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Transcript of Dr. Chandrajit Bajaj

Date: February 8, 2024

Case: Roofr Inc. -v- Pictometry International Corp. (PTAB)

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1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 ----- 3 BEFORE THE PATENT TRIAL AND APPEAL BOARD 4 ----- 5 ROOFR INC., 6 Petitioner 7 V. 8 PICTOMETRY INTERNATIONAL CORP., 9 ----- 10 IPR2023-00435 11 U.S. Patent No. 10,648,800 12 ----- 13 14 Deposition of DR. CHANDRAJIT BAJAJ 15 Conducted virtually via Zoom 16 Thursday, February 8, 2024 17 9:05 a.m. CST 18 19 Job No.: 525019 20 Pages: 1 - 55 21 Reported by: THERESA A. VORKAPIC, 22 CSR, RMR, CRR, RPR	3 1 A P P E A R A N C E S 2 ON BEHALF OF THE PETITIONER: 3 RON HAGIZ, ESQUIRE 4 QUINN EMANUEL URQUHART & SULLIVAN LLP 5 51 Madison Avenue 6 22nd Floor 7 New York, New York 10010 8 212-849-7453 9 ronhagiz@quinnemanuel.com 10 11 ON BEHALF OF THE PATENT OWNER: 12 RICHARD M. BEMBEN, ESQUIRE 13 STERNE KESSLER GOLDSTEIN & 14 FOX PLLC 15 1101 K Street NW 16 Washington, DC 20005 17 202-772-8549 18 rbemben@sternekeessler.com 19 20 ALSO PRESENT: 21 Rebecca Unruh, Counsel, Patent Owner 22
2 1 2 Deposition of Chandrajit Bajaj, conducted 3 virtually via Zoom, pursuant to notice before 4 Theresa A. Vorkapic, a Certified Shorthand 5 Reporter, Registered Merit Reporter, Certified 6 Realtime Reporter, Registered Professional 7 Reporter and a Notary Public in and for the State 8 of Illinois. 9 10 11 12 13 14 15 16 17 18 19 20 21 22	4 1 P R O C E E D I N G S 2 THE REPORTER: Would you raise your right 3 hand, please. 4 (The witness was duly sworn.) 5 MR. HAGIZ: Why don't we just briefly 6 state appearances for the record. So this is Ron 7 Hagiz from Quinn Emanuel on behalf of the 8 petitioner Roofr. 9 MR. BEMBEN: This is Richard Bemben on 10 behalf of the patent owner. 11 BY MR. HAGIZ: 12 Q Good morning, Doctor. Could you please 13 state your name for the record? 14 A Yes, it's Chandrajit Bajaj. 15 Q Dr. Bajaj, have you been deposed before? 16 A I have. 17 Q So you're probably familiar with the 18 process. I'll just briefly refresh your memory. 19 I'll ask you questions today. You'll be providing 20 answers to my questions. I'm going to do my best 21 to be clear and comprehensible but if you don't 22 hear or don't understand one of my questions,

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Roofr Exhibit 1014, page 2

5 1 could you let me know? 2 A Yes, sir, I shall. 3 Q And as you can see, we have a court 4 reporter on today who is trying to take everything 5 down so it's going to be important that you give 6 verbal answers to my questions. 7 Can you do that? 8 A I shall. 9 Q At times after I ask a question your 10 counsel may object. Do you understand that if he 11 objects you still need to answer my question after 12 the objection unless he specifically instructs you 13 not to answer? 14 A Understood. 15 Q I'll try to take a break every hour or so 16 if we make it to the hour mark, but if you need a 17 break sooner than that, will you let me know? 18 A Thank you. I will. 19 Q And is there any reason you can't provide 20 complete and honest testimony today? 21 A No reason. 22 Q So you understand that you're here today	7 1 electronic copy. Just let me know when you have 2 it open. 3 A I'll use my hard copy and I have it here 4 in front of me. 5 Q Okay. And in the document you have in 6 front of you it's Exhibit 2031; is that right? 7 You should see it on the front page. 8 A It's 20 -- you said exhibit? 9 Q Yeah. If you look on the front page does 10 it say at the bottom right, Pictometry EX2031? 11 A That's right. 12 Q Okay. And this is the declaration you 13 prepared in connection with this case? 14 A Yes. 15 Q And if you turn to the last page, Page 51, 16 that's your signature there? 17 A That's correct. 18 Q Great. So I want to dive right in. 19 If you turn to Page 19, starting with 20 Paragraph 35, this is the section that has your 21 opinions on a person of ordinary skill in the art 22 of the '800 patent.
6 1 as an expert on behalf the patent owner 2 Pictometry? 3 A That's correct. 4 Q And you understand that that's in 5 connection with an inter partes review proceeding 6 in front of the Patent Trial and Appeal Board 7 relating to US Patent 10,648,800? 8 A That's correct. 9 Q And is it okay if I refer to that patent 10 as the 8-0-0 or the '800 patent today? 11 A That's absolutely fine. 12 Q Okay. And you submitted a declaration 13 with your opinions relating to this proceeding, 14 correct? 15 A I did. 16 Q So for everyone who -- for the reference 17 of everyone, I'm going to upload a copy of your 18 declaration which is patent owner's Exhibit 2031. 19 I'm going to upload it into the chat. 20 Dr. Bajaj, I understand that you have an 21 unmarked hard copy of it as well, so feel free to 22 follow along in your hard copy or in the	8 1 Do you see that? 2 A I do. 3 Q And th0e opinion that you gave is that a 4 person of ordinary skill in the art for the '800 5 patent in Paragraph 35, you say: "Would have had 6 a bachelor's degree in an academic area 7 emphasizing the design of electrical, computer or 8 software technologies or a similar discipline and 9 at least two years of experience related to 10 computerized image analysis and three-dimensional 11 modeling." 12 Did I read that correctly? 13 A Yes. 14 Q Okay. And that's still your opinion 15 sitting here today, correct? 16 A That is correct. 17 Q And I forgot to ask before. 18 Sitting here right now, are you aware of 19 any errors or other items in your declaration that 20 you would like to correct? 21 A No. None that I know of. 22 Q All right. So now going back to your

9 1 opinion on a person of ordinary skill in the art, 2 did you review the board's institution decision in 3 this proceeding? 4 A I did. 5 Q And so you're aware, and this is in 6 Paragraph 38 on the top of Page 21, you're aware 7 that the board found in connection with the level 8 of ordinary skill in the art that experience may 9 compensate for formal education and vice versa? 10 A Yes. 11 Q And so you would agree that somebody who 12 has self-taught experience in computer programming 13 and not a formal degree could be a person of 14 ordinary skill in the art? 15 A So in Paragraph 39, I explain why the -- 16 the exact type of experience and also the formal 17 education type is very relevant to this case just 18 because of all of the references that the 19 petitioner had and wrote for the prior art or 20 alleged prior art, and also the patent required 21 the specialized form of experience and the 22 specialized form of formal education.	11 1 art references is very technical, have flow charts 2 and algorithms that a person of ordinary skill in 3 the art needs to understand if they have to 4 understand both the patent and the prior art, and 5 for that reason I explained it in Paragraph 39. 6 Formal education and the development of such 7 methods was important. 8 BY MR. HAGIZ: 9 Q [1]right. And so I think that's my 10 question. Your opinion is that a person of 11 ordinary skill in the art would need to have 12 formal education and/or hands-on experience with 13 actually developing computer implemented 14 technology; is that right? 15 A That is correct inasmuch as the developer 16 has to understand the subject matter right down to 17 the methods and before that developer can build a 18 system that encodes those methods, so it's the 19 computer software development, not just the end 20 user experience that's very important and 21 education. 22 Q Now, you've reviewed the declaration of
10 1 Q So I guess my question is: Do you 2 disagree with the board that experience may 3 compensate for formal education? 4 A No. I was not in disagreement. I was 5 qualifying exactly what the form of experience 6 should be and the form of formal education should 7 be as relevant to this patent matter, and that's 8 what I explained in Paragraph 39 of my 9 declaration. 10 Q Okay. And so looking at Paragraph 39, 11 your opinion is that somebody who only has 12 experience using computer software would not be a 13 person of ordinary skill in the art; is that 14 right? 15 A That is correct. 16 Q And your opinion is that a person of 17 ordinary skill in the art needs to have experience 18 actually developing computer implemented 19 technologies; is that correct? 20 MR. BEMBEN: Objection. Form. 21 BY THE WITNESS: 22 A For the sole matter that each of the prior	12 1 petitioner's expert in this case, Mr. Cummings; is 2 that right? 3 A I did. 4 Q Is it your opinion that Mr. Cummings would 5 not be a person of ordinary skill in the art under 6 your definition? 7 A So in my declaration I point out that 8 there are definitely, you know, a lack of actual 9 development and formal education in image 10 processing and graphical user interfaces and such 11 programming that Dr. Cummings lacks, and for that 12 reason some of the statements that he made and 13 also mentioned in his deposition kind of 14 corroborate that he did not have a full 15 understanding of the technology. 16 Q Where in your declaration are you 17 referring to where you discuss Mr. Cummings' 18 education or experience? 19 A I point to several parts of Mr. Cummings' 20 declaration where I disagree, he misunderstood and 21 his statements, so in my declaration if we go 22 through the grounds of Abhyanker are very crucial

13 1 because that's what the petitioners have invoked 2 for each of their grounds. And his understanding 3 of Abhyanker's methods and what Abhyanker did was 4 incorrect and I pointed those out in my 5 declaration. 6 (Reporter clarification.) 7 BY MR. HAGIZ: 8 Q Doctor, my question more specifically was: 9 Is it your opinion that Mr. Cummings does not have 10 the qualifications or experience to be a person of 11 ordinary skill in the art under your definition? 12 A I haven't, you know, formulated an opinion 13 about all of Mr. Cummings', you know, background 14 as far as relevant to his testimony. 15 I've pointed out inaccuracies and those 16 are in my declaration because a person of ordinary 17 skill in the art who would have understood the 18 methods of Abhyanker and there are detailed 19 instructions in the patent would not have made the 20 conclusory statements that he iterated in his 21 declaration and also in his deposition. 22 Q Just to be clear, you haven't formulated	15 1 opinion as to whether Mr. Cummings' experience and 2 qualifications would rise to the level of a person 3 of ordinary skill in the art under your 4 definition; is that right? 5 A It's not my -- you know, it was not part 6 of my charter of making opinions about. I just 7 pointed out cold facts of his misinterpretation of 8 the subject matter. 9 Q Now, you would agree with me that a person 10 of ordinary skill in the art under your definition 11 would be capable of implementing the inventions 12 that are described in the claims of the '800 13 patent? 14 A I believe so, and that's in that reason I 15 phrased the definition of the person of ordinary 16 skill in the art in that fashion. 17 Q In Paragraph 40 on Page 22 you note at the 18 top of the page that a person of ordinary skill in 19 the art would have been able to use "prevalent 20 image processing and computer graphics software 21 libraries to implement the claims." 22 Is that right?
14 1 an opinion on Mr. Cummings' qualifications as to 2 whether he would be considered a person of 3 ordinary skill in the art under the definition you 4 provided; is that right? 5 A It's not my onus to state that. I was 6 here as an expert to, you know, look at the 7 testimony and the petitioner's and his 8 declaration, and I've given my opinions correcting 9 the inaccuracies that were made, and I pointed to 10 all of the relevant reasons why I felt that. 11 And, of course, I have also given an 12 opinion of what a person of ordinary skill in the 13 art would need to be, and that is also based on 14 the fact that to understand this subject matter 15 and its technicality which it is requires a person 16 who would have the requisite formal education on 17 image processing and modeling and/or experience in 18 actually interpreting algorithms and developing 19 such software. 20 Q Okay. But, again, I just want to make 21 sure I'm clear on this point. 22 You're not -- you haven't formulated an	16 1 MR. BEMBEN: Objection. Form. 2 BY THE WITNESS: 3 A There's much more to that entire paragraph 4 where I explain, you know, that why a developer 5 who implements such systems and processes would be 6 familiar with the prevalent image processing and 7 computer graphics that allows you to develop such 8 graphical user interfaces and with a back end of 9 image processing because interfaces are leading to 10 callback functions in the back end and those 11 callback functions do actual processing and then 12 relay various types of information and imagery to 13 the front end. 14 There's more with respect to such user 15 driven event processing and so on as the patent 16 claims, and clearly the patent is innovative and 17 it has -- there's a patent there, and so there's a 18 lot involved in enacting everything about the 19 patent. 20 Q Let me ask my question a little 21 differently. 22 Is there any source code or computer code

17 1 that's provided in the patent specification or 2 claims for the '800 patent? 3 MR. BEMBEN: Objection. Form. 4 BY THE WITNESS: 5 A A person of ordinary skill in the art 6 would not necessarily need to look at source code 7 when an algorithm is defined in the detail that is 8 given. It's very well understood by a person of 9 ordinary skill in the art as to what is the 10 intended functionality, what are the sequence of 11 steps that are detailed. 12 Source code is the final, you know, 13 codification of those instructions so it's not 14 necessary so the '800 patent -- to understand the 15 patent, you don't need to look at the source code. 16 BY MR. HAGIZ: 17 Q Let me just make sure I understood. 18 So in order to understand how to implement 19 the claims of the '800 patent, a person of 20 ordinary skill in the art would not need to be 21 provided the source code; is that right? 22 MR. BEMBEN: Objection. Form and	19 1 processing and computer graphic software libraries 2 that could be used to implement that claim element 3 in the software system? 4 MR. BEMBEN: Objection. Form and 5 foundation. 6 BY THE WITNESS: 7 A So there's a lot in each of those claim 8 elements, and computer graphics libraries, image 9 processing libraries, you know, are necessary but 10 in no way am I saying it's sufficient. 11 So these are some of the tools that a 12 person of ordinary skill in the art would have 13 utilized, but there's a lot more in trying to meet 14 those claim limitations. 15 BY MR. HAGIZ: 16 Q All that would be necessary to implement 17 those claim limitations would be within the 18 knowledge or skill of a person of ordinary skill 19 in the art; is that right? 20 A After the person of ordinary skill in the 21 art, he or she would have the capacity to learn 22 from the '800 patent the methods and then, you
18 1 foundation. 2 BY THE WITNESS: 3 A You need a lot to develop the systems and 4 a functioning system. So, again, it's a matter 5 that I'm not making an opinion on at this, you 6 know, juncture and I was not asked what all it 7 takes to -- to implement the full system 8 encapsulating the methods. 9 What I was pointing out is to understand 10 the methods and the systems and the innovations, 11 the patent did not require any source code and 12 hence my analysis was complete without it. 13 BY MR. HAGIZ: 14 Q Okay. That's fair enough. 15 So if you turn to Page 27 of your 16 declaration, on that page you've reproduced 17 limitations 1f, 11f and 17d from the '800 patent; 18 do you see that? 19 A I do. 20 Q And with respect to limitation 1-F is it 21 your opinion that a person of ordinary skill in 22 the art would have been familiar with image	20 1 know, go ahead and use the tools necessary to 2 develop that system. 3 So the teachings of the '800 patent would 4 be essential for them to understand technically 5 before they could do the same. 6 Q I guess my question is more specifically 7 when it comes to implementing those teachings in 8 software, a person of ordinary skill in the art 9 would have the skill or the ability to do that for 10 the claims of the '800 patent; is that right? 11 MR. BEMBEN: Objection. Foundation and 12 form. 13 BY THE WITNESS: 14 A So the '800 patent has several claims and 15 each of the claims -- they are method claims and 16 there's also a system claim, Claim 17. And they 17 teach a lot. They teach a specific process. They 18 teach a specific methodology, and it has also been 19 put to practice for a person of ordinary skill in 20 the art to understand exactly what is the 21 functionality, what is the temporal sequence of 22 instructions, the understanding the patent would

21 1 give the person the requisite knowledge to go 2 ahead and then try to implement that. 3 So what is all involved in fully 4 implementing the system is it takes a lot than 5 just doing it, but the algorithms are given in 6 that method in that patent. The method is spelled 7 out as well. 8 Q Well, if you go back to Paragraph 40 where 9 you say a software developer in the May 2009 10 timeframe would have used prevalent image 11 processing and computer graphics software 12 libraries -- sorry. Let me start that question 13 over. 14 Going back to Paragraph 40 where you say: 15 To implement systems and processes like those 16 claimed in the '800 patent, a software developer 17 in the May 2009 timeframe would have used 18 prevalent image processing and computer graphics 19 software libraries, and the sentence continues. 20 My question is: Is it your opinion 21 that -- did you intend -- was that statement 22 directed to specific claim limitations in the	23 1 input and the sequence and the temporal nature and 2 the functions that are encoded in the claim 3 elements are precisely what I indicated in my 4 declaration as to why Abhyanker doesn't teach all 5 of this and the petitioners, you know, have not 6 understood the depth of the '800 patent. 7 Q Okay. So my question wasn't about 8 Abhyanker. 9 I'm just trying to understand when you 10 refer to prevalent image processing and computer 11 graphics software libraries, is it your opinion 12 that a person of ordinary skill in the art would 13 be able to use those to implement the entirety of 14 the claims of the '800 patent or just some subset 15 of the claims? 16 A I pointed to at least two as the, you 17 know, main software libraries that supported 18 interactive graphical user interfaces capturing 19 and responding to user commands. 20 So if you read the full sentence: A 21 person of ordinary skill in the art would have 22 understood that the '800 patent requires such
22 1 claims of the '800 patent? 2 A It is very necessary. So the term 3 "interactive" comes up often, and this is 4 something a person who is a developer would 5 understand that the prevalent could be the 6 graphics software are not just, you know, 7 functions that are called. 8 It's an interactive system that couples a 9 graphics interface, that takes user input, there 10 are callback functions that execute certain 11 commands, the results of those commands come back. 12 So even in that sentence I say these prevalent 13 image processing and computer graphics software 14 libraries that are required are necessary for the 15 '800 support interactive graphical user interfaces 16 capturing and responding to user commands. 17 And then the second sentence was: Such 18 interactive computer software is very specialized. 19 And that's why my definition of a person of 20 ordinary skill in the art was formulated. 21 And, finally, yes, the claims call for 22 such interaction. They call for exactly this user	24 1 interactive -- two interactive graphical user 2 interfaces processing on command and in a, you 3 know, temporal nature, in a sequential nature, 4 there is a first input and a second input, and a 5 designation has to be made after which a second 6 input has to confirm, and that's very important. 7 That's what the teachings of the patent say. 8 Now, these are the necessary tools and a 9 person who is a person of ordinary skill in the 10 art and a developer who has experience with or 11 formal education about understanding how such 12 interactive software works or how to program such 13 interactive programming, would attempt to make 14 all -- you know, meet all of the limitations. 15 I haven't espoused anything about what 16 else is needed. That's -- you know, to build a 17 system, there's a lot that goes into it. 18 Q Let's take a look at the Abhyanker 19 reference. So I will upload that one into the 20 chat. This is Exhibit -- if you're looking at 21 your hard copies, Doctor, this should be 22 petitioner's Exhibit 1005 and let me know when you

25 1 have that in front of you and please also keep 2 your declaration in front of you. 3 A Yes, I have both. 4 Q So for starters I just want to see where 5 we agree on what Abhyanker's features -- what 6 Abhyanker does and does not describe. 7 So if you start could you turn to 8 Paragraph 80 of your declaration which is on Page 9 43. 10 A Yes, I'm there. 11 Q Okay. And in Paragraph 80 of your 12 declaration you're discussing the marker-locking 13 feature in Abhyanker, correct? 14 A That is correct. 15 Q And you quote on Page 44 still in 16 Paragraph 80, you see you quote from Paragraph 64 17 from Abhyanker which says: "The locking module 18 220 may process a marker locking request when a 19 particular user claims the wiki profile associated 20 with the address data"? 21 A Yes, I have that paragraph as well. 22 Q So you would agree that in Abhyanker the	27 1 the patent actually says. If you turn to Page 23 2 of Exhibit 1005 which is Abhyanker, let me know 3 when you've got that in front of you and I want 4 you to focus on Paragraph 95. 5 A Yes, I'm there. 6 Q You see the last sentence of Paragraph 95 7 in Abhyanker it says: "The lock pushpin 8 Option 908 may enable the user to secure the 9 pushpins from future relocations in the geospatial 10 environment." 11 Do you see that? 12 A I do. 13 Q And so if the user presses or clicks on 14 the lock pushpin button shown in Figure 9, that 15 would lock pushpins from movement in the map; is 16 that right? 17 A So looking at the Abhyanker reference and 18 the algorithms that are given in 11A and 11B, this 19 marker locking process is to tie a wiki profile, 20 which is the paragraph we were reading before in 21 Paragraph 64, and this is, of course, marked and 22 placed also by the Abhyanker method automatically
26 1 marker locking request is initiated by a user 2 input or user interaction; is that right? 3 A I believe so, yes. 4 Q I'm sorry to jump around, but if you could 5 turn to Paragraph 48 in your declaration. It 6 starts on Page 25. 7 A Yes. 8 Q You see in Paragraph 48 you refer to lock 9 pushpin 908 in Figure 9 of Abhyanker? 10 A Yes. 11 Q And you say that the lock pushpin 908 is 12 an example of the marker-locking feature; is that 13 correct? 14 A So Abhyanker is very, you know, quiet on 15 exactly what that is, but there's this figure and 16 there's a lock pushpin, and it doesn't give any 17 details as to whether that lock pushpin is related 18 to it. But giving it the broadest reasonable 19 interpretation one understood that maybe that's 20 the request of marker locking that is referred to 21 in Paragraph 64. 22 Q Fair enough. Let's take a look at what	28 1 at a certain location within a polygon on a 2 rooftop, and so the marker locking process is 3 actually tying a wiki profile to a specific 4 pushpin. It's identifying well, this pushpin is 5 of a certain kind, maybe belonging to a certain 6 user and so this option then secures that profile 7 as well as it says now no other user can pick it 8 up because it's been tied to that user. 9 Q Just to be clear, the description that you 10 just gave, was that referring to the lock pushpin 11 option or the marking-locker feature or both? 12 A So this is where I say there's a little 13 bit of paucity in an explanation, but if one was 14 to take that, you know, understanding, there is a 15 marker-locking procedure and that marker-locking 16 procedure doesn't directly talk about, you know, 17 anything about moving the markers or anything. 18 It's only talking about locking a wiki profile to 19 that marker. 20 So it's like saying this unnamed marker is 21 now tied to this wiki profile and then this lock 22 pushpin is referred to later as we were reading,

29 1 which is based on a set of instructions where this 2 marker is relocated based on the method, not by a 3 user. 4 So they seem to be like two separate 5 things, but there was no other information about 6 other than this button on 908 of the lock pushpin. 7 Q Just to be clear, what Abhyanker says in 8 Paragraph 95 is that the lock pushpin option may 9 enable the user to secure the pushpins from future 10 relocation, correct? 11 A Yes, and under the instructions given, 12 this is a mapping environment, it's a multiuser 13 environment, and so the pushpins which are -- I 14 mean, the marker lock mechanism is tying a wiki to 15 that pushpin and no other user can claim it to 16 move it around. 17 So users are claiming pushpins and moving 18 them around, and in sort of saying this is my 19 house or this is my office building space and once 20 you are claiming that with your wiki profile, then 21 no other user can relocate it. 22 Q Paragraph 95 doesn't talk about wiki	31 1 no discussion of locking a wiki to a pushpin in 2 connection with the lock pushpin option; is that 3 right? 4 A So you'd have to go back to the patent and 5 look at Paragraphs 92, 93, 94 and understand there 6 are many instructions. 7 So there is this method of relocating the 8 marker and the marker relocation is done by the 9 system, and this is doing -- you know, the 10 location option is done by taking rooftop 11 polygons. And so if you read 94, Figure 9 is 12 the user interface view of the relocation module, 13 so this is just describing the relocation module 14 of the pushpin which is not user driven, but it's 15 an automatic additional verification scheme, which 16 is what I pointed out in my declaration as well. 17 So that is -- once it's established which 18 user is to its wiki profile, then the method 19 changes and moves the marker and a lock pushpin 20 allows you to lock that, but that lock seems to be 21 exactly the locking of the profile as well and 22 saying no other user can change it.
30 1 profiles, right? 2 A That's exactly correct. So that's why I 3 said even if I was to take the broadest 4 interpretation that this lock pushpin is related 5 to this marker locking, there's no other mention 6 about locking other than the marker locking. 7 So that is the broadest interpretation one 8 can take or the most reasonable interpretation one 9 can take is if the marker locking is a user input 10 and it's graphically put, then maybe this lock 11 pushpin is the only thing that is enacting the 12 locker -- the marker locking and hence that's just 13 tying a wiki to that pushpin and no other user can 14 claim it. 15 Q But in Paragraph 95 the discussion of the 16 lock pushpin option, that paragraph doesn't say 17 anything about locking a wiki to a marker or to a 18 pushpin, right? 19 A There's no other lock ever mentioned other 20 than the marker lock in the entire specification, 21 so... 22 Q I understand, but in Paragraph 95 there's	32 1 Q Let me follow up on something you said 2 there. I think you said the relocation of the 3 marker is performed by the computer. 4 Did I hear that correctly? 5 A These are steps that the specification 6 explains with respect to, you know, the method. 7 So if you turn to Figures 11A, 11B, 11C which I've 8 summarized in my declaration, you have to go to 9 that to understand this. 10 So if you turn to paragraph... And by the 11 way, this is quite different to what the claim 12 elements require and that's what I pointed out. 13 Starting from Paragraph 50 the claim elements 14 require a certain sequence of operations and the 15 sequence of operations have a temporal nature to 16 them and then a certain functionality, and this 17 marker locking process has nothing to do with the 18 claim element's requirements of a second input and 19 that's why I -- and also it has nothing to do with 20 something that the petitioner and the expert was 21 incorrectly stating that it was an example of 22 additional verification.

33 1 So if we trace in my declaration from 2 Paragraph 50 to Paragraph 57, I set the context of 3 it had nothing to do with the drag-and-drop 4 option. It has nothing to do with these 5 additional verifications that are required by the 6 claim, and so Abhyanker's marker-locking feature 7 is not an example of Abhyanker's additional 8 verifications, and these additional verifications 9 are also not user driven. They are part of the 10 method and that's where the connection to the 11 automatic method of verification that is done. 12 So from the patent if you look at -- let's 13 look at Paragraph 58, Abhyanker mentions 14 additional verifications in Paragraphs 11, 53 and 15 104 in Figure 11C. For example, I reproduced the 16 paragraph, a drag-and-drop algorithm that enables 17 the user to sequentially and to concurrently 18 relocate markers in the mapping environment may be 19 applied. 20 Further, additional verifications may be 21 iteratively performed when any particular marker 22 has been previously moved. And using the	35 1 Q I don't know if that answered my question. 2 Let me try to ask a simpler question. 3 In Paragraph 58 of Abhyanker, Abhyanker 4 explains that before a marker is locked, other 5 users are able to relocate pushpins that are not 6 claimed or not locked, correct? 7 A So maybe let's refer to either the patent 8 or my declaration. Which -- 9 Q Yeah. I'm looking at Paragraph 58 of the 10 patent. You see it explains there that members of 11 the social network are able to relocate pushpins 12 that are not claimed in addition to relocating 13 their own claimed profile pushpins. 14 Do you see that? 15 A Yes. So this is the claim by a user of a 16 marker to do a drag-and-drop. 17 Q You would agree with me that before a 18 particular user claims the marker, other users can 19 relocate that marker by dragging and dropping it, 20 correct? 21 A So the steps of dragging and dropping if a 22 marker is not, you know, locked and a wiki profile
34 1 algorithm when the previous marker is associated 2 with the polygon, so there are three conditions 3 here. These additional verifications may be 4 iteratively performed by the system and the method 5 when any particular marker has been previously 6 moved, when the previous movement was made after 7 the generation and/or placement of the marker or 8 using the -- and using the algorithm and when the 9 previous marker movement is associated with a 10 polygon that is determined to approximately center 11 on the rooftop rather than on the street is when, 12 you know, what these methods are doing. 13 So the marker is being moved by the method 14 for the sake of accuracy of placement and that's 15 what I explain. So the method in Paragraph 60 may 16 include correcting inaccuracy of the placement of 17 the relocated marker in a particular view using a 18 polygonal resolution algorithm. 19 So that's the context of Abhyanker's 20 method. And it's -- 21 Q I -- 22 A Yeah, go ahead.	36 1 has not been added to it, then a user is able to 2 do a drag-and-drop operation on that marker. 3 Q Now, if we go back to the example of the 4 lock pushpin option in Figure 9, in -- your 5 opinion is that Abhyanker doesn't teach that that 6 option is provided in response to the 7 drag-and-drop relocation, correct? And this is 8 with reference to Paragraph 79 of your 9 declaration. 10 A Correct. 11 Q In Paragraph 78 you say that Abhyanker is 12 silent when lock pushpin option 908 is provided on 13 the computer interface, right? 14 A That's correct. That refers to Figure 9. 15 Q Just to make sure I understand your 16 opinion, in your view in order for the lock 17 pushpin option to be provided in response to a 18 drag-and-drop, that option would have to only be 19 displayed after a drag-and-drop has been 20 performed; is that right? 21 MR. BEMBEN: Objection. Scope. 22 BY THE WITNESS:

37 1 A So Abhyanker does not explain. The only 2 portions are what I repeated in my declaration is 3 the combinations of Figure 11A, B and C which is, 4 you know, a detailed flow chart and descriptions. 5 There is this -- maybe it's best to go back to the 6 patent. It's kind of small in the declaration. 7 11A says: Place the marker in the mapping 8 environment adjacent to a physical location 9 identified through the address data, relocate 10 automatically the marker and the mapping to the 11 physical location identified through the address 12 data responsive to a user-provided marker 13 movement, generate a wiki marker movement wiki 14 marker movement request not claimed by any user in 15 the mapping but identifies markers that have not 16 been claimed by any in the mapping environments as 17 candidates of relocation, and then process the 18 marker locking request when a wiki profile 19 associated with the address data is claimed by a 20 particular user. 21 So this is the locking request which is in 22 Figure 11A, and there are 10 other operations that	39 1 Paragraph 78 of your declaration. Let me ask it a 2 little more simply. 3 You see in Paragraph 78 you say: 4 Abhyanker does not teach that the marking-locker 5 feature is provided responsive to receiving the 6 designation of the building roof structure 7 location. 8 Do you see that? 9 A That is correct. 10 Q And then at the end of that paragraph you 11 say that Abhyanker is silent regarding when lock 12 pushpin option is provided on the computer 13 interface. 14 Do you see that? 15 A And what, if anything, causes lock pushpin 16 option to be provided on the computer interface. 17 It does not mention that, either. 18 Q Okay. And to be clear the reason that you 19 believe that Abhyanker's marker-locking feature -- 20 let me restart that question. 21 The reason you believe that Abhyanker does 22 not teach that the marking-locker feature is
38 1 happen from 11A, enable the particular user to 2 control future locations when the user claims the 3 wiki profile so no other user can now once you've 4 done the marker locking can use it, log the 5 history, move simultaneously multiple ones of the 6 markers, provide adjacent properties, apply a 7 block interpolation technique. 8 So it's a very complicated, technical 9 sequence of operations and the method that 10 Abhyanker is teaching correct an accuracy of the 11 placement of the relocated marker in a particular 12 view which is the method of improving the accuracy 13 by these additional verifications, and then only 14 there's apply a drag-and-drop algorithm that 15 enables a user to sequentially and currently 16 relocate markers in the mapping environment. 17 So these things are the marker locking 18 requests and then many, many steps and then 19 there's this drag-and-drop algorithm for 20 relocation only by the user that has claimed it. 21 Q I'm not asking about Figure 11. I'm 22 asking about your opinion on Figure 9 in	40 1 responsive to receiving the designation of the 2 building roof structure is that Abhyanker is 3 silent as to when the -- whether the lock pushpin 4 option is displayed before or after the 5 drag-and-drop operation, right? 6 MR. BEMBEN: Objection. Form and 7 foundation. 8 BY THE WITNESS: 9 A So Abhyanker is clearly silent when what 10 buttons and what things are appearing on the 11 graphical interface. It does not mention that at 12 all. 13 BY MR. HAGIZ: 14 Q Right. And so my question is: Why does 15 that mean that the marker-locking feature is not 16 provided responsive to receiving the designation 17 of the building roof structure? 18 A Because it's silent. It's not explaining 19 anything. And this is the same confusion I felt 20 the petitioner had made. They confused the 21 drag-and-drop operation as, you know, the first 22 input and then responsive to a designation, which

41 1 is required by the claim, a second input and they 2 were confusing the marker locking with this 3 drag-and-drop and that's what I've clearly 4 enunciated in my declaration. 5 Q I just want to make sure I understand. 6 Is your opinion that if the lock pushpin 7 option, if that's displayed before the user 8 performs a drag-and-drop then it is not responsive 9 to the drag-and-drop; is that right? 10 A No, that's not what I said. I said 11 Abhyanker is silent as to when buttons appear on 12 the interface. 13 So the occurrence of a button, the 14 algorithm and the methods and the teachings of 15 Abhyanker do not indicate that these buttons are 16 invoked in response to the sequence that is called 17 out in the claims. 18 Q Okay. And so in order to follow the 19 sequence of the claims, the button would have to 20 be provided, but the lock pushpin option would 21 have to only be provided after the drag-and-drop, 22 correct?	43 1 BY MR. HAGIZ: 2 Q But the limitation you're referring to 3 here, you're opining on here is the -- is about 4 providing the second computer input -- actually 5 let me start over. 6 The limitation -- looking at limitation 7 1-F that you're opining on in this section, it 8 says: Responsive to receiving the designation of 9 the building roof structure location, providing a 10 second computer input capable of signaling user 11 acceptance of the building roof structure location 12 within the first image. 13 And so in that limitation it is the 14 computer that is providing the second computer 15 input responsive to receiving the designation, 16 correct? 17 A You have to read the claim in totality. 18 So the temporal nature is in the 19 instructions. So responsive to receiving the 20 designation says that whatever follows is going to 21 be responsive to having received the designation. 22 Also, a providing of a second computer
42 1 MR. BEMBEN: Objection. Form. 2 BY THE WITNESS: 3 A Again, not correct. It doesn't matter 4 when buttons are provided on a graphical user 5 interface. It's the methodology of what is the 6 temporal nature of events that the claims call out 7 for and what the prior art has taught. 8 The prior art does not teach anything 9 about the elements of the claim where it requires 10 a responsive -- a second input responsive to a 11 designation so we can read the claim element again 12 and that's the operative part. Not the appearance 13 of buttons. 14 Q This is what I'm trying to understand. 15 If the temporal aspect of the claim is not 16 about when the button appears, then what does 17 that -- then what is it? What does it mean? 18 MR. BEMBEN: Objection. Form. 19 BY THE WITNESS: 20 A Appearance is not taking actions. User 21 input, algorithmic executions are precise 22 algorithmic instructions.	44 1 input capable of signaling user acceptance wherein 2 the user acceptance is one or more affirmative 3 steps taken by the user to confirm the designation 4 of the building roof structure location. 5 Abhyanker does not teach that. 6 Q I'm not asking about Abhyanker. I'm 7 asking about what you understand this limitation 8 to mean. And more specifically, the providing 9 step here, the providing is being done by the 10 computer system, not by the user, correct? 11 A So in this declaration, you know, I was 12 being responsive to the petitioner's claims of 13 obviousness of Abhyanker's teachings that they 14 meet the claim limitations, and that's what I've 15 analyzed and opined on. I'm not looking at the 16 full scope of the claim elements, but 17 understanding what the petitioners did, I pointed 18 out exactly those inaccuracies, but Abhyanker does 19 not teach responsive to receiving the designation 20 of the building roof structure, providing a second 21 computer input capable of signaling user 22 acceptance of the building roof structure location

45 1 wherein user acceptance is one or more affirmative 2 steps taken by the user, this sequence of 3 instructions are not taught by Abhyanker contrary 4 to what petitioner and the expert have petitioned. 5 Q Do you have an understanding of what 6 limitation 1-F requires? 7 A It requires that all of the steps detailed 8 in that element, of course as part of the claim, 9 have to be met and in the sequence that is 10 indicated by that element. 11 Q Do you have an understanding of what those 12 steps are that are required by limitation 1-F? 13 A The claims are clear and backed up by the 14 specification. Claim Element 1f requires 15 responsive to receiving the designation of the 16 building roof structure location, providing a 17 second computer input capable of signalling user 18 acceptance of the building roof structure location 19 within the first image wherein user acceptance is 20 one or more affirmative steps taken by the user to 21 confirm the designation of the building roof 22 structure location.	47 1 else. The claims don't call out for that. It's 2 saying give me -- provide an input capable of 3 signaling user acceptance of the building roof 4 structure location within the first image, and 5 then it's further qualified wherein user 6 acceptance is one or more affirmative steps 7 undertaken by the user to confirm the designation 8 of the building roof structure location. It's all 9 tied down to the -- 10 Q Right. I'm just trying to understand this 11 providing step. 12 Is your understanding of the limitation 13 that the -- I'm going to ask it a little 14 differently. 15 Your understanding is that the limitation 16 1-F requires the system to provide the second 17 computer input after it receives the designation 18 of the building roof structure location, correct? 19 A No. The providing of a computer input 20 could be already on the interface but that input 21 must be capable of signaling user acceptance of 22 the building roof structure, but that has to --
46 1 Q And so my question is: What would be the 2 second computer input in that step? Is the 3 computer providing it or is the user providing it? 4 A The computer can provide a second computer 5 input but that input mechanism must be capable of 6 signaling user acceptance of the building roof 7 structure location. It's of the building roof 8 structure location within the first image, that's 9 what the claim calls out for. 10 Q Okay. Just to make sure that I understood 11 that, the computer would provide the input, but 12 then the user by activating or selecting that 13 input, that would signal user acceptance; is that 14 right? 15 A When you say "computer," I would rather 16 call it the system or the method embodied in a 17 system, that would what the claims required would 18 be, that there must be some provision providing or 19 provide a computer input capable of signaling user 20 acceptance of the building roof structure location 21 within the first image. 22 It's not about, you know, pins or anything	48 1 that user acceptance and that signaling by the 2 user acceptance has to occur after it receives the 3 designation, and in response to its receiving the 4 designation, it's signaling to confirm the 5 designation of the building roof structure. 6 Q So the second computer input can be -- can 7 already provided -- can already be provided on the 8 user interface, it's just that the user acceptance 9 has to be signalled after receiving the 10 designation? Is that your testimony? 11 A I'm sorry. You misspeak. 12 A computer input is done by a user. It's 13 not provided on an interface. You have on the 14 interface a button or some way graphically or 15 through mouse clicks it has to be capable of 16 signaling user interface. So the action of user 17 acceptance is what is important here. Through 18 that computer, you know, interface. 19 Q So your testimony is that the important 20 thing is that the user acceptance occurs after 21 receiving the designation of the building roof 22 structure location; is that right?

49 1 A That's one of the important things. I'm 2 just reading the claim elements. I'm not reading 3 anything more into it. But as I pointed out 4 earlier, I read these claim elements and 5 understood them and I also pointed out the 6 inaccuracies that the petitioner and the expert 7 had made in misinterpreting that the prior art 8 was, you know, following these claim elements. 9 Q I understand. I'm just trying to 10 understand how you are reading the claims or 11 understanding the claims in order to do that 12 analysis. 13 MR. HAGIZ: We've been going for a little 14 over an hour, why don't we take a short break and 15 then I think we'll be able to wrap up pretty 16 quickly afterwards. 17 THE WITNESS: Thank you. 18 (A recess was had.) 19 MR. HAGIZ: Actually after looking at my 20 notes I realize that I don't actually have any 21 other questions right now. So thank you for your 22 time, Dr. Bajaj. I will turn it over to	51 1 Q And then Paragraph 31 is associated with 2 Figure 4C -- apologies if they're not on the same 3 page, but it explains once the user puts in the 4 address, a marker will appear on the graphical 5 user interface and that the user can move that to 6 a roof. 7 Do you see that? 8 MR. HAGIZ: Objection. Leading. 9 BY THE WITNESS: 10 A That's right. 11 BY MR. BEMBEN: 12 Q And then in Paragraph 32 you're describing 13 another user interface in the '800 patent that's 14 related to Figure 4D, right? 15 MR. HAGIZ: Objection. Leading. 16 BY THE WITNESS: 17 A That's correct. 18 BY MR. BEMBEN: 19 Q What is the checkbox that appears on the 20 screen in Figure 4D? 21 MR. HAGIZ: Objection to form. Beyond the 22 scope of the cross.
50 1 Mr. Bemben if he has any followup. 2 EXAMINATION 3 BY MR. BEMBEN: 4 Q I just have a couple of questions for you, 5 Dr. Bajaj. 6 So you recall discussing element 1-F 7 today, correct? 8 A Yes. 9 Q Okay. And can you go up to in your 10 declaration up to Paragraphs 29, 30 and 31, and 11 review those for me. I have some questions about 12 those. Those are associated with Figures 4B 13 through 4E of the '800 patent. 14 A Yes, I have read it. 15 Q This portion of your declaration describes 16 the '800 patent, right? 17 A Yes. 18 Q In Paragraph 30 it refers to Figure 4B of 19 the patent which shows a graphical user interface 20 in which a user can enter an address. 21 Do you see that? 22 A Yes.	52 1 BY THE WITNESS: 2 A So that's a checkbox, as the patent 3 explains, for providing a further reconfirmation 4 that the user has reviewed the image is correct. 5 BY MR. BEMBEN: 6 Q In your opinion is the checkbox an example 7 of the second computer input that's recited in 8 Claim Element 1f? 9 MR. HAGIZ: Objection. Leading, beyond 10 the scope of the cross. 11 BY THE WITNESS: 12 A Absolutely. That's what I've always 13 indicated in my -- in the declaration as well. 14 BY MR. BEMBEN: 15 Q And in this example in the specification, 16 the checkbox appears on the screen only after the 17 user has moved the marker; is that correct? 18 MR. HAGIZ: Objection. Leading, beyond 19 the scope of the cross. 20 BY THE WITNESS: 21 A In this example that the patent 22 specification gives, yes, that's exactly how it

53 1 appears. 2 MR. BEMBEN: I have no further questions. 3 MR. HAGIZ: Nothing else from me. 4 THE REPORTER: Would you like to go off 5 the record, then? 6 MR. HAGIZ: We can do that. 7 MR. BEMBEN: Yes. 8 (Deposition concluded at 10:27 a.m. CST.) 9 10 11 12 13 14 15 16 17 18 19 20 21 22	55 1 or marriage, I am not employed by or an attorney 2 to any of the parties to this action, and that I 3 am in no way interested, financially or otherwise, 4 in the outcome of this matter. 5 IN WITNESS WHEREOF, I have hereunto set 6 my hand this 13th day of February, 2024. 7 8  9 10 Theresa A. Vorkapic 11 My commission expires November 6, 2027. 12 NOTARY PUBLIC IN AND FOR THE 13 ILLINOIS 14 15 16 17 18 19 20 21 22
54 1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC 2 I, Theresa A. Vorkapic, Certified 3 Reporter and Notary Public within and for the 4 State of Illinois do hereby certify: 5 That DR. CHANDRAJIT BAJAJ, the witness 6 whose deposition is hereinbefore set forth, 7 Was duly sworn by me before the 8 commencement of such deposition and that such 9 deposition was taken before me and is a true 10 record of the testimony given by such witness. 11 I further certify that the adverse 12 party, petitioner, was represented by counsel at 13 the deposition. 14 I further certify that the deposition of 15 DR. CHANDRAJIT BAJAJ, occurred virtually on 16 Thursday 2/8/24, commencing at 9:05 a.m. to 10:27 17 a.m. CST. 18 I further certify the inspection, 19 reading and signing of said deposition was 20 waived on the record by agreement of all parties. 21 I further certify that I am not related 22 to any of the parties to this action by blood	

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