
18:5
21:13,16
37:20
41:3
42:5,11
51:19
108:19
170:11,21,25
172:5
225:12
235:6

subparagraphs
175:20

subspace
180:8

substituting
313:11

suggest
30:19
177:25

suggesting
195:21
279:18

summarize
165:15,24
167:3
181:6
281:12

summarizing
165:11
182:3

summary
47:20
91:9
163:24
165:7,18,19,21
166:6,10,12,13
168:2
173:3,7
174:15
177:16
180:16
181:8
183:14,20
184:13
185:20,21
238:15
281:22,24

summer
172:20

supplement
19:9

support
163:2

supposed
74:23
104:14,24
180:16
244:11
284:17

sworn
8:23 9:15
24:6

Symons
21:24
44:16,21
45:9
53:3,4,8
55:12,13,17,20,25
56:6
107:15,21,25
108:7
109:13
110:4
111:2
114:5
115:5,15
116:22
117:7
119:3,17
120:3
123:7
124:5
126:24
131:7,20
141:4,10
142:15
143:10
144:9,11
146:25
151:24
152:20
153:3
196:24
197:7
198:12
201:17
207:3
208:23
209:10,16
212:22
213:25
214:13
215:22
217:23
218:15
219:8
220:8
225:9,11,20 240:4,9 244:9,21 253:7
299:14

Symons'
214:16

Symons's
109:17
214:19,22
215:2,10,16 219:6,18

sync
245:20
321:18

synced
322:10,11

system
69:21,22
70:8,10
73:16
75:12,13
77:18
81:19,20,21,22
106:21,25
123:7
132:16
181:5
182:6,7
183:13
185:21,22
188:7,8
199:4
207:24
226:19
244:19
249:6
257:17,21
261:7,8
268:13,20
269:9,22
271:21
275:22
276:4
289:15
296:14
298:12
300:4,15,18 303:5,11 304:15
310:19,20,24
312:11,13
313:4,6,17 314:3,16

systems
288:6
297:22
304:10
312:9

T

Tab

255:9

table
27:23
29:12
253:12

taint
122:12

taking
27:10
35:13,16
75:10
76:7,10
77:16
101:3
117:25
119:20
169:12
275:14
318:11

talk
46:6,8,21
63:15
65:11
90:17
99:10
120:11,
15,23
121:9,13,
24 122:6,
19 141:14
156:17,18
163:15
182:12,
14,15,18,
25 185:25
186:2
249:17

talked
150:18
248:25
320:19,22

talking
48:16
50:16
51:6
53:15
60:16,18
63:22
65:12
66:6 67:7
69:13
77:3
81:17,19
92:12
93:22
95:23
101:6,8,
10 113:16
128:19
142:3
151:18,19
166:24
181:14,18
182:22
189:22
202:16
209:15
231:9
232:22
233:3
245:9,10,
23 247:5
251:23,24
252:2
260:17,18
264:24
270:16
273:24
277:11
285:13
288:16
291:11
303:19
306:5
317:8

talks
81:5
104:12
141:12
196:22
201:17
232:22
246:10
265:4
279:2
304:6

tandem
241:5
245:25
246:2

target
261:7,8
262:14,18
268:19
275:22
276:4
289:15

task
259:20,21
269:12,13

taught
252:17,
21,24
313:2
315:2

teach
250:3
252:14,15
309:25

teacher
106:24

teaches
259:10

teaching
34:14
95:10
307:15

Tech
36:15

technical
60:19
62:21
63:21
94:18
185:7
268:10
273:12
279:2
280:5,9,
12 286:18
289:24,25
290:2,5
294:19
297:19

technically
190:9

technologies
32:11,17,
19 33:10
62:22
94:13
95:21
103:2
106:7
153:7,12,
15,25
154:3,9,
19

technology
34:20
63:7,21
66:7
92:4,5,
20,22
93:19
105:12
124:10
127:21
128:12
153:5
256:15
268:9

Tel
36:15
37:10

Telegram
304:4
311:3
312:6

telephone
60:25
210:15
240:7

telling
61:20
116:18
199:8
261:13

tells
135:2

ten
38:5 68:2
212:4

tend
56:4

term
143:19

terminated
319:2
323:21

terms
194:15

test
20:10
24:4
69:25
75:10
76:7,10
77:17
78:4,5,6
82:6
122:20
204:15,
17,24
207:18
248:13

tested

78:5
234:21

tester
76:6,15
77:9,14

testers
88:17

testified
9:17
31:11

testify
159:5
266:11,
14,23

testifying
11:22
27:6
36:14
57:13
267:2

testimony
38:11
58:7
115:25
116:3
118:7
122:20
149:12
156:13,19
170:12
182:5
184:4
189:12
260:14
315:18

testing
69:14,16
98:16

tests
74:23
205:2,7

text
61:19
64:19,22,
25 65:15,
18,20
66:12
80:18,19,
20 81:14
137:2
197:25
198:9,11,
13 200:12
201:9,10
208:12,
14,15
228:11,20
229:6,8,
16
230:16,
20,25
231:4,15,
16 255:23
308:17,
18,19,20
310:6
314:17

texted
66:23

theory
98:22
151:11

thesis
94:24
95:5

thing
20:18
31:19
37:9,20
88:8
92:23
101:4
128:18
134:3
138:17
146:5
148:23
153:11
163:8
177:8
180:24
183:18
184:16,17
185:16
201:10,13
204:20
206:13
207:7
230:14
234:11
236:24
237:2
238:24
241:25
262:9
275:9
289:23
301:7

things
15:2
28:2,18
38:18,19
55:3
71:15
77:8 78:6
79:24
86:10
111:19
118:14
126:13
127:16
128:18,22
129:18
130:9
150:8,15
180:14
185:14
188:13
210:13
211:25
223:12
225:22
229:4
235:10
239:2,5
242:14,
18,19
243:15
245:21
249:19
250:16
251:9
262:4
284:7
288:25
289:3
298:24
300:25
303:10

thinking
21:4
151:8
201:16

thinks
151:24
152:7,9
155:6

third-party
30:15
35:9,14,
17 275:24
301:16,18
303:11
307:13
311:16
312:5,8,
11 313:17

Thomas
9:7

thought
103:9
135:3
150:12
152:23
165:25
167:22
181:25
195:3
201:14
297:5

threshold
282:8

thresholding
286:10

thrilled
190:18,20

ticket
203:11
247:25
248:17,23
269:20
270:9,13,
20

tickets
246:21

tie
233:14,
17,22,23
284:4
291:4

tied
307:9

time
8:11
17:16,22,
23 21:19
26:23
28:19
34:7,15,
19,20,22
36:18
38:15,19
49:5,7
57:4,8
78:14
82:6 92:3
94:2 99:3
113:18
114:19,
21,23

115:22
116:4
118:13
119:21
133:19
134:5
139:18
144:25
157:3
158:3,24
173:2,13
177:20
190:2
192:8
211:11
224:2
248:8
255:18
259:22
265:20
266:6
293:6,12
297:4
315:10,
11,21
316:4,8
321:6
322:14,18
323:22
324:22

times
24:10
27:25

tired
125:21
145:14

title
160:8,9
201:6
202:10,12
242:5
251:3,13
252:5
253:4
257:18,22
259:14
260:8,12
267:18
294:11

today
8:17
11:22
15:12
24:3,4
27:8 29:7
34:16
37:6
111:22
166:7
260:15
317:24
318:19
323:6

today's
25:5
27:15
324:13

told
36:2 79:4
81:2
119:2,8
120:16,19
121:9
155:12
226:6

tomorrow
316:18
318:22
323:13

tonight
316:19
322:24

tool
221:3

tools
84:21

top
10:24
18:6
20:21
22:11
313:9

touch
96:7

track
29:4

traditional
269:13

train
249:5,6
259:7
303:4

trained
249:12

training
87:9
249:8
251:16
254:7,10
258:21
310:12

traits
79:7

transcribed
27:15

transcribin
g
65:3,6

transcript
25:16
322:11

transcripti
ons
65:16

transition
216:10

translation
126:16,23
127:2
208:23
209:10
212:21

Travelocity
261:4
269:19

treat
316:24

treating
197:7

tree
91:22

tremendousl
y
154:11,21

trial
156:10

trigger
220:22
221:25

true
46:4

truth
20:11
24:5
117:21

truthfully
27:7
115:9

Tuesday
84:9,10

tune
72:13

Turing
204:15,
17,24
205:2,6
207:18

turn
21:21
52:10
66:11,25
90:8
163:9
174:12
212:22
216:3
273:4

turned
216:11

turns
72:19
80:18

type
62:3
69:12,17
83:2
105:9
107:5
138:17
144:14
166:14
197:3
227:11
228:10,19
230:20,25
231:3
237:19
253:13
259:10

typed
137:2
138:17,
20,22
228:8

types
6:5
134:17
135:5
191:22
192:2
195:22
202:12

typical

268:13
269:8,25

typically
68:5

typing
64:24
65:25

U

UI
285:6

unclear
217:11
282:19,24

underlying
86:4
92:14,20
279:6,24
280:16

underneath
13:13
14:3
61:14
123:21
142:5

understand
11:21
14:9,13,
16 15:3
19:5 24:3
25:9
26:2,15
27:14
28:3,6,12
29:16
31:10
36:7
52:22
57:15
58:19
59:3
61:25
63:17,20
66:4
67:8,16,
24 90:20
93:7
96:13
98:10
105:3,7
106:11
107:22
115:4
130:6,7
154:17,18
155:20
156:15,21
163:20
169:21
176:18
178:5,12
179:10
181:10
186:22
187:13
188:21
194:4,25
195:20
196:2,4,7
204:18
205:23,25
206:7,10
210:7,10,
12 218:5
226:16
230:24
231:8
238:3
241:6,7,8
253:5
254:3
261:13
268:2
272:14
276:10
280:2,24
282:23
286:17
300:13
321:19

understandi
ng
13:17
29:17
35:12
36:8
115:15,20
116:6,21,
25 117:2,
6 118:12
123:24
130:10
137:13
143:3
150:3
154:24
160:2
161:3
173:9
197:17
208:7
214:10
216:24
217:6
223:23
229:19
232:4
244:8
263:20,22
268:16
283:12,16
294:14

understands
65:23
154:25
155:2
208:5

understood
25:11
193:3
204:23
228:13
262:17

undertaking
149:2

unit
187:24

unknown
224:17

unnecessary
183:25

update
232:15

upfront
15:2

URI
308:23

URL
228:23
230:16,21
308:22
313:23

user
61:24
64:20
65:14,17,
22 66:14
72:21
73:14
75:6,9,
11,25
77:9
81:20,21,
22 85:18
134:7
138:3
179:24
196:10
215:18
251:12
252:22
253:13
258:5
259:21,23
260:21,24
261:24
263:8,11
264:12,
15,19,22
265:7,8,
13 268:14
269:9
273:14
287:9,20
291:4,21
295:10
297:21,23
305:18
309:15
312:7,10,
21 313:5,
19
314:19,21

users
295:6,7
296:6,8

utilize
304:14

utilized
92:7
297:24

utilizes
196:18

uttering
187:25

V

valid
141:22
210:20
213:10

validate
209:23,25
210:6,10,
18,25
211:22
212:18

validates
209:18

validation
210:8
211:19
212:5

validity
165:14

valuable
38:20

valued
38:20

vector
283:18
285:7,9,
10 287:23

vectorial
282:6
284:13
286:9

verbatim
167:8,11

verified
74:24

verify
69:25
78:14
140:17
219:20
286:6

vernacular
148:11

versa
289:2

version
72:11,21
214:22,25
215:12,
16,17
232:2,5,7
233:8,9,
10,11
309:2,4

versioning
229:18

versions
232:14
233:6

versus
8:15
136:7
196:5
202:13
243:12
247:11

vetted
229:20

vice
289:2

video
53:9
125:11
147:5
212:22
214:8,11
217:7
220:21
227:17,
19,21,23
228:10,
15,23
229:8
230:8,13,
15
231:15,16
314:18
321:23,25

view
45:23
119:5,10,
18 120:9
121:22
122:4,18
262:13
311:20

viewed
225:7

viewer
226:11

views
151:19

Villanueva
8:16

Vimeo
227:21

Vin
219:8

Vincent
134:8,11,
13,17
135:5
214:12
216:18
217:2,9,
19,23
219:9,10,
14,19
240:10

voice
64:23
65:18,23
70:7,10
75:13

voice-to-text-type
65:16

W

wait
173:22
225:22

waited
323:4

Walkme
8:15 9:3
10:12
16:6
108:19,21
259:12
271:6
272:8,16
298:16,
17,22

wanted
49:23
123:12
129:3
193:3
209:2
220:21
221:25
224:6
283:7
301:8
309:24
321:21
323:9

warn
51:22

warning
318:17

wasted
321:5

watch
257:4
295:10
299:7

watched
125:11
256:22

ways
78:3
237:13

weather
156:17

web
85:25
124:19

website
67:23
220:12,16

websites
286:12

week
35:3
155:8

weeks
114:2
142:11
143:4
144:13
145:25
149:5

weeks'
111:24

well-known
223:17

Whatfix
8:14 9:12
16:6
48:12
51:20
107:24
108:22
119:25
120:5,12
126:20
127:2,25
163:18
267:9
293:22

Whatsapp
304:4,17
305:8,9
306:17
307:5,24
309:5,20,
23 311:4,
6,7
312:6,22

whichever

307:24
312:22

wide
124:11
127:21

widely
223:11

widgetco
260:22,24
261:3
262:2,3,
19 264:9
305:4
306:13

wife
60:16,19

William
21:24
299:14

Williams
53:11
55:13,25
56:11
104:8

window
25:24

Windows
215:18
219:25

Wipr
304:4
312:6

wishes
259:22

withdraw
292:11
298:19

witnesses
121:24
122:6,19
292:22

word
28:12
90:8
117:25
118:3
133:18
193:19
194:3,10
205:11
214:16,
22,25
215:10,
16,17
217:24
218:13,
14,16
219:6
244:16
257:22
287:14

wording
134:5

words
63:18
65:3
66:10,16,
22 82:22
168:11
172:3
190:7,10,
12 193:22
247:5
283:25
288:12
291:16

work
16:5
32:25
38:19
56:19
60:18
62:21
63:6,9
68:17
69:8
87:12
98:13
100:12
101:14,
17,23
102:23
103:5,9,
18 106:10
111:11
112:4,19
113:15
114:8
115:9
129:6
139:19
142:20
143:22
144:16,17
149:14
173:8
242:17,25
243:22
245:21,24
246:2

worked
37:6
42:13
68:6 92:3
95:7
101:12
102:3,8
103:13
106:8,14
113:5,25
128:10
134:14
143:20
149:24

worker
112:22

workers
105:13,17
106:2

working
32:16
42:9
56:13
63:22
75:8 97:2
103:7
110:3
111:7,18
114:10
142:22
144:8
149:10
156:3
172:23
218:8
241:5
242:18
244:12

works
25:4
50:24
156:5
226:4,16
229:18
243:9,10

world
211:17

worthy
155:7

write
19:24
20:21
22:10,12
34:12
114:13
115:6
118:9,18
119:4,9,
21 140:13
146:4
155:15
226:20
229:3,6
242:7
323:18

writes
227:10

writing
20:2 97:6
107:10
144:11
148:18

written
81:12
83:13
86:6
94:10
95:19
110:25
151:23
180:14
226:7
246:18

wrong
15:20
39:25
185:4
196:10
211:2
213:3
306:23
317:18

wrote
16:24
71:18
86:16,17
94:16,25
95:17
97:5
112:8
148:24
194:15
195:2
314:8

X

XYZ
76:3,4

Y

year
37:24
144:15
147:4
172:21

years
32:10
34:17,18
37:13
38:5,8,12
68:2
92:7,8
93:12
94:5,11,
12,15
97:2,9
99:10
100:17,
20,21
113:11,12
153:7
210:16
220:15,20
221:2

years'
100:12

York
9:16,24
211:22
212:14

Z

zeros
14:13

zoom
77:22