

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX INC.,
Petitioner,

v.

WALKME LTD.,
Patent Owner.

Case IPR2024 - 00065
Patent No. 11,558,317

EXPERT DECLARATION OF IVAN ZATKOVICH
IN SUPPORT OF PATENT OWNER'S RESPONSE FOR
INTER PARTES REVIEW OF
CLAIMS 1-20 OF U.S. PATENT NO. 11,558,317

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EXHIBIT LIST

<u>EXHIBIT NO.</u>	<u>DESCRIPTION</u>
Ex2001	Declaration of George Stamatopoulos in Support of Patent Owner's Motion for <i>Pro Hac Vice</i> Admission
Ex2002	Expert Declaration of Ivan Zatkovich in Support of Patent Owner's Response with respect to Claims 1-20 of U.S. Patent No. 11,558,317 (" Zatkovich Decl. ")
Ex2003	Deposition Transcript of Homayoon Beigi, taken on June 26, 2024
Ex2004	Deposition Transcript of Homayoon Beigi, taken on June 27, 2024
Ex2005	Public Comments to S. Symons, "When Chatbots meet RPA bots," https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a , Medium (Oct. 19, 2017) (omitted by Petitioner in Ex1004)
Ex2006	Zatkovich's Overview of Ex2009, "Simple chatbot" .html Code, and Ex2010, Video of "Simple chatbot" .html Code
Ex2007	Khoros Staff, "Different types of chatbots: Rule-based vs. NLP", Expert insights, Aug. 29, 2019 (marked as Beigi Ex. 19)
Ex2008	IBM, "What is a chatbot?", https://web.archive.org/web/20221227051852/https://www.ibm.com/topics/chatbots (archived copy of Dec. 27, 2022).
Ex2009	"Simple chatbot" .html Code, Prepared by Mr. Zatkovich for use in IPRs 2023-01368, 2023-01379, 2024-00065.
Ex2010	Video demonstration of the "Simple chatbot" .html Code (Ex2009)
Ex2011	U.S. Patent No. 10,819,664 [Ex1001 in IPR2023-01368]
Ex2012	U.S. Patent No. 11,258,732 [Ex1001 in IPR2023-01379]
Ex2013	[RESERVED]

I, Ivan Zatkovich, declare as follows:

1. The following is my written Declaration detailing the subject matter and my opinions on issues regarding the validity of Claims 1-20 of U.S. Patent No. 11,558,317 (“the ’317 Patent”, Ex1001) submitted on behalf of Patent Owner Walkme Ltd. (hereinafter “Patent Owner”).

I. Summary of My Declaration and Opinions

2. As I explain in this Declaration, it is my opinion that each of the challenged claims (Claims 1-20) of the ’317 Patent are not invalid in view of any of the grounds set forth in the Petition (Paper 2), and the supporting declaration of Dr. Beigi (Ex1003).

II. Background Information

A. Summary of My Professional Background and Qualifications

3. My professional background, qualifications, and experience testifying as an expert are set forth in my *curriculum vitae*, which is included as Appendix B.

I also summarize pertinent aspects of my professional experience below.

B. Materials Reviewed

4. In preparing this Declaration, I have reviewed the ’317 Patent (Ex1001), its prosecution history (Ex1002), the prosecution history of its parent application (U.S. Patent No. 11,258,732, Ex2011 and submitted as Ex1002 in IPR2023-10379) and its grandparent application (U.S. Patent No. 10,819,664,

Ex2012 ansubmitted as Ex1002 in IPR2023-01368), as well as each of the references and material cited and discussed therein.

5. I have also reviewed Petitioner's Petition for *Inter Partes* Review of the '317 Patent (Petition for *Inter Partes* Review, Paper 2, IPR2024 - 00065 hereinafter "**Petition**"), the supporting Declarations of Dr. Homayoon Beigi (Ex1003), the Mathijs Mekes (Ex1007), Senne Symons (Ex1008), Wouter Baetens (Ex1010), Ira Allen (Ex1012), and Nathaniel Frank-White (Ex1027), as well as each of the other exhibits submitted with the Petition including:

Exhibit Number	Description
1004	S. Symons, "When Chatbots meet RPA bots," https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a , Medium (Oct. 19, 2017)
1005	Screenshots of S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," https://vimeo.com/238927879 , Vimeo (Oct. 19, 2017)
1006	English Translation of Screenshots of S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," Vimeo (Oct. 19, 2017)
1009	W. Baetens, "When Chatbots meet RPA bots," https://chatbotslife.com/when-chatbots-meet-rpa-bots-c5f71e462e6 , Medium (Oct. 20, 2017)
1011	D. Williams et al., "Using artificial intelligence to optimize the value of robotic process automation," https://www.ibm.com/downloads/cas/KDKAAK29 , IBM White paper (2017)
1013	IT World Canada, "Using artificial intelligence to optimize the value of robotic process automation,"

	https://www.itworldcanada.com/assets/using-artificial-intelligence-to-optimize-the-value-of-robotic-process-automation , IT World Canada (2017)
1014	U.S. Patent No. 7,983,997 to Allen et al.
1016	U.S. Patent No. 10,839,798 to Krishnan <i>et al.</i>
1017	U.S. App. No. 62/581,550
1018	U.S. Patent No. 10,503,627 to Radhakrishnan <i>et al.</i>
1026	C. Melendez, "Chatbots and RPA: Digital Heaven," https://www.wovenware.com/blog/2016/10/chatbots-rpa-digital-heaven/ , Wovenware (Oct. 14, 2016)
1028	P. Ferscht et al., "Robotic Automation Emerges as a Threat to Traditional Low-cost Outsourcing," https://www.horsesforsources.com/wpcontent/uploads/2016/06/RS-1210-Robotic-automation-emerges-as-a-threat-060516.pdf , Horses for Sources (2012)
1029	M. Lacity et al., "What Knowledge Workers Stand to Gain from Automation," https://hbr.org/2015/06/what-knowledge-workers-stand-to-gain-from-automation , Harvard Business Review (June 19, 2015)
1030	P. Bornet, "Intelligent automation is about creating synergies between RPA, cognitive, chatbots and AI," https://www.linkedin.com/pulse/from-robotic-process-automation-rpa-artificial-ai-journey-bornet , LinkedIn (Apr. 22, 2017)
1031	C. Le Clair, "The Forrester Wave™: Robotic Process Automation, Q1 2017," Forrester Wave (Feb. 13, 2017)
1032	M. Arya, "A brief history of Chatbots," https://chatbotslife.com/a-brief-history-of-chatbots-d5a8689cf52f , Medium (Mar. 11, 2019)
1033	S. Symons, "RPA meets chatbot: Automatically generate e-mail signature," https://vimeo.com/238927879 , Vimeo (Oct. 19, 2017)

6. I have also reviewed other cited art and information cited by Petitioner with regards to the '317 Patent.

7. I attended the deposition of Dr. Homayoon Beigi on June 25 and 26, 2024, and reviewed the transcripts of both days of that deposition which are marked as Ex2003 and Ex2004.

8. I also reviewed each of the exhibits listed in the Exhibit table to this declaration.

9. I also based this Declaration on my knowledge from over thirty years of direct experience in diverse areas of software and computer programming knowledge, such as eCommerce, natural language processing and chat bot interactions.

C. Scope of the Assignment

10. I have been requested by counsel for Patent Owner to study the '317 Patent, including its claims and prosecution history, including the prior art cited and discussed therein, as well as the other material mentioned herein. I have also been requested by counsel for Patent Owner to provide my expert opinion regarding the validity of Claims 1-20 of the '317 Patent.

11. I anticipate using some of the above-referenced documents and other documents that may be produced during the course of this matter or as a result of my analysis to support my testimony in this matter. Additionally, I may use

representations, charts, graphs, photographs, schematics, simulations, and models based upon these documents, or other demonstrative materials.

D. Compensation

12. I am being compensated at my consulting rate of \$525 per hour for my time spent in connection with this case. I am being separately reimbursed for any out-of-pocket expenses. No part of my compensation is dependent upon the outcome of this proceeding or the nature of the opinions that I express.

E. Prior Testimony

13. I have provided declarations and deposition testimony as an expert witness in several U.S. District Court cases and Patent Trial and Appeal Board proceedings. I have listed relevant cases on my CV included as Appendix B.

F. Legal Standards

14. To render my analysis, I have been informed about the legal standards for patent invalidity. Specifically, I am informed that in an IPR proceeding:

(a) the Petitioner must prove patent invalidity by a “preponderance of the evidence”;

(b) there is no presumption of validity;

(c) claim terms should generally be given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art at the time of the invention (“POSITA”) in the context of the

specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises. However, extrinsic evidence is less significant than the intrinsic record; and

(d) that claim terms may be construed differently when a patentee sets out a definition and acts as his or her own lexicographer, and when a patentee disavows the full scope of a claim term either in the specification or during prosecution. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision.

15. As discussed below, I am informed that a patent claim may be invalid as anticipated, either expressly or inherently, over the disclosure of a prior art reference, or as “obvious” in view of the combination of prior art references.

16. I am informed that in order for a claimed element or feature to be “inherent”, it must necessarily be performed in the prior art disclosure. To the extent that the disclosure is capable of being performed in more than one manner, than none of those manners would be inherent based on such disclosure. If an element or feature is only possible or optional in the prior art disclosure, then it is not inherent.

17. I am informed that in considering the issue of obviousness, I should consider what a POSITA would have known as of November 5, 2017, the earliest claimed priority date of the '317 Patent, as well as what such a person would have reasonably expected to have been able to do in view of that knowledge. My analyses with respect to claim construction and validity based on the art relied upon in the Petition would not be affected if the November 4, 2018 priority date were used instead as the date of the invention.

18. I am informed that in analyzing the issue of obviousness, I should consider and determine:

- (a) the scope and content of the prior art;
- (b) the differences between the prior art and the claims at issue; and
- (c) the level of ordinary skill in the pertinent art.

19. I am informed that in analyzing the issue of obviousness, I also should consider secondary considerations, if they exist, as discussed below in Par. 23.

20. I am further informed that any of the following may provide a reason for combining elements known in the prior art:

- (a) a need or problem known in the field at the time of invention and addressed by the patent;
- (b) a design need or market pressure to solve a problem;

(c) the use of known techniques to improve similar products or methods in the same way;

(d) a simple substitution of one known element for another that would provide predictable results; or

(e) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

21. I also am informed that claims may be invalid if they are directed to obvious design choices. Specifically, I am informed that a patent claim that simply arranges old elements, with each element performing the same function that it had been known to perform, is not patentable. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

22. I am informed that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp with a reasonable expectation of success. I am informed that if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. I am informed that in that instance the fact that

the combination of elements was obvious to try may show that the combination was obvious.

23. I also am informed that certain “secondary considerations” of non-obviousness should be considered, to the extent that they exist. It is my understanding that such secondary considerations include:

- (a) commercial success;
- (b) long felt but unsolved needs;
- (c) failure of others;
- (d) industry skepticism;
- (e) praise by others; and
- (f) copying.

24. I am informed that there must be some connection or nexus between the secondary considerations and the claimed invention.

G. My Professional Experience and Qualifications

25. I am currently Principal Consultant of eComp Consultants, a position I have held for over twenty years.

26. eComp Consultants provides professional consulting services relating to computer and technical issues in a wide range of industries including Business and Finance, Telecommunications, and Internet eCommerce. Such consulting

services include working with clients on specific information technology projects, process improvement, project management, and other technology issues as well as providing professional expert witness services.

27. I am an eBusiness Director and Software System Designer specializing in eCommerce and Financial transaction systems. I have over thirty years of direct experience in a diverse set of areas, including debit card and other financial transaction instrument systems including point of sale systems, payment gateways, Merchant Acquirers, payment processing, and settlement systems.

28. At eComp Consultants, I have been qualified as a technical expert in over fifty matters and, with respect to credit card and debit card systems, in over fifteen matters.

29. I received a bachelor's degree in Computer Science, with a minor in Electrical Engineering Digital Circuit Design, from the University of Pittsburgh in 1980. I completed a master's thesis in Computer Networks, results of which are published in Byte Magazine.

30. From 1980 to 1987, I was a software engineer at Digital Equipment Corporation where I led the development of manufacturing automation and control software. I developed complex device drivers, database storage and retrieval

systems, and electronic transaction processing using electronic data interchange (EDI) standards.

31. From 1987 to 1996, I was an Architect and Manager for GTE/Verizon Telecom where I integrated call centers for billing and customer service including a third-party call assistance service. I also developed billing applications and systems for reconciliation of inter-exchange carrier transactions, including implementing CDC file security and data verification methods.

32. From 1996 to 1999, I was Director of Networks and Customer Support at Utility Partners Inc., where I designed and managed a system to automatically create and distribute service orders for mobile field units for various utility companies. I also provided live client support for various applications.

33. From 1999 to 2002, I was an eBusiness Manager at Tanning Technology & IMR Global. There, I implemented a system to cross-utilize call center agents and initiated an Interactive Voice Response chat room and Email response for GEICO. I also developed various financial applications for companies such as ETrade, Smith Barney, and Citicorp.

34. My full work experience, education, and prior testimony history is included in Appendix B.

III. Grounds

35. I have been asked to consider the following grounds raised in this IPR proceeding:

Challenged Claims	35 U.S.C. § (Post AIA)	Basis/Reference
1-20	103	Symons Blog (Ex1004) ¹ , Symons Video (Ex1005, Ex1006, Ex1007, Ex1033), Williams (Ex1011)
1-20	103	Allen (Ex1014)
1-4, 6-7, 9-12, 14, 16-18	103	Krishnan (Ex1016, Ex1017), Radhakrishnan (Ex1018)

(Paper 8, Institution Decision, at 9-10).

IV. Person Of Ordinary Skill In The Art (POSITA)

36. I have been advised that in evaluating obviousness of the claims of the '317 Patent, I should consider the level of ordinary skill a Person of Ordinary Skill in the Art ("POSITA") had as of the earliest claimed priority date of the Patent. Thus, in my analysis, I have considered the level of skill of the POSITA as of November 5, 2017.

37. I am informed that a POSITA is a hypothetical person who is presumed to have known the relevant art at the relevant time.

¹While I understand that Petitioner and Dr. Beigi refer to this blog as the "Symons" article, in my opinion, a POSITA as of November 5, 2017 would have considered this short-form and self-referential post more similar to a blog than an article, so I refer to it as the "Symons Blog". I similarly refer to Baetens' post on Medium (Ex1009) as the "Baetens Blog".

38. I understand, like Dr. Beigi, factors that may be considered in determining the level of ordinary skill in the art may include: (1) the education level of the inventors; (2) the type of problems encountered in the art; (3) prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field. (Ex1003, ¶ 43). I further am informed in a given case, every factor may not be present, and one or more factors may predominate.

39. In this regard, I understand that Petitioner and Dr. Beigi have asserted that a POSITA would have a bachelor's degree in engineering or computer science and two years of experience working on NLP or automation processes, or, alternatively, have five to six years of experience working on NLP or automation processes. (Paper 2, Petition, at 6; Ex1003, ¶ 44).

40. I understand that in the Institution Decision the PTAB adopted “Petitioner’s proposal” as “consistent with the evidence of record, including the asserted prior art and the ‘317 patent” (Paper 8, at p. 12). I do not agree with this assessment, which is inconsistent with at least factors (4) the rapidity with which innovations are made, (5) sophistication of the technology, and (6) educational level of active workers in the field..

41. First, the claimed invention relates to the use of, and claims aspects of, both chatbots and RPAs. Indeed, the '317 Patent is aimed at both “provid[ing] for a user-friendly manner of defining functionality of **chat bots**” and “enable[ing] defining **automation processes** in a manner that enable them to be implemented even if changes are performed to the underlying platform.” (Ex1001, 7:67-8:1; 8:57-60). I understand that Dr. Beigi does not dispute this assessment. (Ex2004, 342:3-343:22). It is also consistent with the Board’s assessment in the Institution Decision. (Paper 8, at 3). Thus, the '317 Patent claims relate to a conversation used to invoke an automation process.

42. Dr. Beigi improperly elevates the level of experience in the field while ignoring the evolving nature of the technology. Symons characterizes “Robotics Process Automation (RPA)” and “Chatbots” as “newer technologies” (Ex1004, at 1). This idea was no more than “a few months” old. (Ex1009, 2). As Dr. Beigi noted during his deposition, Symons appeared to consider the combination of the two to be “something of interest” in the field in October 2017 (a few weeks before the priority date of the invention). (Ex2003, 151:17-152:13). In my opinion, the message of Symons and Baetens in their respective writings is that their combination was so new and purportedly innovative they were only providing a “showcase”/“demo” with no details which had to be kept secret at the time. (Ex1004,

2; Ex1009, 2). Thus, the level of sophistication for combining chatbots with other functions as of November 5, 2017 was relatively low. Indeed, when others that were active in the field asked for details, none were provided. (Ex2005) As Symons and Baetens illustrate, in November 2017, at the time of the invention, combining RPA processes with chatbots was at least noteworthy, the field was not well developed and was evolving rapidly. This is consistent with my own experience and understanding of the field at the time. Accordingly, in my opinion, while a POSITA may have had experience in a computer field, a POSITA would have had limited experience working with both technologies.

43. As a key prior art that Dr. Beigi relies upon, he should have considered “Symons” in his analysis. (*see* Ex1003, ¶¶ 55-158). As Mr. Symons, the author of the Medium blog being relied upon (Ex1004), and creator of the video being relied upon (Ex1033), indicates, he had merely received his bachelor’s degree in applied informatics in 2017, and started working as a robotic process automation developer and business analysis at RoboRana, in October 2017, i.e., no earlier than 19 days before the blog in question was published. (Ex1008, ¶¶ 2-4). Both Dr. Beigi and I agree that Mr. Symons is an active worker in the field that is relevant to the patent in suit. (*See* Ex2003, 112:21-24).

44. Accordingly, in my opinion, a POSITA would have had some education either formal or informal in computer science and some work experience (e.g., 1-2 years) with chat bots using NLP or automation processes. (Paper 2, Petition, at 6; Ex1003, ¶ 44).

45. To the extent that the Board adopts a different level of skill, I note that it does not affect the conclusions of the analysis expressed herein regarding whether the prior art cited by Dr. Beigi discloses or renders obvious the claims of the '317 Patent.

V. Overview of U.S. Patent No. 11,558,317 B2

A. Disclosure of the '317 Patent

46. U.S. Patent No. 11,558,317 B2 (Ex1001, **"the '317 Patent"**), entitled "Invoking an Automatic Process in a Web-Based Target System Using a Chat-Bot", was filed as U.S. Serial No. 17/577,530 (**"the '530 Application"**) on Jan. 18, 2022, and claims priority from U.S. Provisional Application 62/581,714, filed on November 5, 2017, via PCT/IL2018/051168, filed on November 4, 2018, U.S. Serial No. 16/358,467 filed on March 19, 2019 (now U.S. Patent No. 10,819,664 B2, **"the '664 Patent"**, Ex2011), and U.S. Serial No. 17/026,305 filed on Sept. 21, 2020 (now U.S. Patent No. 11,258,732 B2, **"the '732 Patent"**, Ex2012). The '634 Patent and

the '732 Patent are subject of IPR-2023-01368 and IPR 2023-01379, respectively, for which I am separately submitting additional declarations.

47. For purposes of this proceeding, Petitioner and Dr. Beigi have agreed to use the November 5, 2017 priority date of the provisional application as the date of the invention. (Paper 2, Petition, at 5; Ex1003, ¶ 22). My analyses with respect to claim construction and validity based on the art relied upon in the Petition would not be affected if the November 4, 2018 priority date were used instead as the date of the invention.

B. Challenged Claims

48. The '317 Patent contains 20 claims, of which Claims 1, 9 and 16 are in independent form. (Ex1001).

49. Claim 1 (directed to a programmed product), which is representative of Claims 9 (directed to a method) and 16 (directed to a method performed by a processor of a computerized apparatus), reads as follows:

1. A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to:

- [a] receive a user instruction from a user using a natural language interface;
- [b] determine to implement an automation process on a web-based target system in response to the user instruction;
- [c] collect information to be used as part of the automation process; and

[d] implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, [e] wherein the automation process is performed with respect to third-party web-based target system and [f] without relying on an Application Programming Interface (API) exposed by the web-based target system, [g] wherein the implementation of the automatic process comprises:

automatically and without user input, filling in a text input field in the GUI of the web-based target system; and

[h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.

(Ex1001, 25:24-50 (bracketed and bold element lettering has been supplied to conform with the Institution Decision, Paper 8, at 8); *see also* Claim 9 (*Id.*, 26:12-34) and Claim 16 (*Id.*, 26:57-27:13)).

50. The '317 Patent also include Dependent Claims 2-8 (dependent on Claim 1), 10-15 (dependent on Claim 9), and 17-20 (dependent on Claim 16). I understand that Dr. Beigi and Petitioner are challenging all of these claims. (Institution Decision, Paper 8, at 9-10).

51. Claim 2 (dependent from Claim 1) (Ex1001, 25:51-53), which is representative of Claim 10 (dependent from Claim 9) (*Id.*, 26:35-36), provides:

... wherein the chat-bot program product is configured to implement the automation process by a client device used by the user.

52. Claim 3 (dependent from Claim 2) (Ex1001, 25:54-57), which is representative of Claim 11 (dependent from Claim 10) (*Id.*, 26:37-39) and Claim 17 (dependent from Claim 16 and incorporating the subject matter of Claims 2 and 3) (*Id.*, 27:14-17), provides:

... wherein the chat-bot program product is configured to implement the automation process by a browser that is executed by the client device.

53. Claim 4 (dependent from Claim 1) (Ex1001, 25:58-60), which is representative of Claim 12 (dependent from Claim 10) (*Id.*, 26:40-42) and Claim 18 (dependent from Claim 16) (*Id.*, 27:18-20), provides:

... wherein the chat-bot program product is configured to converse with the user in natural language using a vocal interface.

54. Claim 5 (dependent from Claim 1) (Ex1001, 25:61-67), which is representative of Claim 13 (dependent from Claim 9) (*Id.*, 26:43-49) and Claim 19 (dependent from Claim 16) (*Id.*, 27:21-27), provides:

... wherein the automation process is configured to automatically fill information in an online form, wherein the online form comprises the text input field, wherein the widget is configured to invoke submission of the online form, wherein the chat-bot program product is configured

to request user validation from the user before submitting the online form.

55. Claim 6 (dependent from Claim 1) (Ex1001, 26:1-3), which is representative of Claim 14 (dependent from Claim 9) (*Id.*, 26:50-52), provides:

... wherein the information comprises information of the user, whereby personalizing the automation process.

56. Claim 7 (dependent from Claim 1) (Ex1001, 26:4-7) provides:

... wherein the chat-bot program product is configured to utilize credentials of the user, whereby the chat-bot is privy to user-specific information.

57. Claim 15 (dependent from Claim 9) (Ex1001, 26:53-56), which is representative of Claim 8 (dependent from Claim 1) (Ex1001, 26:8-11) and Claim 20 (dependent from Claim 16) (*Id.*, 27:28-31), provides:

... wherein said implementing the automation process comprises:

automatically identifying the widget in the GUI; and

automatically identifying the text input field in the GUI.

58. A full listing of the challenged claims is attached as Appendix A to my declaration.

C. Technical Problem/Solution

59. The '317 Patent identifies several technical problems that it seeks to address, including “provid[ing] for a user-friendly manner of defining functionality of chat bots” (Ex1001, 7:65-67). The '317 Patent also seeks to overcome difficulties in companies as they seek to “adopt[] . . . new software” and “[i]ntegration of a new system into an organization”, which present challenges associating with “migrating large amounts of employees to new platforms” and “train[ing]” uses on such new platforms (*Id.* 8:42-50).

60. The '317 Patent also recognizes as “[a]nother technical problem” challenges to “enable defining automation processes in a manner that enable them to be implemented even if changes are performed to the underlying platform.” (*Id.*, 8:57-60). This later technical challenge can arise, for example, when there are “layout modifications of the front-end of the program or website” which can result in difficulty in identifying the correct elements of such programs or website to be populated. (*Id.*, 8:60-63).

61. While the '317 Patent also notes “[a]dditional technical problem, solution, and effects may be apparent to a person of ordinary skill in the art in view

of the present disclosure” (*Id.*, 11:48-50), neither the Petition, Dr. Beigi nor the Board in its Institution Decision identified any other problem relevant for this proceeding. (*See* Petition, at 3-4; Ex1003, ¶¶ 23-24; Ex2004, at 343:9-22; Paper 8, at 3-7).

62. The ’317 Patent identifies that “[o]ne technical solution provided by the disclosed subject matter may be to use a natural language interface to receive input from the user, and based thereon, select an automation process to be executed” “in a manner that manipulates the GUI [graphical user interface] of the target system, in a similar manner to the manner in which the user operates.” (Ex1001, 9:3-9).

63. The ’317 Patent also identifies as part of one of its technical solutions, “[d]efining the automation process based on performing actions in the GUI [to] enable[] the automation process to perform any functionality that the user can perform, without relying on dedicated APIs and without requiring any line of code.” (Ex1001, 9:11-16).

64. The ’317 Patent also identifies how it enables users to overcome challenges with new software systems and integration of new systems: “[i]nstead of relying on the user’s familiarity with the system, the automation process may be in charge of the actual use of the system. The chat bot may simply extract the user’s

intention, identify the relevant action to be performed, and extract relevant information to be used as part of the automation process.” (Ex1001, 8:51-56).

65. Thus, the claims of the ’317 Patent are directed to a method including “implementing [an] automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI ... without relying on an Application Programming Interface (API)” (Claim 1, 25:36-42) (program product); Claim 9, 26:20-26 (method); Claim 16, 26:66-27:5 (computerized apparatus).

66. These claims are generally broken down into three sets of processes being performed with respect to two different system components:

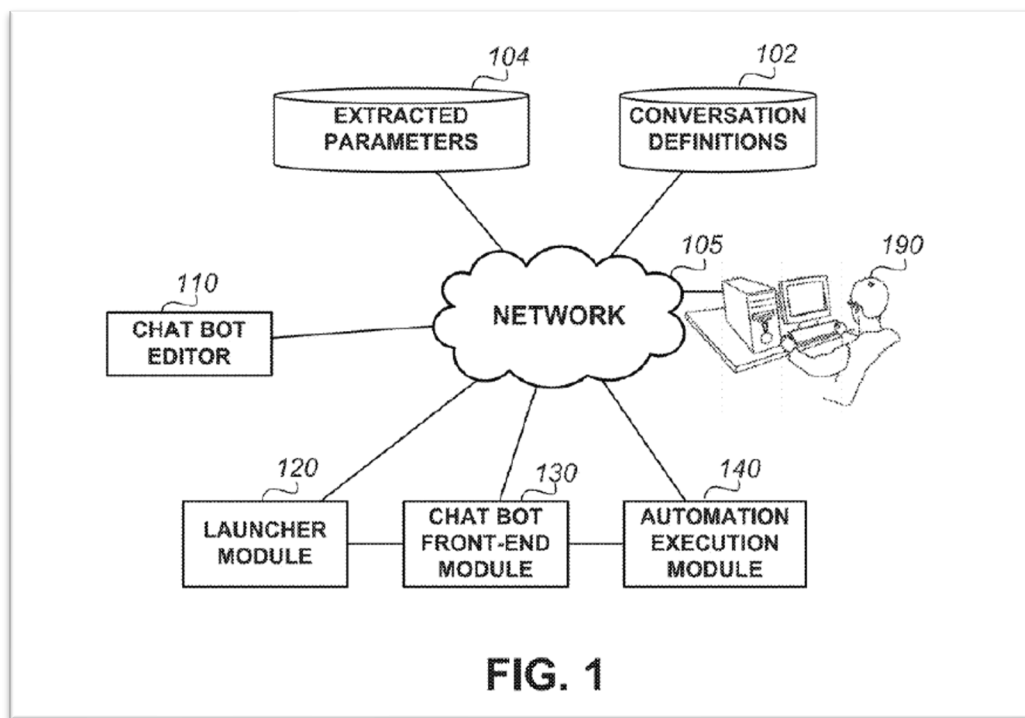
- **[a] & [c]:** “receiving a user instruction from a user using a natural language interface” as well as, after determining an automation process to implement, “collecting information to be used as part of the automation process” (Ex1001, Claim 1, 25:29-35; Claim 9, 26:13-19; Claim 16, 26:61-65).
- **[b]** “determining to implement an automation process on a web-based target system in response to the user instruction” (Ex1001, Claim 1, 25:31-33; Claim 9, 26:15-17; Claim 16, 26:61-63), and
- **[d], [e], [f], & [g]:** “implementing the automation process by interacting with a Graphical User Interface (GUI) of the web-based targeting system and

simulating user input to the GUI of the web-based target system”, by, “with respect to [the] third-party web-based target system”, “automatically and without user input, filling in a text input filed in the GUI of the web-based target system” and “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality”, all “without relying on an Application Programming Interface (API) exposed by the web-based target system” (Ex1001, Claim 1, 25:36-50; Claim 9, 26:20-34; Claim 16, 26:66-27:13).

67. As noted, these three separate set of steps also require a variety of separate components that are required to interact in a specific way to address the stated technical problems, including:

- **“a natural language interface”** to interact with the user,
- **“third-party web-based target system”**, with its own “Graphical User Interface (GUI)”, and
- an **“automation process”** (to be automatically invoked by the **“natural language interface”**) interacting with the **GUI of the targeted system** and “simulating user input to the GUI of the web-based target system”, including other limitations set forth above.

68. FIG. 1 of the '317 Patent provides an overview of the components of an exemplary, non-limiting system incorporating the natural language interface in accordance with embodiments of the invention that a user 190 interacts with via, e.g., Chat Bot Front-End Module 130 to implement the “automation process” using, e.g., automation execution module 140:



(Ex1001, Fig. 1).

1. The “natural language interface” data collection processes [a], [b] and [c]
 - a. Element [a]

69. The '317 Patent provides as element [a] “*receiving a user instruction from a user using a natural language interface*” (Ex1001, Claim 1, 25:29-30;

Claim 9, 26:13-14; Claim 16, 26:59-60). The natural language interface can be, but is not limited to, “a chat bot service operable to converse with the user in natural language.” (*Id.*, 1:62-64). In some embodiments, the natural language interface is “voice-based”. (*Id.*, 2:61-63; *see also* Claims 4, 12 and 18).

70. In the context of the exemplary embodiment shown in FIG. 1 of the '317 Patent, “User 190” can interact “with a chat bot” using “Chat Bot Front-End Module 130”. (*Id.*, 12:14-15). “User 190 may converse with the chat bot using natural language, such as using written text in a messenger-like UI, using oral conversation such as by providing oral instructions that may be translated to text using speech-to-text methods, or the like. Chat Bot Front-End Module 130 may be a front-end of the chat bot that may be implemented by a dialog processor service (not shown) that may be executed, for example, by a cloud-based platform. In some exemplary embodiments, the dialog processor service may be a microservice. The dialog processor service may access Conversation Definitions 102 to determine the flow of conversation, to determine which question to ask the user, what to do with the provided answer, match values to parameters, or the like.” (*Id.*, 12:15-28).

b. Element [b]

71. The '317 Patent provides as element [b] “*determining to implement an automation process on a web-based target system in response to the user*”

instruction” (Ex1001, Claim 1, 25:31-33; Claim 9, 26:15-17; Claim 16, 26:61-63).

In this step, the natural language interface has to “determin[e]” which “automated process” to implement on “web-based target system”. The web-based target system is a “third-party web-based target system” . Consistent with what a POSITA as of November 5, 2017 would understand, a “third-party” system is a different and unaffiliated program/system, which seems to be undisputed. (See Ex1003, ¶ 261). This determination is made “in response to the user instructions” which are received in element [a].

72. As the ’317 Patent explains, “[o]n Step **240**, an automation process may be selected. The automation process may be selected based on the flow of the conversation. In some exemplary embodiments, a conversation may be associated with several automation processes that are selected based on the user's interaction with the chat bot. Additionally or alternatively, the conversation may be associated with a single conversation that is selected upon reaching the end of the flow of the conversation.” (Ex1001, 14:12-20)

c. Element [c]

73. The ‘317 Patent provides as element [c] “***collecting information to be used as part of the automation process***” (Ex1001, Claim 1, 25:34-35; Claim 9, 26:18-19; Claim 16, 26:64-65). In embodiments, a chat bot conversation flow

“define[s] questions configured to extract information from the human user (234). The questions may define a name of a parameter to which the information would be assigned and a type and/or a domain thereof (e.g., text, text matching a predetermined pattern, an integer, an integer within a range, or the like).” (*Id.*, 13:66-14:5). In embodiments, “the values of the parameters may be utilized for setting values of parameters in a parameterized automation process, thereby adjusting the parameterized automation process based on the answers of the user. The adjustment may comprise causing the automation process to input user-defined values to input texts, select different elements, set different conditions, or the like.” (*Id.*, 14:5-14:12).

74. As required by Claims 6 and 14, the collected information can be “information of the user” and used to “personaliz[e] the automation process”. (Ex1001, 26:1:-3, 50-52).

75. Information can also be collected outside of a conversation. As the ’317 Patent explains, information can be collected, for example, via “Question Steps 550b 550c, 550d” (corresponding to questions requesting “Employee ID”, “First Name” and “Last Name”) in “the conversation”, but, such as in the case of “user credentials” and “environment variables” can instead be obtained by the chatbot outside of the conversation:

The user may associate parameters gathered by the conversation (e.g., by Question Step 550*b*, 550*c*, 550*d*, 550*e* of FIG. 5B). **Additionally, or alternatively**, the user may associate parameters **available to the chat bot**, such as **based on the user credentials**, environment variables, or the like.

(Ex1001, 20:10-15; *see also* (Ex1001, Claim 7, 26:4-7).

2. **Implementing the Specific Automation Process - Elements [d]-[h]**

76. The ‘317 Patent also provides in element **[d]** for the “natural language interface” to “implementing the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system” (Ex1001, Claim 1, 25:36-38; Claim 9, 26:20-22; Claim 16, 26:66-27:1). This implementation process is further qualified in elements **[e]-[h]** by requiring:

- **[e]** “wherein the automation process is performed with respect to third-party web-based target system and **[f]** without relying on an Application Programming Interface (API) exposed by the web-based target system,”
- **[g]** “wherein the implementation of the automatic process comprises: automatically and without user input, filling in a text input field in the GUI of the web-based target system”; and

- [h] “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.” (Ex1001, Claim 1, 25:36-50; Claim 9, 26:20-34; Claim 26:66-27:13).

77. In the context of the exemplary system of FIG. 1, “Automation Execution Module 140 may be configured to execute, on the client-side, the automation process.” (*Id.*, 12:37-39). As is relevant here, “[i]n some exemplary embodiments, Automation Execution Module 140 may execute automation process on a desktop application that is executed on a non-sandboxed operating system, such as WINDOWS™ or LINUX™. An agent may be installed on the user device. The agent may access other applications, including their UI elements, manipulate such elements and create new elements.” (*Id.*, 13:19-25).

78. In embodiments, once executed, the automation process interacts with several “element[s] of interest”, which “may be identified in the GUI, such as based on a unique identifier, based on a probabilistic method, or the like.” (*Id.*, 15:9-12). The automation process, as is pertinent here may “manipulate[]” a “text input field to receive focus, enabling the inputting of texts thereto”. (*Id.*, 15:14-17). In embodiments, inputting a value may include using “an element-of-interest, a String text, a parameter name, or the like. The value to be inputted to the element-of-interest

can be a fixed value (the String text parameter). Additionally or alternatively, the value may be retrieved from a parameter, whose value is set during the conversation. The name of the parameter may be provided as a parameter to the step (e.g., parameter name). The element-of-interest may be identified in the GUI, such as based on a unique identifier, based on a probabilistic method, or the like. The automation process interacts with the element-of-interest and simulates a user filling input to the element-of-interest, either a fixed value or a value of the parameter.” (*Id.*, 15:25-37).

79. In embodiments, “the automation process” also “interacts with the element-of-interest and simulates a click action thereon”, (Ex1001, 14:64-65) enabling interactions with widgets, which are “GUI element[s]” (*Id.*, 10:20-21). “As an example, the element-of-interest may be a clickable object, a button, or the like.” (*Id.*, 14:65-67).

80. Importantly, the ‘317 Patent, consistent with Claims 8, 15 and 20, teaches how to identify widgets and GUI elements, including “in a probabilistic manner”. (Ex1001, 10:40-41, 26:8-11, 26:53-56, 27:28-31). In embodiment, “[e]ach widget of the same target type appearing in the relevant screen of the GUI may be examined. Each of the parameters used for identifying the widget-of-interest is compared to the parameter of the examined widget and a similarity score may be

computed.” (*Id.*, 10:41-46). Then, “[t]he examined widget having the highest similarity score may be determined to be the widget-of-interest,” or, in some embodiments, if the “highest similarity score is below a predetermined threshold, it may be determined that the widget-of-interest was not located” (*Id.*, 10:46-50). In embodiments, parameters such as a “unique identifier”, “a text label ... a color parameter, a length parameter, a height parameter, an associated URL that is activated upon clicking thereon” and “relative location” are used to identify widgets. (*Id.*, 10:28-34, 59-63).

81. The benefit of this GUI based approach, “without relying on an Application Programming Interface (API) exposed by the web-based target system” as required by the claims (Ex1001, Claim 1, 25:41-43; Claim 9, 26:25-27; Claim 16, 27:4-7), is that it “does not require coding or using designated API.... Instead, the GUI itself, which already exists in the target system, is used as the API-substitute” (*Id.*, 11:12-17). This avoids the problems with API calls, which can be “time consuming” and “not ... feasible”, as well as “potential security issues, if the API is manipulated.” (*Id.*, 11:17-24).

VI. Claim Construction

82. I have been informed that claim terms should generally be given their ordinary and customary meaning as would be understood by a person with ordinary skill in the art at the time of the invention (“POSITA”) in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises. I have also been informed that claim terms may be construed differently when a patentee sets out a definition and acts as his or her own lexicographer, and when a patentee disavows the full scope of a claim term either in the specification or during prosecution.

83. I note that Dr. Beigi claims to have adopted the “ordinary and customary meaning of the terms” in his analysis, and did not expressly construe any of the claim terms. (Ex1003, ¶47). Similarly, the Petition (Paper 2, at 6) asserted and the Board’s Institution Decision agreed (Paper 8, at 13) that there is no need to construe any terms to resolve this Petition.

84. In general, with respect to the claim terms in the ’317 Patent, I agree that the “ordinary and customary meanings of terms” as understood by a POSITA as of November 5, 2017 should apply, and no claim construction is necessary to resolve this matter.

VII. Patent Owner's Challenged Grounds

A. GROUND 1 – “Symons and Williams [Purportedly] Renders Obvious Claims 1-20” Fails

85. In support of Ground 1 of the Petition, Dr. Beigi asserts that Symons (discussed below) and Williams (Ex1011) render obvious all 20 claims of the '317 Patent. For the reasons set forth herein, I disagree.

1. Summary of Symons

86. In support of the Petition, Dr. Beigi has identified multiple references related to the “Symons” prior art (Ex1003, ¶¶ 49-50) including the:

- **“Symons Blog”**, S. Symons, “When Chatbots meet RPA bots,” Medium (purportedly published Oct. 19, 2017), included as Ex1004; and
- **“Symons Video”**, S. Symons, “RPA meets chatbot: Automatically generates e-mail signature,” Vimeo (purportedly published Oct. 19, 2017), screen shots of original German language version included as Ex1005, Ex1033, English language translation and certification at Ex1006 and 1007).

87. As corroboration of the public availability, Dr. Beigi also relies (Ex1003, ¶ 58) upon a blog by Wouter Baetens, published in Chatbots Life,

purportedly on October 20, 2017, that also provides a link to the Symons Blog. (“**Baetens Blog**”, Ex1009).

88. Dr. Beigi also relies (Ex1003, ¶58) upon supporting declarations of:

- **Sebbe Symons** (Ex1008, including Exhibits A (Symons Blog) & B (Symons Video, in original German), but omitting Exhibit C); and
- **Wouter Baetens** (Ex1010, including Exhibit A (Baetens Blog from medium), B (Baetens Blog from Chatbots Life), C (Symons Blog) & D (Symons Video Screenshots in original German))

89. For purposes of this declaration, I do not have an opinion whether or not the Symons Blog, Symons Video and Baetens Blogs were publicly available, but instead assume solely for purposes of this proceeding they are prior art in the forms submitted as Exhibits for purposes of my analysis.

90. In the Symons Blog, Senne Symons describes the chatbot in the video thereof as follows:

The goal of the showcase is to automate the process of creating an email signature. First, the chatbot collects all the necessary information in a friendly, interactive manner. This information gets passed on to the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester. The whole process is completed within a

minute. Easy and smooth integration proves a great future for both technologies [chat bots and RPA robots].

(Ex1004, 2-3).

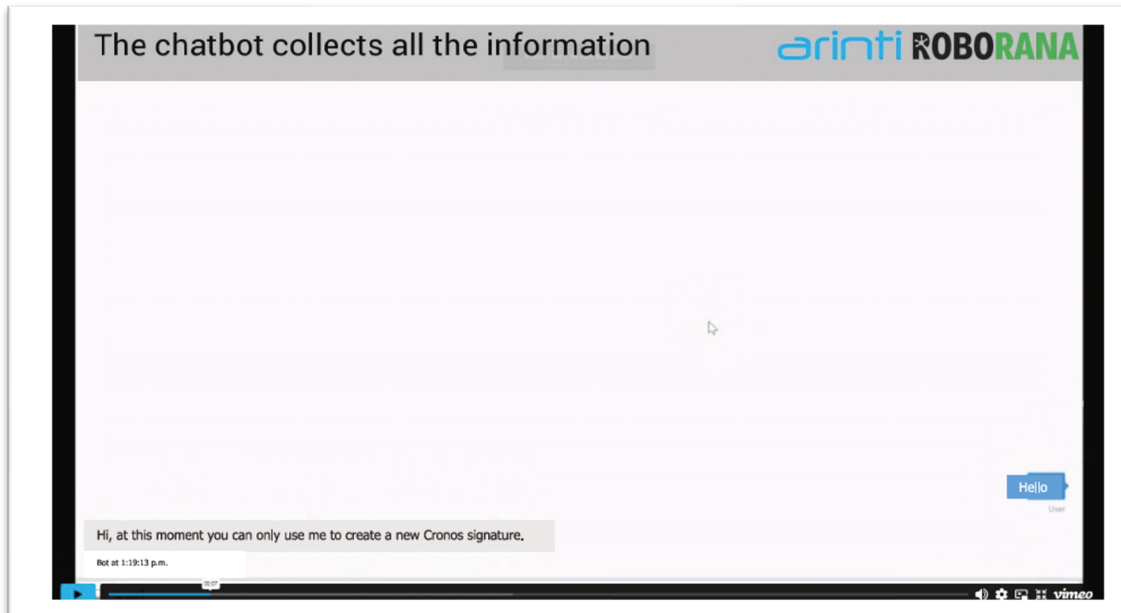
91. Wouter Baetens, in the Baeten Blog purportedly written around the same time, describes the chatbot in the video in a similar way, providing no additional detail. (Ex1009, 2). To the contrary, he confirmed “we can’t share much about the results of our joint efforts (yet)” (*Id.*).

92. Dr. Beigi also relies extensively in his declaration on the English language translation of the Symons Video itself provided at Ex1006/Ex1007). (*See, e.g.,* Ex1003, ¶¶ 57-60, 73-74, 77, 85, 88, 98, 100, 102-104, 106, 110-111, 117-119, 122-123, 142). For purposes of my analysis for this proceeding, I am not offering any opinion as to the accuracy of the translation and am assuming the translation is accurate.

93. The Symons Video (Ex1006-Ex1007) likewise provides little, if any, details on how the underlying chatbot and RPA bot are programmed to operate. As Dr. Beigi explains (Ex1003, ¶¶ 59-60), the Symons Video only shows a video that allegedly “[a]utomatically generate[s an] e-mail signature”. (Ex1006, 1). At his deposition, Dr. Beigi confirmed that he does not know how “the internals” of Symons works, and that he never discussed with Symons how it works. (Ex2003, 213:18-214:9). In Dr. Beigi’s words, “we only see the video, the actual interaction”,

not “the internals of it.” (*Id.*). I agree that neither the Symons Blog, the Symons Video, nor the Baetens Blog provide any information on what Dr. Beigi calls the “internals”, which, as I note above, Baetens confirmed was intentional. (Ex1009, 2).

94. In particular, the video shows text of a ‘User’ (who is later shown to be Vincent De Bie) saying “Hello” and then being told, by “Bot”, **“Hi, at this moment, you can only use me to create a new Cronos signature”**:

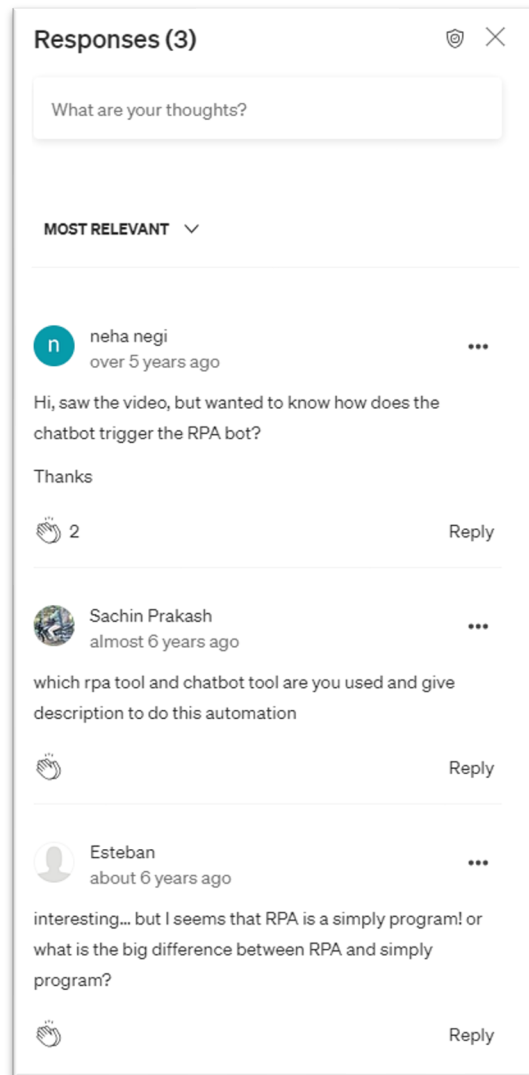


(Ex1006, 2).

95. Thus, consistent with the stated goal, in my opinion, a POSITA would understand there is simply one hardwired conversation which can only invoke a single automation process. Thus, in my opinion, a POSITA would understand the

Symons video does not disclose **a plurality of conversations, nor a plurality of automation of process to be selectively invoked from one or more conversations.**

96. As Dr. Beigi points out (Ex1003, ¶¶ 59-60), the video then shows several messages where the user's name ("Vincent De Bie"), job role, email address, and mobile phone number are given. (Ex1006, 3-6). **No other information is given about the "chatbot", how it was programmed, or why these messages are displayed.** For example, Symons **does not explain how the chatbot knows what questions to ask or what information to collect.** As illustrated in comments to the Symons Blog, details about how the chatbot functioned were sparse:



(Ex2005). These comments were posted contemporaneously with the Symons Blog, as I confirmed, when I reviewed the actual posting as it is available presently. I understand although Dr. Beigi asserts he reviewed the actual posting, he did not notice or consider these comments in formulating his opinions. (Ex2003, 220:11-18, 222:5-16).

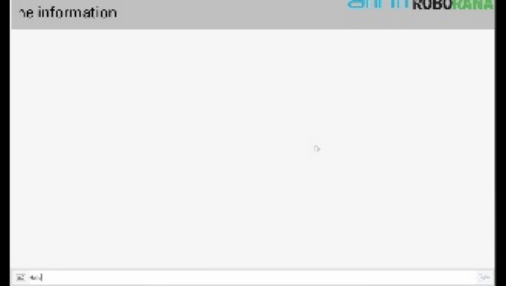
97. As displayed in Symons, next, “the chatbot triggers the RPA bot”, (Ex1006, 10) although, again, **the details of how the RPA bot is triggered, or under what conditions, are completely absent.** Even in the Symons Blog, all that is said is that “[t]his information gets passed on to the RPA robot.” (Ex1004, at 2). The “RPA bot [then] automatically opens [the] browser and enters details”, ostensibly those provided by the user to the chatbot. (Ex1006, 11-12). The video appears to show an RPA bot copying the generated signature to the clipboard (Ex1006, 13-14), opening a word document (which lists “Senne Symons” as the owner”) (Ex1006, 15), pasting the clipboard contents into the opened word document (Ex1006, 15), and then emailing the word document to the user (Vincent De Bie) of the chatbot (Ex1006, 16-22). Thus, the RPA bot utilizes a browser, copying functions, Word and email applications (i.e., **3 or 4 different computer programs**).

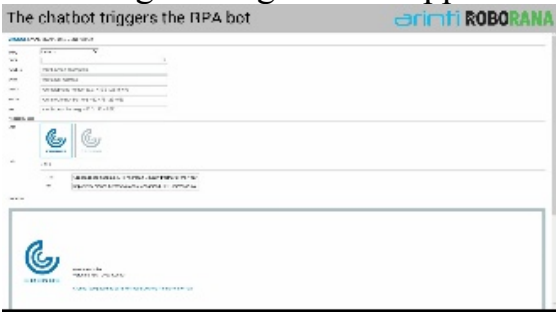
98. While there is no explicit disclosure in the video of what computer system was used for the chatbot and one computer system was used to generate the email signature, it is a reasonable conclusion to a POSITA at that time, that the ChatBot shown up to page 9 in Ex1005 (original) and Ex1006 (English translation), to gather information from Vincent Die Bie appears to be his computer as the user, the RPA was triggered on and run on Mr. Symons computer as illustrated with the

“rock climbing” desktop screen on pages 10 and 16 in Ex1005 (original) and Ex1006 (English translation), and then the email with the Word document attached is received by Mr. Vincent Die Bie at his computer still showing the same chatbot conversation on pages 17, and until the page 22. In my opinion, a POSITA as of November 5, 2017 would understand that this video was intended to showcase the use of a chat bot on a user’s computer, which would send the collected information to remote computer to run an RPA which would interact with Cronos email signature generator, Internet Explorer, Word and an email client on that remote computer, and return the signature in a Word document via email to the user of the user’s computer running the chatbot.

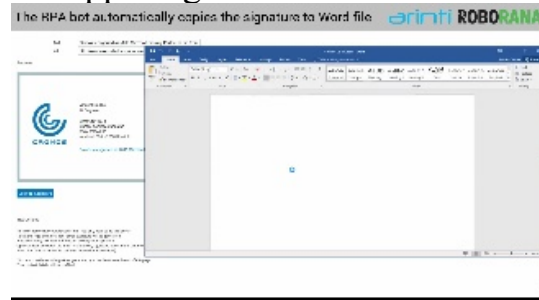
99. The following timeline I prepared from the original video submitted as Ex1033 illustrates how I believe a POSITA at the time (and even now) would understand the purported video showcase to be generated:

Mr. Vincent Die Bie Computer	Mr. Sennes Symons Computer
Video Part 1: <i>1st Computer - Chatbot conversation occurs on the user’s computer (i.e. Vincent De Bie’s computer)</i>	
0m5sec: First view of Vincent De Bie’s computer screen. The start of De Bie providing information for a signature block.	

 (Ex1033; between pp. 1 and 2 of Ex1005, Ex1006)	
0m31sec: Final view of Vincent De Bie's computer screen during entry of the signature block information.  (Ex1033, between pp. 9 and 10 of Ex1005, Ex1006) Note: The displayed language appears to be Flemish.	
Video Part 2: Switch to 2nd computer - to generate signature block (on Senne Symon's computer)	
	0m32 sec: Video cuts to the desktop screen showing a rock climber of a 2nd computer. 

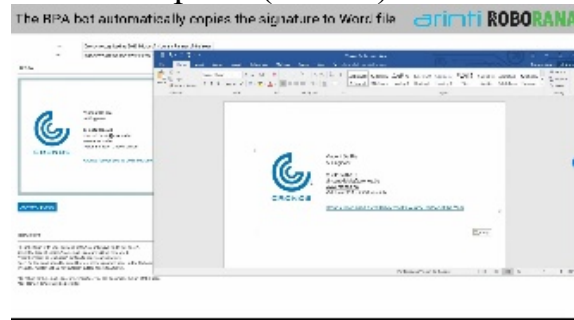
	(Ex1033, shortly before p. 10 of Ex1005, Ex1006)
	0m36 sec: Second Computer displays cronos signature generator application  (Ex1033, shortly before p. 11 of Ex1005, Ex1006). Note: The information on the 2nd computer system is in English. In addition, 2nd computer screen is displayed in a higher resolution than the 1st computer (indicated by size and clarity of text).
	0m40sec: 2nd computer is performing a “Copy to Clipboard” of the signature block information that was entered. Note the pop-up dialog box asking to “Allow Access” to the clipboard.  (Ex1033, shortly before p. 13 of Ex1005, Ex1006).
	0m44sec: 2 nd computer opens the MS Word application. Note the user

logged-in into Word is Symon, which is displayed in the Word application in the upper right-hand corner.



(Ex1033, shortly before p. 15 of Ex1005, Ex1006).

0m44sec: 2nd computer shows the signature block pasted into the Word document to be emailed to the user of the 1st computer (De Bie).



(Ex1033, displayed at p. 15 of Ex1005, Ex1006)

0m45sec: 2nd computer: signature block operation has completed and desk top screen with rock climber is shown with label “emails the Word file to the requester”



	(Ex1033, displayed at p. 16 of Ex1005, Ex1006)
<i>Switch back to 1st computer - to receive signature block emailed from 2nd computer.</i>	
0m49sec: 1st computer screen shows the same chatbot sessions as in Part 1.  (Ex1033, shortly before p. 17 of Ex1005, Ex1006)	
0m49sec: 1st computer shows an addition, pop-up appears from MS Outlook 2016 indicating that an email has been received from Senne Symon's computer.  (Ex1033, displayed at p. 17 of Ex1005, Ex1006)	
0m53-54sec: 1st computer shows user opening the new email. The email contains the Word document emailed from Symon's computer with a copy of the Cronos signature block. The sender is "Symons Senne" and the recipient is "Vincent De Bie".	



(Ex1033, displayed at p. 19 of Ex1005,
Ex1006)

Note: the user of this computer (De Bie) is logged into the email application.



(Ex1033, Displayed at p. 21 of Ex1005,
Ex1006)

1m0sec: 1st computer shows signature block within the Word application.



(Ex1033, shortly before p. 22 of
Ex1005, Ex1006)

Note: The setting information in the lower right and corner of view and percent magnification is different from that indicated on the Symon's Word application.	
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100. Consistent with this timeline, a POSITA as of November 5, 2017 would also understand that since the RPA process involves sending an email, rather than simply saving the Word document, it would have ordinarily involved other systems. In my opinion, a POSITA as of November 5, 2017 would only have sent an email if the user of the chatbot did not have access to the output of the Cronos signature generator. It would not have made sense to save the signature as a Word document on Vincent De Bie's machine, only to go on to send the word document to Vincent De Bie's machine, so that it can be opened there. Vincent De Bie could just open the signature word file on his machine. Alternatively, a POSITA implementing the RPA process could have had the RPA process simply follow the "Instructions" shown in the Cronos signature generator to simply "Open Outlook and open the email Preferences/ signature panel in the Outlook menu". (Ex1006, at 14).

101. In this regard, I note that during his deposition, Dr. Beigi stated that he did not know if the video displays one or two computers being used, and that it could have been either. (*See, e.g.*, Ex2003, 217-220). Essentially, Dr. Beigi admitted it

was “a conjecture” how the system operated, offering different options. (Id., 219:24-220:9).

102. Mr. Symons also gave a declaration authenticating aspects of Symons. In it he describes the chatbot as conducting the following process:

In Exhibits A and B, the developed Chatbot-RPA automatically created an email signature using information collected by the chatbot. The chatbot interacted with the user to collect all the necessary information. Once the information was collected, the RPA bot was triggered. The RPA bot automatically generated the email signature, saved it, and emailed it back to the user.

(Ex1008, ¶ 9).

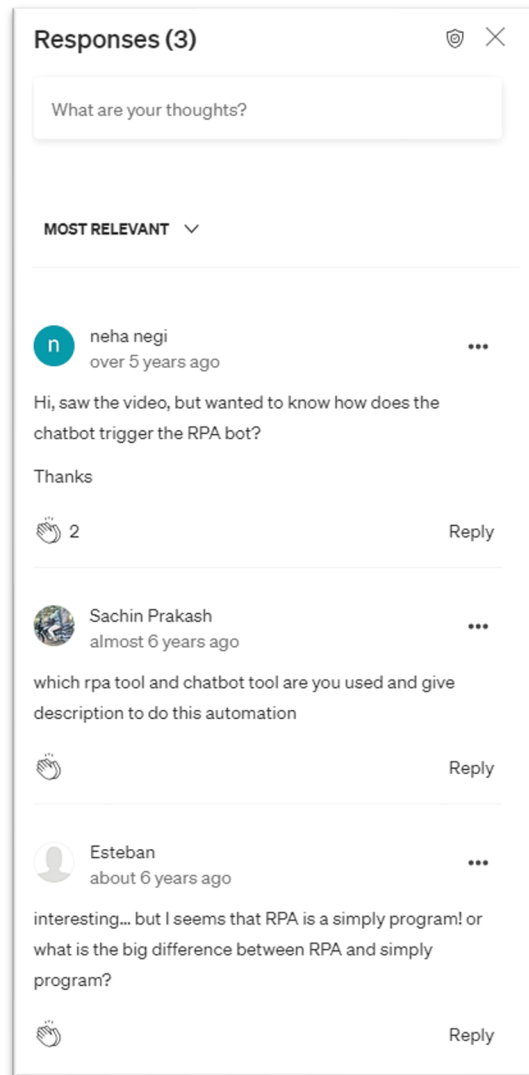
103. Mr. Baetens provided a declaration to a similar effect. (*See* Ex1010, ¶ 8).

104. I understand that these Declarations can be used to authenticate the Symons Blog, Symons Video and Baetens Blog, they would not be printed publications like the Symons Blog, Symons Video and Baetens Blog. In any event, this description as set forth in these Declarations does not fill any of the gaps I note above.

105. While Dr. Beigi quotes language from the blog about some of the benefits of chatbots and RPA (Ex1003, ¶ 61), as discussed above, the language in the

blog provides no additional information regarding the actual operation of the chatbot or the RPA it allegedly implements. Further, there is no explanation in the Symons Blog, Symons Video, Baetens Blog, the Symons Declaration nor the Baetens Declaration whether the “chatbot” was in fact a “natural language interface” relying upon NLP technology, or whether it made a determination in response to a user “instruction”.

106. As illustrated in comments to the Symons Blog, various independent third parties at the time confirmed that neither they (and in my opinion, a POSITA) would not have known “how . . . the chatbot trigger[s] the RPA bot”, how the automation process was defined or described, or whether an RPA module was used (as opposed to another type of program):



(Ex2003).

107. In my opinion, a POSITA as of November 5, 2017 would understand from the Symons Blog, Symons Video and Baetens Blog that:

- the evidence does not clearly establish whether the Chatbot-RPA discussed in Symons Blog and Baetens Blog, and purportedly demonstrated in Symons Video, was actually built at the time, rather

than simply prepared as what Baetens called a “small demo ... [to] demonstrate[] the value in combining these technologies”;

- the disclosed Chatbot-RPA was a single purpose demo “to automate the process of creating an email signature”;
- while it purports to use a “chatbot” to “collect all the necessary information in a friendly, interactive manner” (Ex1004, 2; Ex1009, 2), it is not clear that the “chatbot” was in fact a “natural language interface” relying upon NLP technology obtain a user “instruction” and make a determination based on the instruction;
- the “chatbot” was only programmed to implement a single RPA, a single conversation thread, and did not offer the user to select from a plurality of RPAs or “automation processes” as discussed in the ’317 Patent (Ex1001, 9:3-10), let alone choose between “automation processes” based on a user instruction from a natural language interface;
- the RPA was software that was executed on a different device than the user device on which the chatbot was implemented; and
- the RPA was software that did not interact with a single target software, like WAZE™ (as discussed in the ‘317 Patent, Ex1001,

9:41-47), but instead implemented a process invoking at least 3 or 4 different pieces of software.

2. Summary of Williams

108. In support of the Petition, Dr. Beigi also relies on an IBM White Paper he refers to as “**Williams**”:

- **D. Williams** et al., “Using artificial intelligence to optimize the value of robotic process automation,” IBM White paper (2017), from September 2017 (Ex1011).

109. Dr. Beigi in his analysis (Ex1003, ¶ 69) relies upon Williams describing at a high level the use of chatbots by IBM as follows:

These chatbots can engage in natural language dialog with the caller and discern, through a series of interactions, the nature of the call and then capture information required to further handle the request. The chatbot will then trigger a robot, passing the required information to the robot to complete the request.

Today, IBM is using chatbots for vendor inquiry helpdesk where it replaces a human agent to interface with suppliers who want to understand the status of their payments. Using chatbots, we have replaced the call center agent and now use a virtual agent to interact directly with the supplier. Through **several scripted questions**, the virtual agent can surmise that the supplier is asking for status on their payment and, thus, trigger an RPA robot to **access the appropriate**

enterprise resource planning (ERP) backend system, validate the caller's details, retrieve necessary information, and provide status back in real-time to the supplier. The chatbot then closes the call and updates the ticket management system used to track call center activities.

(Ex1011, 3) (emphasis added).

110. Dr. Beigi also relies (Ex1003, ¶ 69) upon the discussion in Williams which describes, at a high level, different forms of RPA and the way that AI technologies can be used to improve RPA, by reference to an “Intelligent automation continuum” in Figure 1, ranging from “Robotic process automation (RPA)” to “Intelligent process automation (IPA)”. (Ex1011, 3-4).

111. Per Williams, with RPA, a robot “is taught to drive applications like a human does through the graphic user interface (GUI), following predetermined pathways” and “accesses and assembles structured data performing prescribed actions”. (Ex1011, 4). In IPA, a robot “has autonomous decision and self-remediating capabilities,” “uses AI to redesign and restructure process to optimize operations,” “reasons and remembers information, and learns to identify new insights through data discovery,” “interacts with humans through a combination of advanced algorithms, natural language processing, machine learning, and other forms of AI”, and “[r]ecords every action, transaction, interaction and decision tree, which makes it auditable and accountable”. (Ex1011, 4).

112. Dr. Beigi also relies upon supporting declarations of:

- **Ira Allen**, a co-author of Williams (Ex1012), authenticating Williams and its publication on IBM's website (Ex1011) and ITC World Canada (Ex1012).

113. Significantly, Mr. Allen offers no insights as to the scope or details of the disclosure of Williams other than it was publicly available.

114. For purposes of this declaration, I do not have an opinion whether or not the Williams Articles were publicly available, but instead assume they are prior art in the forms submitted as Exhibits for purposes of my analysis.

115. Like Symons, Williams is devoid of significant detail aside from broad generalizations about how chatbots and RPA bots might work. In my opinion, a POSITA would have merely understood based on Williams that:

- The discussion on chatbots does not provide any information as to how conversation flows actually invoke automated process; and
- The disclosed "Intelligent automation continuum," simply provided a taxonomical definition of RPAs and IPAs, nothing more.

3. Symons and Williams do not disclose or render obvious Claims 1, 9 and 16 (and by extension their dependent claims)

116. As Ground 1, Dr. Beigi contends that Claims 1, 9 and 16 are obvious in view of Symons and Williams. (Ex1003, ¶¶ 70-101; 124-133; 142-151). The Institution Decision does not offer any analysis on this ground. (Paper 8, at pp. 17-24). As discussed below, Ground 1 fails for each of these claims and by extension their respective dependent claims.

a. [a] “receive a user instruction from a user using a natural language interface;” and [b] “determine to implement an automation process on a web-based target system in response to the user instruction”

117. Each of the independent claims 1, 9, and 16 begin with the steps of [a] “receive a user instruction from a user using a natural language interface;” and [b] “determine to implement an automation process on a web-based target system in response to the user instruction”. (Ex1001, Claim 1, 25:29-33; Claim 9, 26:13-17; and Claim 16, 26:59-63). Claims 9 and 16 explicitly require that the natural language interface be a “natural language interface of a chatbot” (Ex1001, Claim 9, 26:14; Claim 16, 26:60), and Claim 1 is performed in the context of a “chatbot program product”.

118. As I discuss below, Dr. Beigi fails to show that Symons teaches using a “natural language interface” “of a chatbot”, either alone or in combination with

Williams. Similarly, Dr. Beigi does not demonstrate that Symons teaches “receiv[ing] a user instruction” and “determin[ing] to implement an automation process ... in response to the user instruction”.

i. Symons “Chatbot” Does Not Disclose that it uses a Natural Language Interface as required in Element [a]

119. Dr. Beigi and I both seem to agree that a POSITA as of November 5, 2017 would understand that the claimed “natural language interface” would use “natural language processing” as that would have been understood by a POSITA in order to implement a conversation.

120. During his deposition, although he was not consistent, Dr. Beigi seemed to acknowledge that the claimed “natural language interface” uses “natural language processing” and requires the interface to “mimic human language and understand[] it” and act accordingly (Ex2003, at 208: 3-6 (discussing his understanding of “chat bots”)). *See also* Ex2003, 187:23-188:5 (“the natural language processing unit is trying to assess the information that the person who is uttering it is trying to convey. And that information that is being conveyed, it’s trying to extract that.”).

121. Dr. Beigi explained that when he spoke to colleagues at his company, Recognition Technologies, and to other people he is working with on natural

language processing, his understanding requires communication in “natural language” that is processed and which results in responses based on that input:

Q. ... 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?

A. Exactly what you just did. You spoke with me and **I processed that language**, which is a natural language, and **I responded to it** using again natural language.

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

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

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.

(Ex2003, 63:15-64:17 (emphasis added)).

122. In his deposition, while discussing his understanding of a “natural language interface”, Dr. Beigi admitted that merely providing “a form where you fill

in name, address, telephone number, would [not] be a human natural language”. (See Ex2003, 60:24-6:3; *see also id.*, pp. 59-60). I agree with that conclusion, and in my opinion, a POSITA as of November 5, 2017 would also agree with it. In my opinion, a POSITA as of November 5, 2017 would understand this would be true even if one of the inputs to the form is given in a free text field.

123. To the extent Dr. Beigi is confirming that natural language processing requires not merely the use of human language, but for the computer to understand and process the human language to develop a response, I agree. In my opinion, and based on my experience, a POSITA as of November 5, 2017 would understand that an interface, even when presenting questions in what would otherwise be “natural language” would not be a “natural language interface” as understood by those of skill in the art in the context of the ’317 Patent unless the interface can also understand the input, process it and generate a response based on the input. This understanding is reinforced by the claim requirement that the ’317 make a determination based on the input to the natural language interface.

124. During his deposition, Dr. Beigi took the position that since Symons Blog, Symons Video and Baetens Blog referred to a “chatbot” as gathering the information, that a POSITA would necessarily understand that because Symons “us[es] the phrases ‘chatbot’, “chatbot” shown would “do natural language

processing”. (Ex2003, 139:3-140:10). I disagree that the use of the term “chat bot” in October or November 2017 by these authors in this context would include such an implication to a POSITA. In my opinion, the “chatbot” conversation that was shown in the Symons Video is not necessarily presented in a “natural language interface” as required by element [a]. In fact, the Symons chatbot would have no need for a “natural language interface” since it only requires the user to enter four fixed data fields (name, role, phone, email), which is the equivalent of a data entry form. No conversation or interpretation of the user’s input is demonstrated here, nor is it needed. In my opinion, and based on my experience at the time, and that this was merely a “showcase”/”demo” that information could be gathered by a chatbot and then used by an RPA, there is no reason why such a showcase needs to demonstrate the use of natural language processing, merely that information could be collected and “passed on” to the RPA.

125. At his deposition, Dr. Beigi confirmed his understanding that Symons and Baeten’s use of the term “chat bot” meant to him (and presumably a POSITA reading those blogs and viewing the video) was based on a discussion he found in Melendez (Ex1026; Ex2003, 45:6-12; 141:10-13) and a definition of chatbot as provided by the ’664 Patent (Ex2011) itself. (Ex2003, 141:10-16). I disagree with his conclusion. These two sources do not support his conclusion as to how Mr.

Symons and Mr. Baeten's used the term "chat bot" in October 2017, or how a POSITA as of November 5, 2017 would have understood them to be using that term in October 2017.

126. Putting aside that the Petition does not rely upon Melendez as prior art (Ex2003, 52:10-54:13; Ex1003, ¶¶ 49-54), Melendez does not state that chatbot necessarily must be using natural language processing. (Ex1026).

127. I note that other contemporaneous articles reflect a different understanding than Dr. Beigi of the term "chatbot".

128. For example, an article (Ex2007) from Expert Insights on August 29, 2019, "Different Types of Chatbots: Rule-based vs. NLP", marked as Exhibit 19 during Dr. Beigi's deposition (Ex2003, 191:19-190:4), reflects an understanding that Chatbots can be either Rule-based Chatbots or NLP Chatbots, as late as 2019. (*Cf.* Ex2003, 202:18-203:4) (acknowledge that that it "is saying there is a rule-based chatbot and the NLP chatbot"). While Dr. Beigi noted during his deposition that this is later than the priority date, that misses the point. (Ex2004, 338:18-24). In my experience, Rule-based Chatbots existed long prior to NLP Chatbots, and even as late as 2019 were still actively being used.

129. Similarly, even IBM, Dr. Beigi's former employer, and Mr. William's employer, as recently as December 2022, offered a different view of "What is a

chatbot?” than Dr. Beigi. For example, on its webpage, as obtained by the WayBack machine, IBM posted its explanation of “What is a chatbot?” (Ex2008). IBM explains that chatbots have developed in complexity over time but can include simple chatbots that function “more like an interactive FAQ”:

Historically, chatbots were text-based, and programmed to reply to a limited set of simple queries with answers that had been pre-written by the chatbot’s developers. They operated like an interactive FAQ, and while they worked well for those specific questions and answers on which they had been trained, they failed when presented with a complex question or one that hadn’t been predicted by the developers.

Over time, chatbots have integrated more rules and natural language processing, so end users can experience them in a conversational way. In fact, the latest types of chatbots are contextually aware and able to learn as they’re exposed to more and more human language.

Today’s AI chatbots use natural language understanding (NLU) to discern the user’s need. Then they use advanced AI tools to determine what the user is trying to accomplish. These technologies rely on machine learning and deep learning—elements of AI, with some nuanced differences—to develop an increasingly granular knowledge base of questions and responses that are based on user interactions. This improves their ability to predict user needs accurately and respond correctly over time.

(Ex2008, at 3).

130. The point is (like Dr. Beigi's understanding of AI ("And I am not a POSITA. I know more about AIs and chatbots") (Ex2003, 194:4-13)), Dr. Beigi's opinion is not that of a POSITA, and his understanding does not indicate what those using the internet understood. This is particularly true given that, back in 2017, chatbots that use natural language understanding were less prevalent than today.

131. In my opinion, and consistent with my experience in the field, a POSITA in 2017 would have understood that the term "chatbot" in referenced in the Symons Blog (Ex1004) and the Baetens Blog (Ex1009) did not necessarily mean that it was what Expert Insights (Ex2007) called an NLP Chatbot. In other words, it did not necessarily have a "natural language interface" that utilized "natural language processing".

132. Indeed, in my opinion, review of the Symons video (Ex1033) used to "showcase" this Chatbot-RPA demo would suggest to a POSITA as of November 5, 2017, that the "chatbot" actually used was probably not an NLP Chatbot.

133. My opinion that a POSITA as of November 5, 2017, would conclude that the chatbot shown in this October 2017 showcase did not necessarily use NLP logic is further reinforced by the evidence in the record indicating that:

- this video was put together very quickly (less than 17 days after Mr. Symons began working at Roborana as a "showcase"), it would be very reasonable for

a POSITA to conclude that no NLP was included, and was instead a simple hardcoded data entry (non-NLP) chatbot;

- the Arinti chat bot that was identified as being used, was not publicly available at the time,
- neither Dr. Beigi nor I have been able to locate the Arinti chatbot, and
- when those active in the field asked about it, no answer was provided.

134. By way of illustration, after Dr. Beigi's deposition, I have prepared my own video (Ex2010) showcase of a Chatbot I prepared after Dr. Beigi's deposition to simulate a non-NLP conversation that matches the Symons Video (Ex1033). My html code for this conversation is included as Ex2009.

135. As I explain in Ex2006, my non-NLP Chatbot gathered all the same information in the same manner, and was capable of passing that information to another system such as an RPA bot. This showcases a Chatbot that does not use NLP and would not meet the limitations in the '317 Patent claims either in terms of utilizing a natural language interface.

136. I understand that Dr. Beigi is also relying upon the Background Section of the '317 Patent to support his view that when Symons and Baetens used the term "chatbot" they meant an NLP chatbot like the '317 Patent discussed. In particular, I understand he is relying on the following passage:

A Chat bot is a computer program implementing natural language interface to conduct a conversation via auditory or textual methods with the user. Chat bots are typically used in dialog systems for various practical purposes including customer service or information acquisition. Some chatterbots use sophisticated natural language processing systems, but many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database.

(Ex1001, 1:28-36).

137. In my opinion, as of November 5, 2017, a POSITA would not have thought that Symons and Baeten's used the term "chatbot" in the same manner as the '317 Patent, based on that description, since it would not have existed or been available to them. The priority document was filed in November 2017. It is doubtful that either Symons or Baeten would have looked to the '317 Patent to inform their understanding of "chatbots". Even Dr. Beigi confirmed in his deposition, he looks at articles, not patents, in his normal experience. (Ex2003, 56:4-5) ("I usually tend to look for articles, rather than patents, in my experience"). In my opinion, the '317 Patent's definition of what it means by "chatbot" created after these articles were written is not the type of evidence a POSITA on November 5, 2017 would use to interpret what Symons and Baeten meant by the term. Specifically, it was well known in the industry in 2017 that not all chatbots possessed the capability natural

language processing, nor required that capability. Many chatbots at that time could be used for simple data entry (equivalent to a data entry form), or be “rules based” that would only understand a limited number of user requests or interactions.

138. The '317 Patent's purpose in defining its own meaning of the term “Chat bot” as “a computer program implementing natural language interface to conduct a conversation” is to distinguish this type of sophisticated chatbot from “many simpler systems”. In other words, the '317 Patent's intention is to use a “natural language interface” within “natural language processing systems” for the purposes of interacting with automated processes. In my opinion, a POSITA as of November 5, 2017 would not understand that the chatbot shown in the Symons video as part of its showcase necessarily used “natural language processing” or was a “natural language interface”, whether “sophisticated” or “simple[]”.

139. Thus, in my opinion, a POSITA as of November 5, 2017 would not understand that the chatbot shown in the showcase presented by Mr. Symons in the Symons Video, and described in the Symons Blog and the Baetens Blog necessarily used natural language processing in a “natural language interface”. Instead, it would have been closer to a simple chatbot, which Dr. Beigi refers to as a “form”. (Ex2003, 199:11-16).

**ii. Symons Does Not Disclose a “user instruction”
that is used to “determine to implement an**

**automation process” as required in Elements
[a]/[b]**

140. In a similar vein, Dr. Beigi fails to demonstrate that Symons teaches “receiv[ing] a user instruction” and “determin[ing] to implement an automation process ... in response to the user instruction” as required by Elements [a]/[b].

141. Dr. Beigi asserts that the claimed “user instruction” is a user’s statement that “I want a new signature” in the conversation shown in the Symon’s Video:



(Ex1003, ¶ 71 quoting Ex1006, at 5 (annotations by Dr. Beigi)).

142. Dr. Beigi then baldly asserts that, “[i]n response to the user instruction (‘I want a new signature’), Symons determines to implement the automation process”, namely, “the process of creating an email signature”. (Ex1003, ¶ 75).

143. But Dr. Beigi provides no support for the proposition that Symons makes any “determination” at all regarding the automation process, let alone that

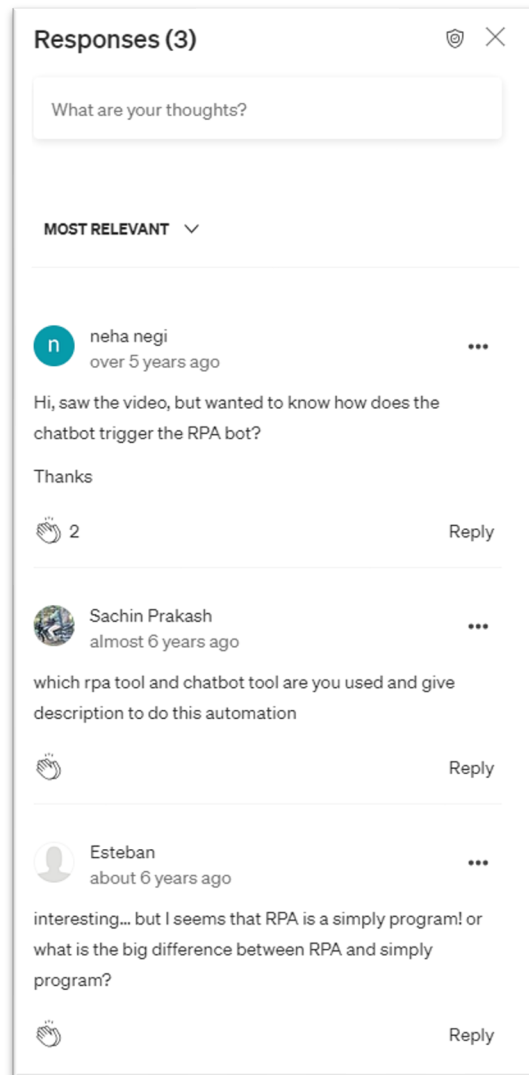
such a determination is made based on the statement by the user “I want a new signature”. To the contrary, Symons is meant to perform a single purpose, i.e., “automate the process of creating an email signature”. (Ex1004, at 2). The conversation shown above explicitly states “you can only use me to create a new Cronos signature.” (Ex1006, at 5). The Symons Video does not demonstrate, and the Symons Blog does not disclose, any “determination” being made whether or not to “trigger the RPA Bot” or whether or not to “pass on” the collected information to the RPA Bot, beyond indicating it occurs as the step next after the information is collected.

144. Additionally, as discussed at Par. 93, at his deposition, Dr. Beigi confirmed that he does not know how “the internals” of Symons works, and that he never discussed with Symons how it works. (Ex2003, 213:18-214:9). In Dr. Beigi’s words, “we only see the video, the actual interaction”, not “the internals of it.” (*Id.*). I agree that neither the Symons Blog, the Symons Video, nor the Baetens Blog provide any information on what Dr. Beigi calls the “internals”, which as I note above, Baetens confirmed was intentional. (Ex1009, 2).

145. In my opinion, a POSITA as of November 5, 2017 would understand that Symons as shown and described could easily have been implemented as merely hardwiring a conversation into its specialized chatbot, and then having the

information collected during the conversation “passed on” to the RPA Bot to “trigger” the RPA Bot as described. No “determination” necessarily need be made. This process is consistent with the conversation shown by Dr. Beigi at Par. 71, which starts with the user typing “Hello”, and the system responding with “Hi, at the moment, you can only use me to create new Cronos signature.” It is only after receiving the message that the user responds with “I want a new signature.”. (See Ex1003, ¶ 71, illustrated above).

146. There is no explanation anywhere in Ex1004 – Ex1010 or Ex1033 of any of the details of Symons software, implementation, or how the chatbot purports to “trigger” or implement the RPA Bot. The commentary at the time on the Symons Blog made this point:



(Ex2005).

147. Dr. Beigi confirmed at his deposition that he did not know the answers to any of these questions. (Ex2003, 221:15-18). Additionally, as Dr. Beigi confirmed during his deposition, all that is shown is a video, which leaves one to conjecture to the actual method of implementation and underlying code in Symons. (Ex2003, 213:24-214:9).

148. As Dr. Baeten's explained, "we can't share much about the results of our joint efforts (yet)." (Ex1009, 2).

149. Similarly, while the Symons video shows in the header that "the chatbot triggers the RPA bot", (Ex1006, 10), Mr. Symons explains that what is really happening is the collected information is merely "passed on to the RPA robot" (Ex1004, 2). In my opinion, a POSITA as of November 5, 2017, would not understand the process of passing on collected information as the next step in the process as making a determination (e.g., selection, as discussed in the '317 Patent, Ex1001,14:13-20). Similarly, even if the software instead "triggers the RPA bot" as a natural next step in the process, in my opinion, a POSITA as of November 5, 2017, would still not understand that Symons necessarily teaches making a determination based on the language in the Symons Blog and the Symons Video.

150. Accordingly, in my opinion, Symons does not disclose element [b] to "**determine** to implement an automation process on a web-based target system" let alone making such determination "in response to the user instruction". This is true of the Symons Blog, the Symons Video, the Baetens Blog, and Declarations by Symons and Baetens.

151. Similarly, while Dr. Beigi proffers the statement "I want a new signature" as purportedly being a "user instruction" that is received in step [a] from

a user and used as part of the determination process of step [b], there is no teaching that Symons uses that statement to make any determination, which means it is not the claimed “user instruction”. Dr. Beigi offers no support from Symons or otherwise for his conclusions that “in response to the user instruction (‘I want a new signature’), Symons determines to implement the automation process” and that “if the user provides a user instruction, then Symons’ chatbot-RPA bot system proceeds with the automatic email signature generation, determining to implement an automation process in response to the user instruction”. (Ex1003, ¶¶ 75, 77). In my opinion, Symons does not disclose that the statement “I want a new signature” is necessarily a “user instruction” used to trigger the RPA Bot, let alone make a determination “in response to the user instruction”. For example, there is no reason to believe that if the user said, “I want to generate an invoice” or “I want some ice cream”, the RPA would not still ask the user “What is your name?” (Cf. Ex2003, 135:9-19; Ex2006, at 7). This is true of the Symons Blog, the Symons Video, the Baetens Blog, and Declarations by Symons and Baetens.

152. As previously noted, Baetens confirms that the disclosures were intentionally limited at the time, and the contemporaneous commentators note the lack of details in such disclosures. In my opinion, a POSITA as of November 5, 2017 would have understood that a logical way in which Symons Video was

implemented consistent with the Symons Blog, the Symons Video, the Baetens Blog and the Declarations by Symons and Baetens was by hard-wiring the conversation questions into the special chatbot editor provided and then at the end of the conversation passing on the collected information to the RPA Bot, (like my Chatbot in Ex2009/Ex2010 as discussed in par. 135 and Ex1006), as explained by the Symons Blog. In such a situation Symons there is no “user instruction” to implement, only data to collect, and no “determination” (whether by selection or other decision-making process) made with respect to what automation process to implement. There was merely one process, and it would naturally flow as the next step in the programming.

153. Dr. Beigi also asserts that, “[i]f, for some reason, Symons does not determine to implement an automation process, it would have been obvious to a POSITA at the time of the ’317 priority date” in view of Williams. (Ex1003, ¶ 98). Dr. Beigi states that, “[a]s discussed above and throughout Williams, RPA robots are designed to handle multiple requests, executing multiple different types of automation processes.” (*Id.*, ¶ 81). Per Dr. Beigi, “[c]ombining Symons and Williams would expand the capabilities, making use of the advantages of RPA” which would “result[] in a chatbot-RPA bot system capable of handling more than a user request for automated generation of an email signature”, e.g., “automated

generation of an electronic letterhead, automated generation of an electronic invoice, automated generation of an electronic flyer, automated generation of electronic business cards, etc.”. (*Id.*). I disagree with this rationale.

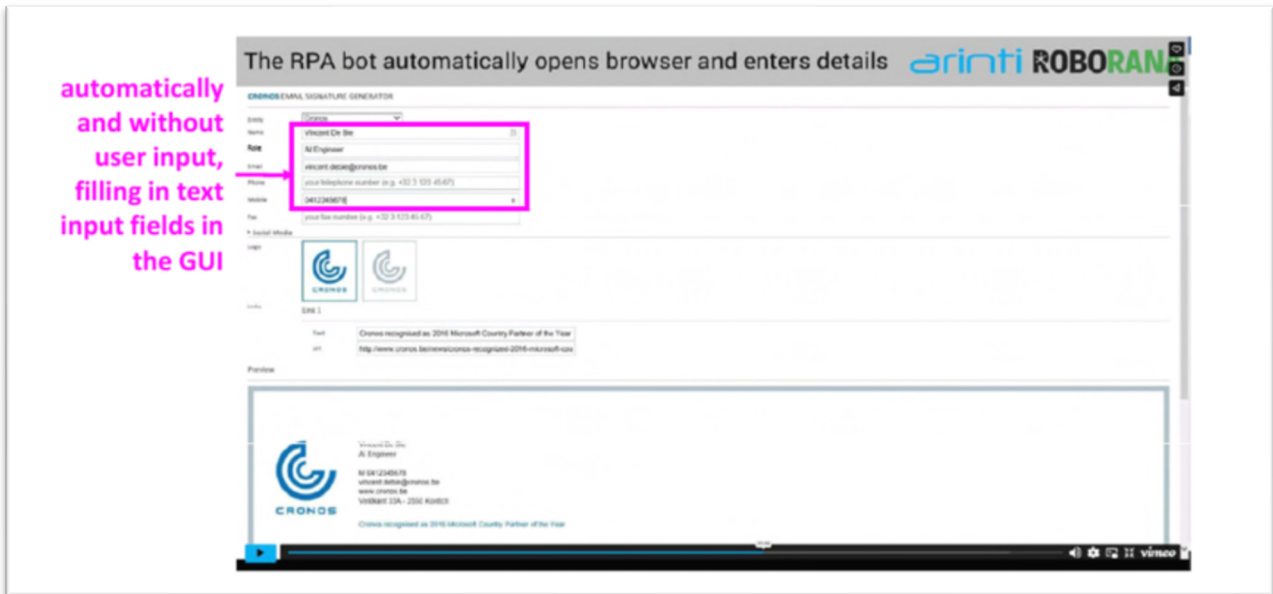
154. Significantly, with respect to Dr. Beigi’s contention that according to Williams, “a chatbot-RPA system may be expanded to handle multiple requests with a reasonable expectation of success”, this is not recited or suggested by Williams. Neither Symons nor Williams disclose or suggest using a single chatbot-RPA to handle multiple requests at once in the same conversation thread. Instead, Williams is directed at most to using chatbots “in a variety of other processes and across industries” (Ex1011, 3), without relating to a single chatbot-RPA handling multiple requests at once. Moreover, Symons describes a chatbot for the generation of the email signature (and nothing else), while Williams describes a chatbot for providing suppliers a status of their payments.

155. More fundamentally, Dr. Beigi fails to explain why the single purpose “showcase”/“demo” of Symons would need to be modified to include a determination of an automation process. In my opinion, a POSITA as of November 5, 2017, would understand that, given the single purpose nature of the Symons chat-RPA bot, there would be no need to determine the automation process to be performed based on the user input. Instead, all that would need to be done would be

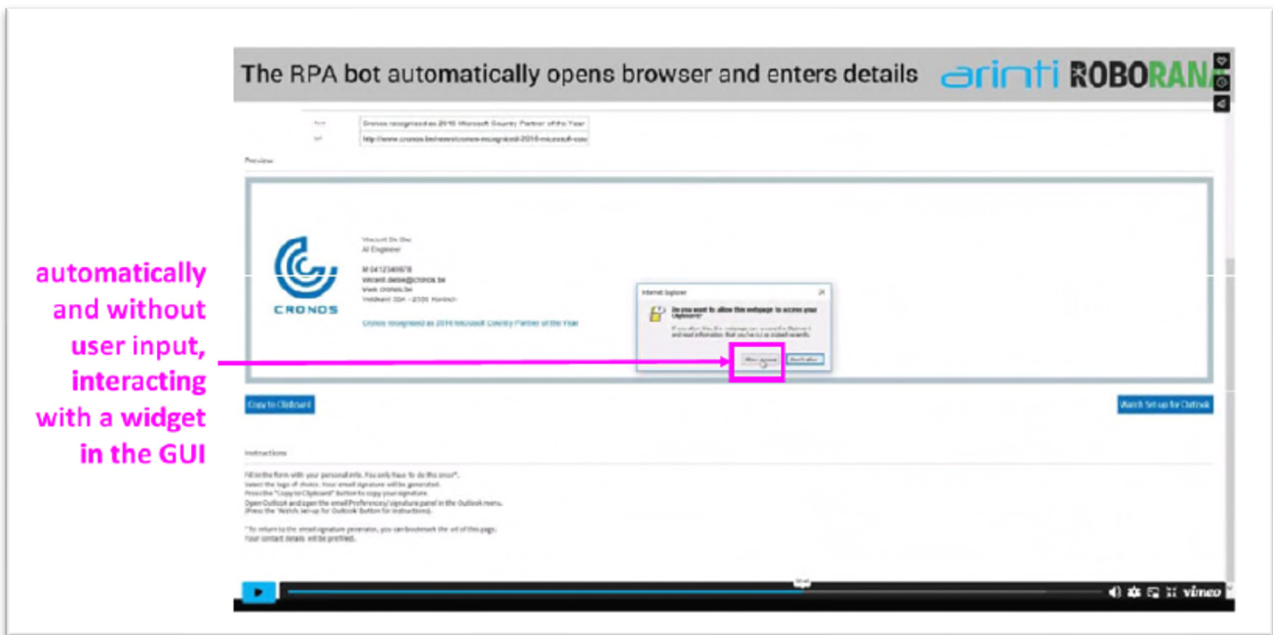
invoking the signature generator after obtaining the user information. For at least these reasons, Ground 1 fails for Claims 1, 9 and 16 and their dependent claims.

- b. 1[d], 9[d], 16[d] “implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system,”**
1[e], 9[e], 16[e] “wherein the automation process is performed with respect to third-party web-based target system”
1[g], 9[g], 16[g] “automatically and without user input, filling in a text input field in the GUI of the web-based target system”
1[h], 9[h], 16[h] “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality”

156. With respect to elements [d], [e], [g], and [h] of Claims 1, 9 and 16, which requires the automation process to be implemented by “interacting with a Graphical User Interface (GUI) of” a “third-party web-based target system”, Dr. Beigi fails to identify a “third-party web-based target system” in Symons, (Ex1003, ¶¶ 91-92), but asserts that interacting with the “GUI” of the unidentified third-party web-based target system meets the limitations. With respect to element [g], Dr. Beigi treats the automation process as interacting with input fields in the Cronos signature generator:



(Ex1003, ¶98). However, with respect to element [h], Dr. Beigi asserts that the GUI asserts that the “widget” element is the “Allow access” button of the GUI of an Internet Explorer modal window used as part of the copying process of his declaration:



(Ex1003, ¶ 100 (annotating Ex1006, 13)).

157. I disagree with Dr. Beigi’s assertions, which identifies an automation process that uses at least two different GUIs of two different systems, neither of which are “third-party web-based target systems”. Because of the language of the claims, the “GUI” and “web-based target system” referenced in [g]/[h] must be the same singular “GUI” and “web-based target system” referenced in element [d].

158. Cronos is not a “third-party web-based target system” as element [e] requires, and, even if it were, the “widget of the GUI” Dr. Beigi points to in support of element [h] is not even part of the GUI of Cronos.

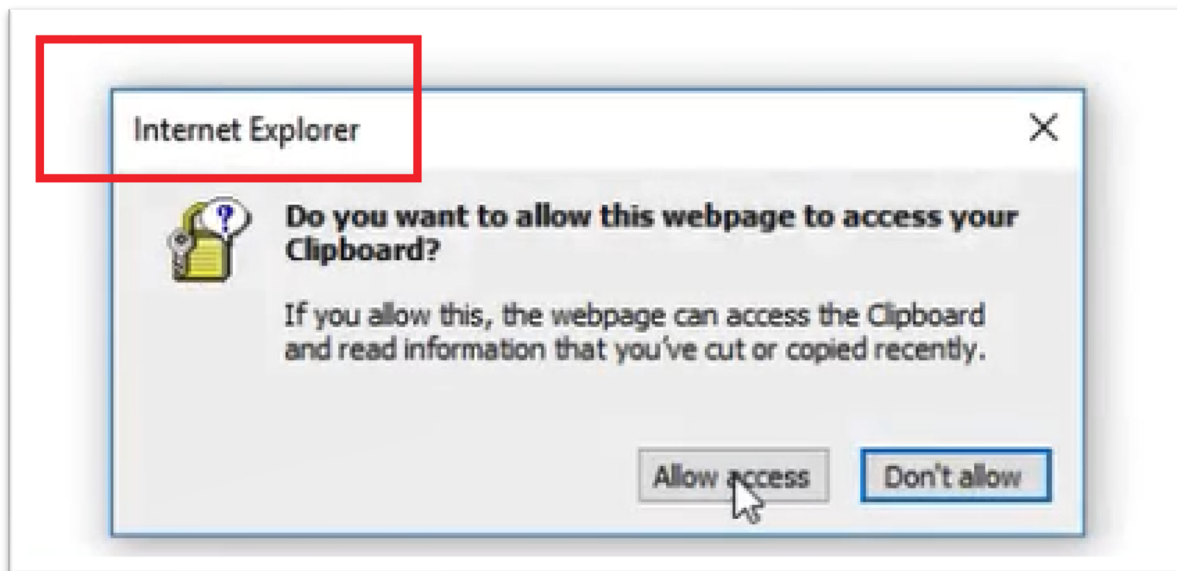
159. Dr. Beigi does not even attempt to argue that Cronos would be a “third-party web system.” (Ex1003, ¶¶ 91-92). It is clearly not. The chatbot is an Aranti

chatbot, and Cronos is a RoboRana service. Both are part of the Cronos group (Ex1008, ¶¶ 2, 10) and they “joined forces” (Ex1004, at 1) to make the showcase presentation. The resulting product is associated with both of these companies: an “email signature Chabot-RPA” that uses the chatbot-RPA bot to access Cronos email signature generator software. (Ex1010, ¶ 8). In my opinion, a POSITA as of November 5, 2017, would not consider the Cronos e-mail generator a “third-party” system, since Arinti and RoboRana were both affiliated and members of the Cronos Group.

160. In silent recognition that Symons does not meet the third-party target website limitation, Dr. Beigi instead points to Williams’s disclosure suggesting that RPA bots are able to “work through ... web browsers”, arguing that “working through a web-browser means interfacing with a third-party web-based target system”. (Ex1003, ¶ 91). Dr. Beigi’s analysis entirely skips over the element that the RPA bot work through a “**third-party**” web-based target system. In my opinion, a POSITA as of November 5, 2017 would understand that Williams deals with manipulation of internal systems (e.g., manipulation of a call center’s internal databases).

161. In any event, the GUI element identified by Dr. Beigi, the “Allow access” button, is included in a modal window/dialog box generated by Internet

Explorer (local to the user's computer, and not "web-based"), in contrast to being generated by Cronos. This fact is reflected by the indication of "Internet Explorer" at the top of the modal window / dialog box:



(Ex1033, at 0:40; *see also* Ex1006, at 13) (red annotation added). Thus, contrary to Dr. Beigi's assertion that the "Allow access" button is the widget in the GUI of a web-based target system (Ex1003, ¶ 89), it is in fact not web-based. Instead, the "Allow access" button is part of a modal window, dialogue box, or other form of pop-up of the Windows operating system running the browser and automation process. This "widget" is also in a different GUI in a different system than the input fields in the GUI of Cronos.

162. Indeed, as set forth in paragraph 77 of Dr. Beigi's declaration, he quotes the Symons Blog (Ex1004, at 2) as defining the automation process performed by

the automation process “generat[ing] the signature, save it, and e-mail it back to the requester”. (Ex1003, ¶ 77). As previously indicated, the asserted automation process involves more than the Cronos software (the alleged web-based target system) but also the Windows operating system interacting with the browser (to allow for the copy and paste function) as well as Word and an email-client which e-mails the signature, all three of which are not shown to be web-based but are resident on the computer running the automation process. Dr. Beigi confirmed as much during his deposition.

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.

(Ex2003, 218:9-1). He also confirmed that the process involved “attach[ing] the Word document with the email signature” to an email and sending it. (Ex2003, 217:16-218:2).

163. In my opinion, a POSITA as of November 5, 2017 would understand that these functions are not being performed with respect to the third-party web-based target system as required by the claims. More importantly, the asserted widget is not in the same GUI as the input fields and does not cause a “web-based targeting system” to perform any predefined functionality. Thus, since the asserted widget is not a GUI of a third-party web-based system, Dr. Beigi fails to show that Symons

discloses “interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.”

164. Accordingly, in my opinion, a POSITA would understand that Symons does not teach elements [d], [e], [g], or [h], and thus, Dr. Beigi’s assertion that Symons and Williams render these claims obvious “as discussed for element [b]” fails. For at least the above reason, Ground 1 also fails with respect to each of the asserted dependent claims.

4. Claims 2, 10 – implementing the automation process “by a client device used by the user”
Claims 3, 11, 17 – implementing the automation process “by a browser that is executed by the client device”

165. Claims 2 (dependent on Claim 1) and 10 (dependent on Claim 9) provide that implementing the automation process “is performed **by a client device used by the user.**” (Ex1001, Claim 2, 25:51-53; Claim 10, 26:35-36).

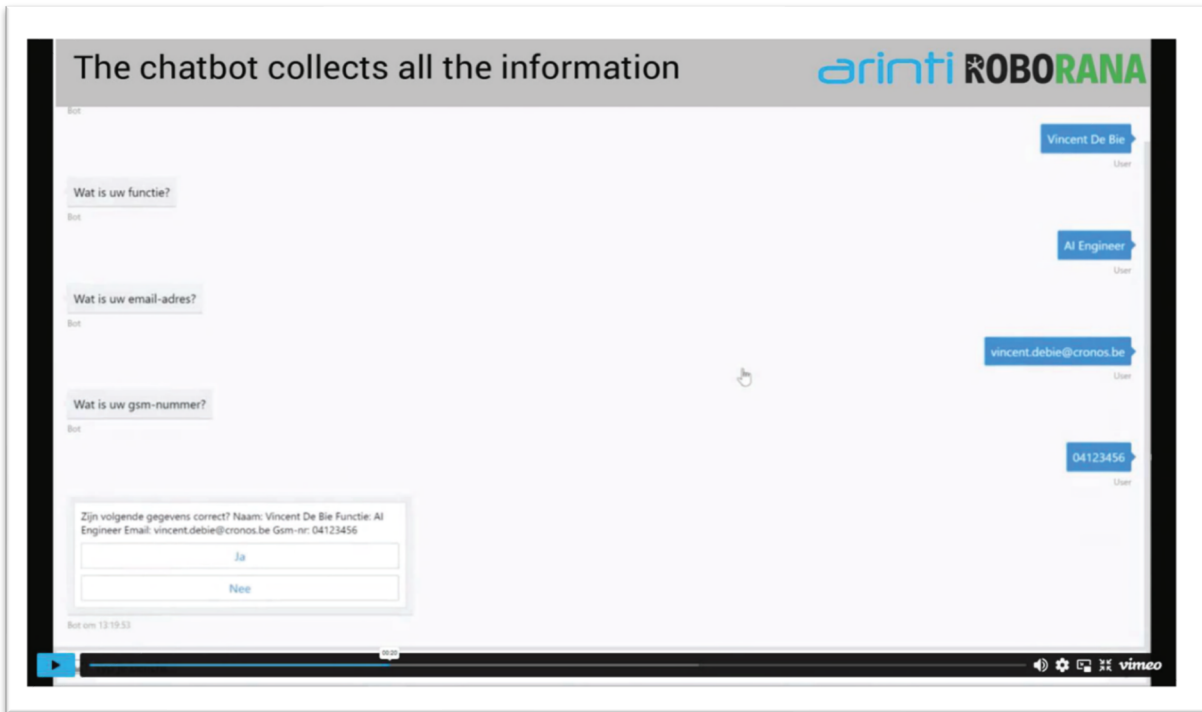
166. Similarly, Claims 3 (dependent on Claim 2) and 11 (dependent on Claim 10) further require that the automation process is performed “by a browser that is **executed by the client device**” (i.e., the client device of the user). (*Id.*, Claim 3, 25:54-57; Claim 11, 26:37-39).

167. Claim 17 combines both of these elements, and as pertinent here, includes the requirement that the performance of the automation process by a browser executed “by a client device used by the user”. (Ex1001, 27:14-17).

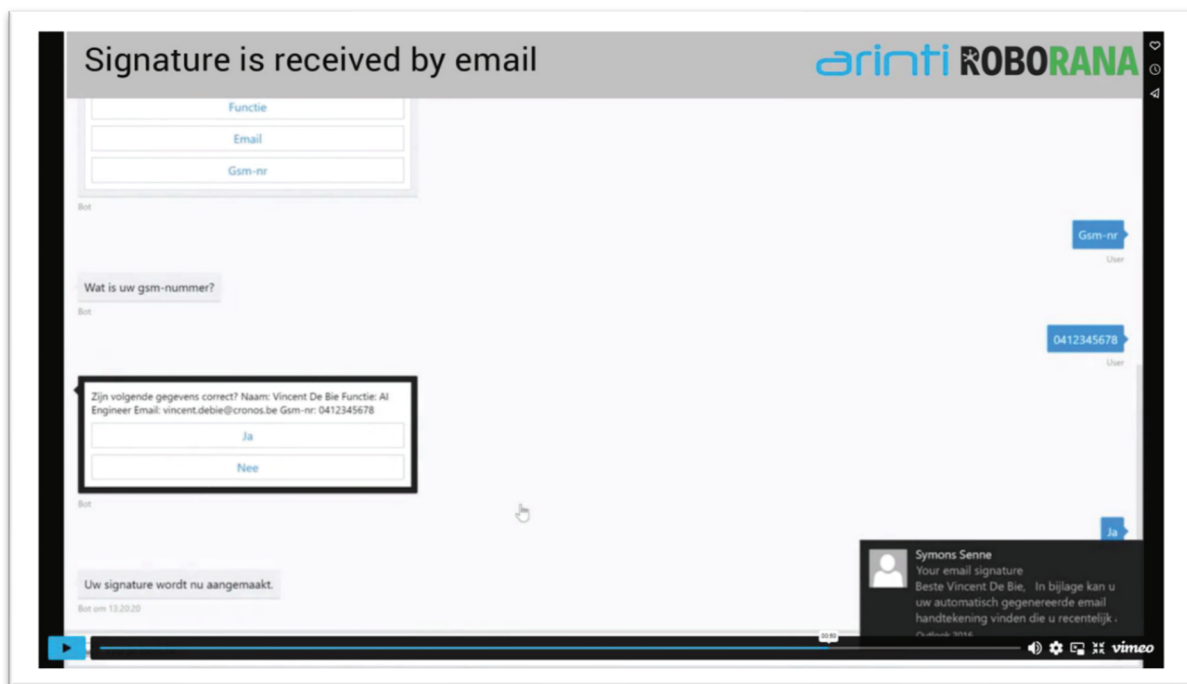
168. Dr. Beigi asserts that Symons discloses these claims because Symons shows an automation performed using a “computer screen of a personal computer”, which is a “client device used by a user”. (Ex1003, ¶ 102). However, the client device cannot be used by just any user as Dr. Beigi appears to posit. In my opinion, a POSITA as of November 5, 2017, would understand that because “the user” derives its antecedent basis from element [a] (“a user instruction from **a user using a natural language interface**” (Ex1001, Claim 1, 25:29-30; Claim 9, 26:13-14; Claim 16, 26:59-60)), the “client device” must be “used by” the “user using [the] natural language interface.” Similarly, in my opinion, a POSITA would also understand that Claim 3, 11 and 17 require the “browser” to on the same client device of the same “user of the natural language interface”.

169. However, as I discuss above, (*see* pars. 98-100, *supra*), in my opinion, a POSITA as of November 5, 2017 would understand that Symons does not disclose that the process is performed on a device of the user of the natural language interface.

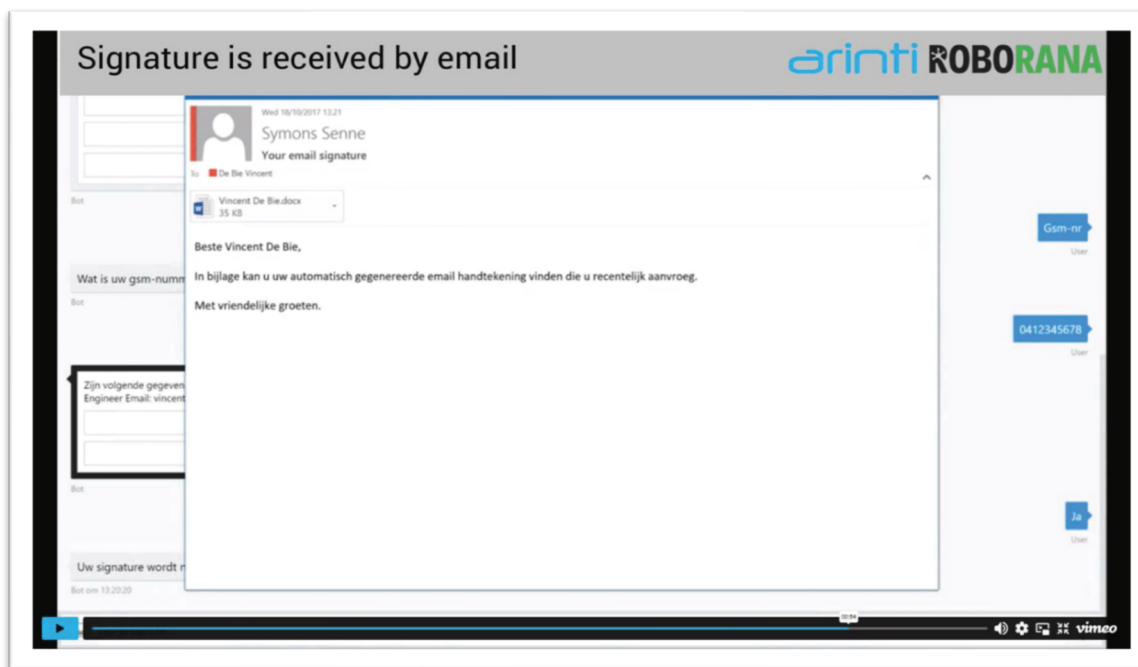
170. In accord with that discussion, I understand that the “user” in the Chat Bot (asserted to be the “natural language interface” in element [a], Ex1003, ¶71) in the Symons Video is purportedly Vincent De Bie, as reflected in the conversation, where he provides his name and where the email is sent back to him:



(Ex1005, at 6).



(Ex1005, at 17; *see also* Ex1005, at 18).



(Ex1005, Page 19).

171. Based on his deposition testimony, I understand Dr. Beigi agrees that Vincent De Bie is the “user ... we are led to believe” in the chat on page 5 (Ex2003, 134:6-12) and that Vincent De Bie “is interfacing with a chatbot”. (Ex2003, 217:6-218:15).

172. However, in my opinion, a POSITA as of November 5, 2017 would understand that the RPA asserted as being the automation process (Ex1003, ¶¶102-103) as shown in the Symons Video appears to be running on a different computer, presumably, the computer of Semmes Symons, rather than the computer of Vincent De Bie which “is interfacing with the chatbot”. (Ex2003, 217:6-218:15). This conclusion is supported by several factors including that: it is Mr. Symons’ version

of Word being shown on page 15 of Ex1005, Mr. Symons sends the email with the Word document to Mr. De Bie (as indicated in the header “The RPA Bot automatically mails the Word file to the requester” as shown on pages 16 of Ex1005 and confirmed in the email as received on page 19 of Ex1005), and the email document is then received by Mr. De Bie on the same computer as the chat conversation was presented, as shown on pages 17-18 of Ex1005.

173. Thus, as I discussed above (*see* pars. 98-100), a POSITA as of November 5, 2017, would understand that the video does not demonstrate that the automation process was run on the same device as the chatbot conversation, and in my opinion, would in fact conclude the opposite. At his deposition, even Dr. Beigi conceded that he could not definitively conclude that the automation process shown on Pages 10 to 17 of Ex1005 and Ex1006 were on the same computer as the chatbot conversation on Pages 2 to 9 and 18-19 of Ex1005 and Ex1006. As he explained, “[t]hat’s a conjecture because – I am not sure where this Windows software is running because it could be running on a remote device.” (Ex2003, 219:24-220:5, *see also* Ex2003 217:6-220:9)

174. In my opinion, Dr. Beigi has not established that the automation process of generating an email signature and shown in the Symons Video is in fact conducted on the same client device as the chatbot. To the contrary, in my opinion, a POSITA

as of November 5, 2017 would understand that in fact, the chatbot conversation was intended to be showcased as being Mr. Vicent De Bie's computer, while the automated process was being showcased on being on Mr. Semmes Symons computer as interacting with the Cronos email signature generator, Internet Explorer for its permission to copy, Word and email client, and thus would not meet Claim 12 of the '317 Patent.

175. Accordingly, because Symons Video is illustrating an automation process that is executed on a different client device than the "chatbot" asserted to be the natural language interface, in my opinion, a POSITA would understand that the Symons Video does not disclose the additional elements set forth in Claims 2-3, 10-11, and 17.

5. Claims 4, 12, 18 – the chatbot “is configured to converse with the user in natural language using a vocal interface”

176. Claims 4 (dependent on Claim 1), 12 (dependent on Claim 9) and 18 (dependent on Claim 16) that the chatbot “is configured to converse with the user in natural language using a vocal interface.” (Ex1001, Claim 4, 25:58-60; Claim 12, 26:40-42; Claim 18, 27:18-20).

177. Dr. Beigi does not assert that Symons discloses using a vocal interface. (Cf. Ex1003, ¶¶104-105). It does not. Instead, Dr. Beigi asserts that it would have been obvious to use a vocal interface in Symons. According to Dr. Beigi, it would

have been obvious to use a “microphone that receives vocal commands from a human user” (Ex1003, ¶ 107) because they “[purportedly] **may be** a more convenient way for a human user to input information for, *e.g.*, the conversation with the natural language interface, and thus it would have been obvious to receive vocal commands”. (*Id.*) Dr. Beigi points to the call centers in Williams as an example. (*Id.*).

178. I disagree with Dr. Beigi’s conclusion and rationale for modifying the natural language interface in Symons to utilize a “microphone that receives vocal commands from a human user”. In my opinion, a POSITA in 2017 (and even 2018) would have understood the type of information which the natural language interface in Symons was seeking (a user’s name, job role, email address, and mobile phone number, Ex1006, at 5) was most conveniently obtained by having a user type (*e.g.*, with a keyboard). Often, at that time (and even today), voice to text systems were notoriously poorly suited to enable a user to provide name, job role and email address information in particular. As Dr. Beigi acknowledged, even his call center speaker recognition made “mistakes”. (Ex2003, 79:17-80:2).

179. Instead, in my opinion, a POSITA as of November 5, 2017 would have understood that adding a vocal interface would have added significant complexity over the text-based interface while also not making the process more convenient for users. In my experience, call centers at the time used voice and language recognition

to select from among predefined options (and thus only needed to distinguish between a set number of commands), but did not employ voice recognition technology that could successfully differentiate, without making significant errors, between different names or email addresses—the information collected by Symons. In my opinion, a POSITA as of November 5, 2017, would understand that employing a voice interface in the context of Symons would not have been more convenient for users, as it would have been significantly error prone.

180. Accordingly, in my opinion, because a POSITA as of November 5, 2017, would not have been motivated to add vocal recognition to the natural language interface shown in the Symons Video and thus, Claims 4, 12, and 18 would not have been obvious as of the priority date of the '317 Patent.

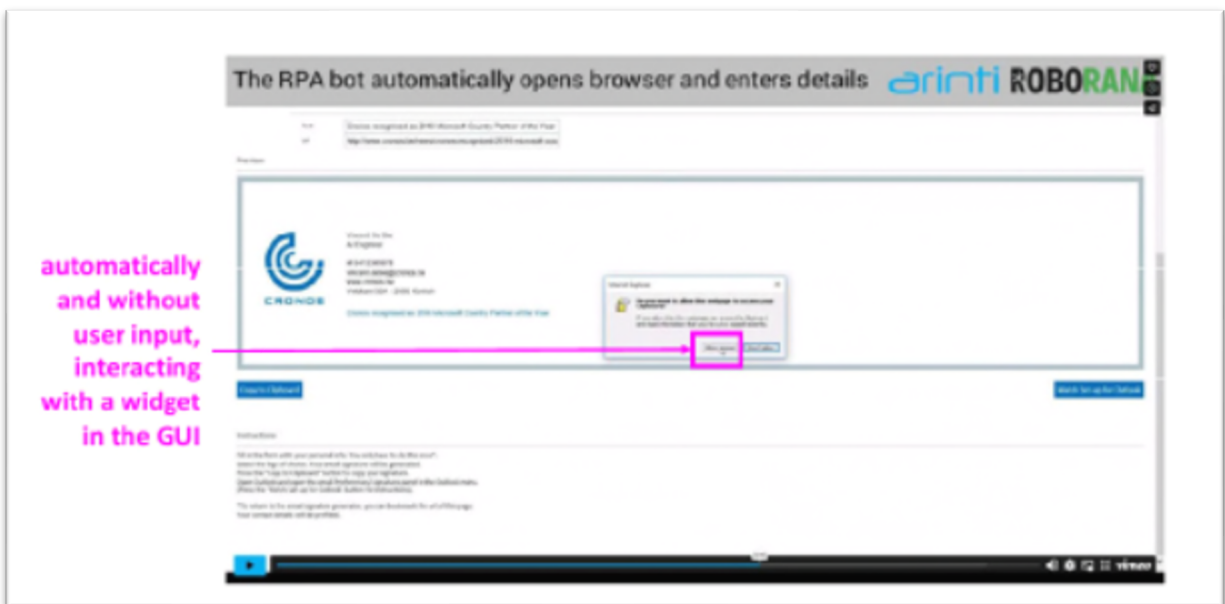
6. **Claims 5, 13, 19 – “[a] wherein the automation process is configured to automatically fill information in an online form, wherein the online form comprises the text input field, [b] wherein the widget is configured to invoke submission of the online form, [c] wherein the chat-bot program product is configured to request user validation from the user before submitting the online form.”**

181. Claims 5 (dependent on Claim 1), 13 (dependent on Claim 9), and 19 (dependent on Claim 16) require that information is used to [a] fill in an online form, [b] use “the widget” “to invoke submission of the online form” and [c] “request user

validation from the user before submitting the online form”. (Ex1001, Claim 1, 25:61-67; Claim 13, 26:43-49; Claim 19, 27:21-27).

182. In my opinion, Dr. Beigi fails to show that “the widget is configured to invoke submission of the online form” as element [b] requires.

183. Dr. Beigi asserts [b] is met because “[w]hen the GUI button is clicked, the email signature is generated. The widget must have invoked submission of the form because otherwise the email would not have been generated. Additionally, the widget invoked submission of the email signature to the requester” (Ex1003, ¶ 113). The “widget” Dr. Beigi refers to is the “Allow access” button:



(Ex1003, ¶ 100, annotations of Dr. Beigi of Ex1006, at 13, relied on in Ex1003, ¶110).

184. As discussed with respect to [h], see Pars. 163, as Dr. Beigi's illustration shows, the widget he has identified is a modal window of Internet Explorer, not of a third-party web-based target system. In any event, it does not "invoke submission" of the username. The GUI does not actually invoke the processes that result in the email signature being forwarded via email (indeed, Symons does not disclose using a GUI element to send the email). At most, in my opinion a POSITA would understand that the "Allow access" button authorizes copying of the generated signature, but does not actually invoke submission of the asserted form, since it does not cause the email to be sent.

185. Accordingly, in my opinion, a POSITA would understand that Symons does not disclose Claims 5, 14 or 19, since the "allow Access" button is not a widget of the third-party web-based target system which invokes submission of the form as required by the claims

7. Claims 6 and 14 – "wherein the information comprises information of the user, whereby personalizing the automation process"

186. Claim 6 (dependent on Claim 1) and Claim 14 (dependent on Claim 1) require the "automation process" to be "personaliz[ed]" based on "information of the user". (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52).

187. Dr. Beigi's analysis treats these claims as satisfied so long as the automation process uses "information of the user" as a result of the chatbot conversation. Specifically, Dr. Beigi asserts that "Symons discloses claim 6" because "the collected information is personalized information used as part of the automation process, here, as part of the personalized email signature that is generated." (Ex1003, ¶ 99). I disagree.

188. Contra Dr. Beigi's interpretation, in my opinion, a POSITA at the time of the filing of the '317 Patent would understand that Claims 6 and 14 require more than merely using the information to fill in fields as part of the automation process. Instead, based on the language of the claims themselves, a POSITA would understand that the claims require the "automation process" to be "personaliz[ed]" based on "information of the user". (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52). Accordingly, the steps of the automation process itself must vary in some form depending on the information the user provides.

189. Dr. Beigi, however, fails to show that the automation process in Symons would change based on the provision of personal information. Symons merely uses the collected information "as part of the automation process" (Ex1003, ¶118), not to vary the automation process. This is insufficient to meet these claims.

190. Accordingly, in my opinion, a POSITA would understand that Symons, which only discloses using the information collected in the automation process, does not personalize the automation process based on personal information of the user as required by Claims 6 and 14.

8. Claim 7 – “wherein the chat-bot program product is configured to utilize credentials of the user, whereby the chat-bot is privy to user-specific information”

191. Claim 7 requires that “the chat-bot program product is configured to utilize credentials of the user”. (Ex1001, 26:4-7). It also requires that “the chat-bot is privy to user-specific information.” (Ex1001, 26:4-7).

192. Dr. Beigi’s analysis misleadingly asserts that “the user’s full name, role, email address, and mobile phone number are credentials of the user”, and that this is “user-specific information that is provided to the chat-bot, so the chat-bot is privy to the user-specific information”. (Ex1003, ¶ 121). I disagree.

193. Dr. Beigi’s analysis is based on his misleading assertion that “the ’317 patent provides example user credentials: Employee ID, First Name, and Last Name ([Ex1001], 20:17-27)” (Ex1003, ¶ 120). However, the ’317 Patent does not call these “credentials” that the chatbot is “privy to”. Instead, each of these are disclosed as being parameters that can be “gathered by Question Step[s]” as part of a conversation:

In some exemplary embodiments, Parameter 564*a* may be selected to refer to **Employee ID, gathered by Question Step 550*b*** of FIG. 5B. Parameter 564*a* may be matched to Automation Parameter 564*b*, $\{\text{employeeID}\}$. As another example, Parameter 566*a* may be selected to refer to **First Name, gathered by Question Step 550*c*** of FIG. 5B. Parameter 566*a* may be matched to Automation Parameter 566*b*, $\{\text{firstName}\}$. As yet another example, Parameter 568*a* may be selected to refer to **Last Name, gathered by Question Step 550*d*** of FIG. 5B. Parameter 568*a* may be matched to Automation Parameter 568 *b*, $\{\text{lastName}\}$.

(Ex1001, 20:17-20:27) (emphasis added)

194. As the '317 Patent explains, information collected via “Question Steps 550*b* 550*c*, 550*d*” (the “Employee ID”, “First Name” and “Last Name”) in “the conversation” is different from “user credentials” and other information “available to the chat bot” outside “the conversation”:

The user may associate parameters gathered by the conversation (e.g., by Question Step 550*b*, 550*c*, 550*d*, 550*e* of FIG. 5B). **Additionally, or alternatively**, the user may associate parameters **available to the chat bot**, such as **based on the user credentials**, environment variables, or the like.

(Ex1001, 20:10-16). In my opinion, a POSITA as of November 5, 2017 would understand that by using the distinction “[a]dditionally, or alternatively”, the ‘317

Patent is confirming that the “user credentials” are “made available” to the chatbot outside “the conversation”. In Symons, the items Dr. Beigi call “user credentials” are items that are provided in the conversation and not what Claim 7 and the ‘317 Patent are referring to.

195. Dr. Beigi’s analysis, which relies on his analogy of the input of the user provided to Symons “chatbot-RPA” to the information gathered via “Question Steps” in the ‘317 Patent, accordingly fails to show that this information constitutes “credentials” or that the “chatbot-RPA” would be “privy” to the collected information outside of the user’s input or “the conversation”.

196. Since Dr. Beigi has not identified any information (or “credentials”) accessed outside the conversation in Symons, his analysis of Claim 7 fails.

9. Claims 8, 15, and 20 – “wherein said implementing the automation process comprises: automatically identifying the widget in the GUI; and automatically identifying the text input field in the GUI”

197. Claims 8, 15 and 20 require, as an additional step in “implementing the automation process”, “automatically identifying the widget in the GUI” as well as “automatically identifying the text input field in the GUI”. (Ex1001, Claim 8, 26:8-11; Claim 15, 26:53-56; Claim 20, 27:28-31).

198. Setting aside that Dr. Beigi identifies multiple GUIs, associated with multiple computer programs, and identifies a “widget” which is not in the same GUI

as the identified “text input field[s]”, (Ex1003, ¶¶122-123), Dr. Beigi does not provide any support for his bald assertion that the automation process constitutes “identifying” either a “widget” or a “text input field” besides the video itself. (Ex1003, ¶¶122, citing Ex1006, Ex1033).

199. However, the Symons Video provides *no disclosure* showing or supporting the notion that the “chatbot-RPA” performs an “identification” step that occurs “in the GUI” as part of implementing the automation process. Again, as Dr. Beigi explained during his deposition, “we only see the video, the actual interaction”, and “not the internals of it” (Ex2003, 213:18-214:9; see Par. 93 above). Nor does Dr. Beigi provide any explanation for how Symons performs an identification using the GUI given this lack of disclosure.

200. In my opinion, a POSITA would understand that Symons does not disclose “automatically identifying the widget in the GUI” nor “automatically identifying the text input field in the GUI” as Claims 15, 8 and 20 require, particularly in view of the fact that Symons, as Dr. Beigi recognizes, does not provide any explanation of how its automation process operates.

B. GROUND 2 – “Allen [Purportedly] Renders Obvious Claims 1-20” Fails

201. In support of Ground 3 of the Petition, Dr. Beigi asserts that Claims 1-20 of the '317 Patent are rendered obvious by U.S. Patent No. 7,983,997, to Allen. (Pet. at 37-58; Ex1003, ¶¶ 159-238).

202. In my opinion, as I discuss below, a POSITA would understand that Allen does not disclose, either expressly or inherently, nor render obvious, Independent Claims 1, 9, and 16 of the '317 Patent, at least because Allen does not disclose, or render obvious, interacting with a GUI during execution.

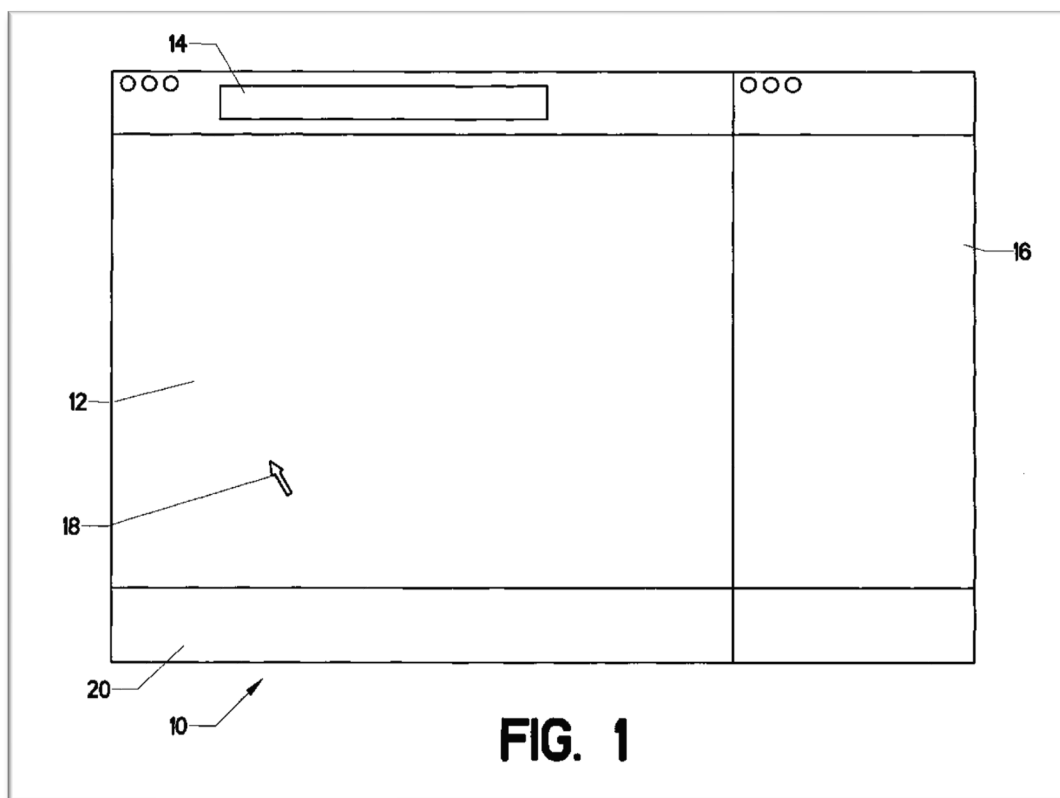
1. Summary of Allen

203. Allen is directed towards teaching a computer, the “**Procedural Learning on the Web**” System (known as “PLOW”) to learn an automated process on the internet. As Dr. Beigi recognizes (Ex1003, ¶159), PLOW is “[a] system which allows a user to **teach a computational device how to perform complex, repetitive tasks** that the user usually would perform using the device’s graphical user interface (GUI) often but not limited to being a browser.” (Ex1014, Abstract). In Allen, “the user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” (Ex1014, Abstract).

204. Dr. Beigi relies on FIGS. 1, 3 and 7 of Allen in his analysis, but these figures do not demonstrate PLOW actually performing a task. Instead, they illustrate

how the “PLOW” system learns to **perform a task** (as exemplified in the figures, how to buy a book). FIGs. 2 and 8, while not discussed by Dr. Beigi, are related figures and further demonstrate the process of teaching the PLOW system how to **perform a task**.

205. For example, FIG. 1 of Allen provides a blank GUI of the learning system, while FIGS. 2 and 3 of Allen illustrate how a user would go about teaching the system how to buy a book.

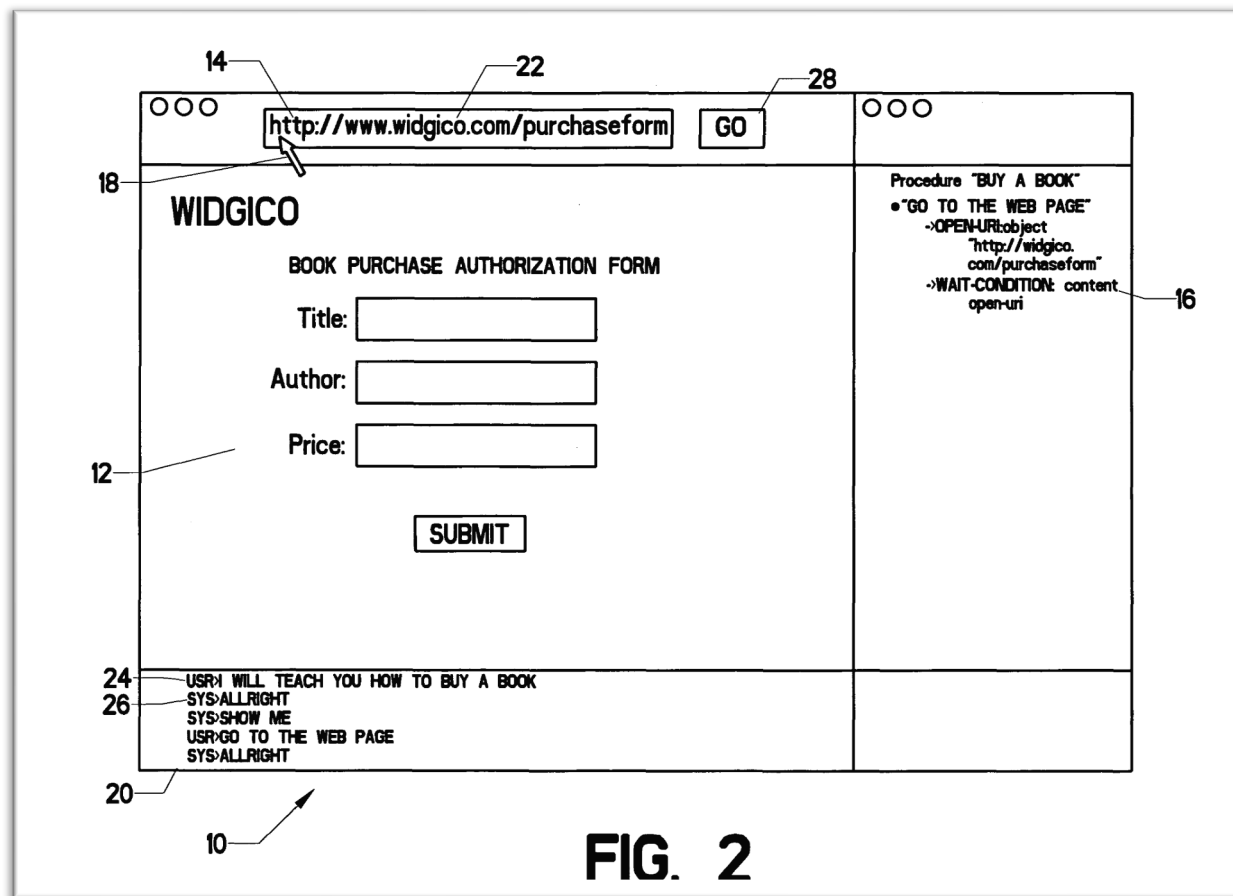


(Ex1014, FIG. 1)

206. “FIG. 1 shows a representative graphical user interface 10” with a “[b]rowser display 12,” a “URI entry box 14” (allowing for URLs to be input), a “movable cursor 18”, a “task log 16” on the right side which “shows the tasks that have been learned so far **in the learning** sessions”, and a “speech interface display 20” on the “bottom of the display area” which allows “the user to monitor his or her interaction with PLOW”. (Ex1014, 5:6-20).

207. Allen does not disclose using the “speech interface display 20” to collect information from the user to be used as part of the automation process. Instead, as FIGs. 2 and 3 demonstrate, the GUI, which includes the “speech interface display 20”, is used to teach the PLOW system how to perform a task to be automated.

208. To illustrate, the text depicted in the “speech interface display 20” in FIG. 2 relates directly to a learning process of PLOW. As the first message, PLOW “displays the message [uttered by the user] ‘USR>I WILL TEACH YOU HOW TO BUY A BOOK.’ The label ‘USR>’ indicates that this is the speech uttered by the user, as understood by the software.” (Ex1014, 5:36-39). PLOW then prints out “Allright. Show me.” with the label “SYS>”. (Ex1014, 5:44-49).

**FIG. 2**

(Ex1014, FIG. 2 of Allen).

209. As indicated in FIG. 2, PLOW “creates a title for the new process it is about to learn and displays the title in task log 16” (in FIG. 2, “Procedure ‘BUY A BOOK’”) (Ex1014, 5:56-60). Because the tasks are displayed in the learning GUI and the task log, “[t]he reader can thereby monitor whether PLOW has correctly understood the present objective.” (Ex1014, 5:60-62).

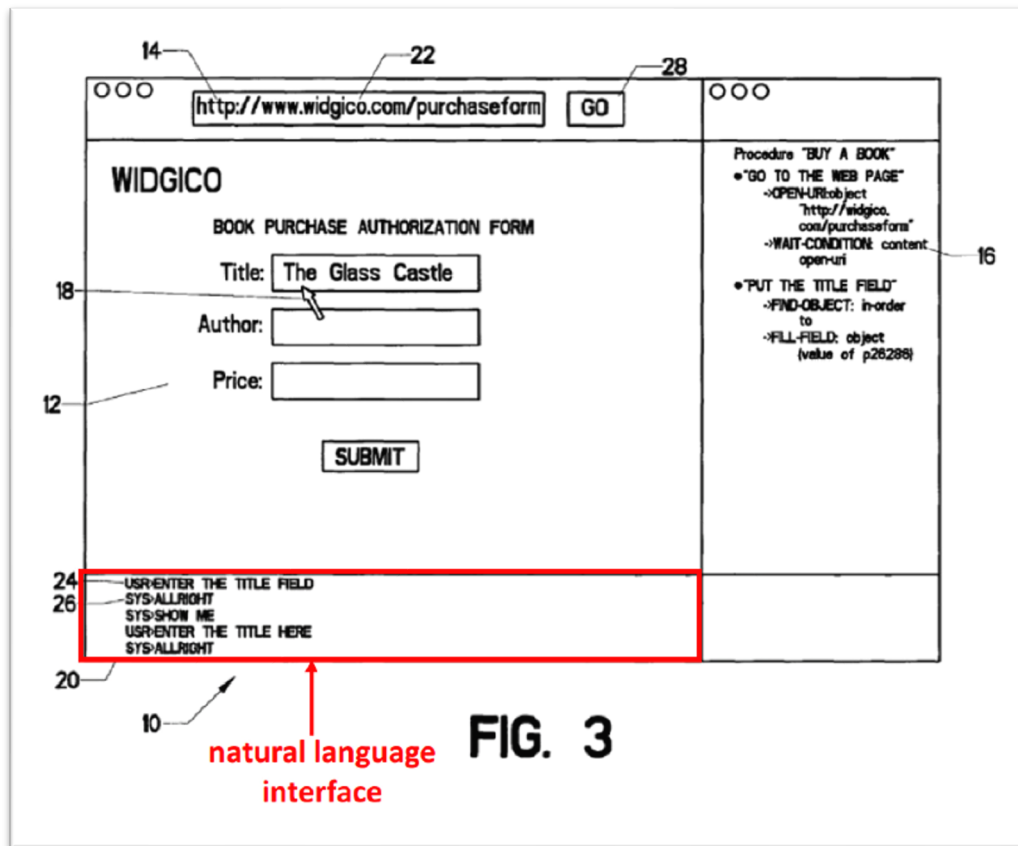
210. Dr. Beigi asserts that “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions would have to be

displayed” (Ex1003, ¶178). I disagree. Allen is teaching the user is monitoring the training process, not the implementation of the automated process after training. Thus, the teaching of Allen would not inform a POSITA as of November 5, 2017 on how the system’s actions would be displayed (or not displayed) when invoked.

211. As a step in the process of buying a book, the user also instructs PLOW to “Go to this web page” (displayed as “USR>GO TO THE WEB PAGE”), and PLOW responding, again “Alright. Show me” (displayed as “SYS> ALLRIGHT”), prompting further user input. (Ex1014, 5:63-6:3).

212. Accordingly, all of the text in the “speech interface display 20” of FIG. 2 relates to teaching the procedural learning system.

213. As for FIG. 3, Dr. Beigi provides the following markup, which incorrectly labels the conversation presented in the speech interface display 20 as a “conversation implemented by a natural language interface”:

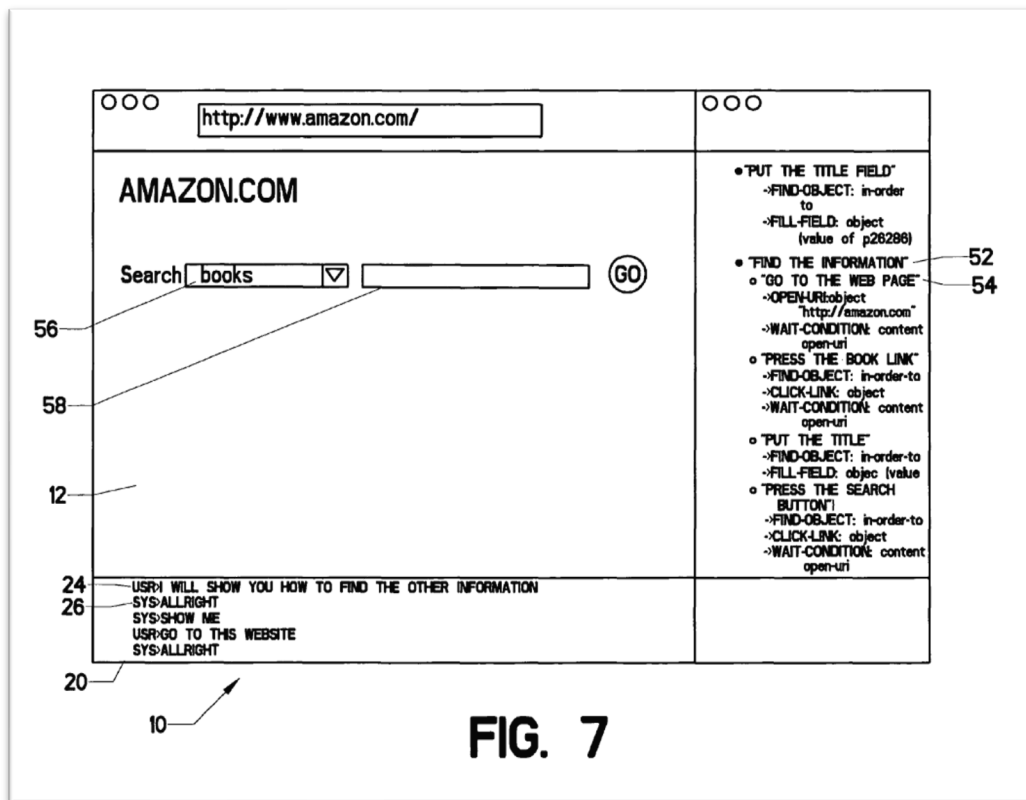


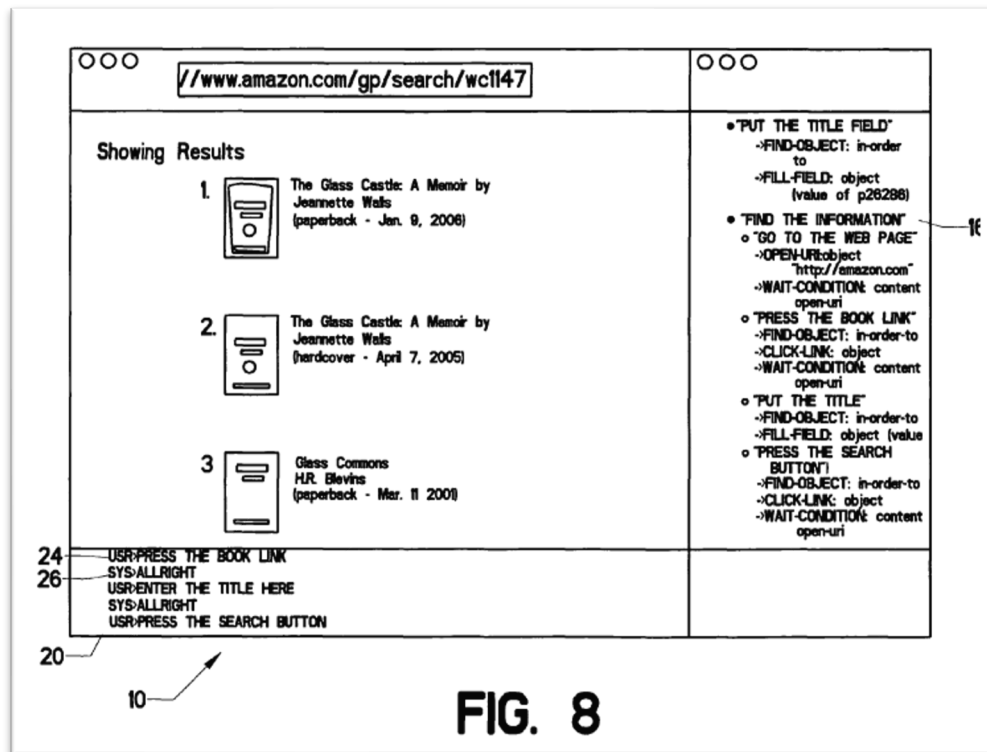
(Ex1003, ¶166, annotating FIG. 3 of Allen, Ex1014).

214. FIG. 3 demonstrates using the asserted “natural language interface” to teach an automatic task, but not invoke it. The user gives instructions to “Enter the title field” (shown as “USR>ENTER THE TITLE FIELD”) (Ex1014, 6:24-31). The PLOW system then displays “ALLRIGHT” and “SHOW ME”, prompting the user to show the title field. (Ex1014, 6:31-35). The user, while using the cursor to hover over the title field, says “Enter the title here” (shown as “USR> ENTR THE TITLE HERE”), resulting in PLOW capturing the action and stating “All right” to indicate that it has done so. (Ex1014, 6:34-37). Significantly, when referencing the

conversation which PLOW has after being trained with a user, “ENTER THE TITLE FIELD” and “ENTER THE TITLE HERE” are not part of that conversation shown in FIG. 3. (Cf. Ex1014, 12:64-13:5).

215. Similarly, related FIGs. 7 and 8 only demonstrate using “speech interface display 20” to teach PLOW how to obtain information (such as price and author):





(Ex1014, FIGs. 7 and 8).

216. The GUI displays in FIG. 7 and 8 demonstrate, again, how PLOW learns an automated process. The text presented in the speech interface display 20, consistent with FIG. 2 and 3, revolves around teaching PLOW how to buy a book (namely, obtaining other information about the book) (Ex1014, 12:26-13:5), and are not instructions to perform an automated process.

217. To demonstrate that Allen obtains an instruction, as required in Claim 1, Dr. Beigi relies upon the discussion outlined starting in Col. 12, line 62 which states:

Once the complete task is learned, the user can employ PLOW's task database the next time he or she wishes to order a book. The user would only need to say something like "I want to buy a book." The system would then ask, "What is the title of the book?" Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction.

(Ex1014, 12:62-13:1).

218. With respect to asking the question "What is the title of the book", as Dr. Beigi recognized during his deposition, "What is the title of the book?" is presented to the user using a form like the one shown in FIG. 6 (Ex2003, 257:20-24):

FIG. 6 is a diagram of a user entry form. It consists of a rectangular box containing the text "WHAT IS THE NAME OF THE BOOK YOU ARE LOOKING FOR?" in all caps. Below this text is a horizontal input field. To the left of the input field is the label "USER ENTRY:". A line with the number 50 points to the text "WHAT IS THE NAME OF THE BOOK YOU ARE LOOKING FOR?". Another line with the number 48 points to the input field.

50

WHAT IS THE NAME OF THE BOOK YOU ARE LOOKING FOR?

USER ENTRY:

48

FIG. 6

(Ex1014, FIG. 6).

219. Additionally, while Allen teaches that the system can “perform the steps it was previously taught”, it provides little detail on how the system executes such steps. (Ex1014, 12:66-13:1). For example, Allen does not disclose that executing the automated process actually includes interacting with a GUI displayed by PLOW.

2. Allen does not disclose nor render obvious Claims 1, 9 or 16 (and by extension their dependent claims)

220. As Ground 2, Dr. Beigi contends that claims 1-20 are “obvious” in view of U.S. Patent No. 7,983,997, granted on July 19, 2011 to James F. Allen, et al. (Ex1014, “Allen”) by itself. (Ex1003, ¶¶159-188). However, in asserting that Allen renders the ’317 Patent obvious, Dr. Beigi states that each of the elements of the independent claims are “disclosed” in Allen (Ex1003, ¶¶ 162-188, 204-213, 222-231), and so appears to asserting that Allen anticipates the claims of the ’317 Patent. Only with respect to elements 1[d], 9[d] and 16[d] does Dr. Beigi present any sort of obviousness analysis, and then in the alternative. (Ex1003, ¶178).

221. In the Institution Decision, the Board “determine[d] that Petitioner has sufficiently shown at this stage of the proceeding that Allen teaches each of the elements of claim 1 and that the information presented in the Petition demonstrates a reasonable likelihood that claim 1 is unpatentable under 35 U.S.C. § 103 over Allen.” (Paper 8, Institution Decision, at 24). While the Board summarized

Petitioner's obviousness combination in element 1[d], it did not appear to expressly adopt the obviousness rationale provided therein. (Paper 8 at 21-22).

222. Given the ambiguity present in Dr. Beigi's analysis, I treat Dr. Beigi's analysis as arguing both that Allen discloses and renders obvious the claims of the '317 Patent. I disagree with this Dr. Beigi's (and hence, the Board's) conclusion. The claims of the '317 Patent are not disclosed, either expressly or inherently, nor rendered obvious by, Allen. Dr. Beigi fails to show that Allen, even if it learns an automation process using a GUI, actually uses that GUI in practice to perform the learned automation process. As I discuss below, a POSITA as of November 5, 2017 would understand that Allen does not inherently perform the automated process using the GUI.

- a. **1[d], 9[d], 16[d] - "implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system"**
1[g], 9[g], 16[g] - "automatically and without user input, filling in a text input field in the GUI"
1[h], 9[h], 16[h] - "automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality"

223. Claims 1, 9 and 16 of the '317 Patent require that the claimed "automation process" be implemented "by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI

of the web-based target system.” (Ex1001, Claim 1, 25:35-39; Claim 9, 26:20-23; Claim 16, 26:66-27:2). This process must include “automatically and without user input, filling in a text input field in the GUI” as well as “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality” (*Id.*, Claim 1, 25:45-50; Claim 9, 26:29-34; Claim 16, 27:8-13).

224. The crux of Dr. Beigi’s argument is that because Allen’s system can be taught via a GUI, it must necessarily interact with the GUI in execution. Dr. Beigi explains that “[t]he system learns by ‘observing the user’s actions.’ ([Ex1014], 6:61-65)” before asserting, without citation to any support, in Allen or otherwise, that, “[a]s a result, the system performing the steps it was previously taught means it simulates user input to the GUI of the web-based target system”, thereby interacting with the GUI. (Ex1003, ¶177). I disagree with this unsupported assertion.

225. This argument is flawed since PLOW is expressly designed to take advantage of the open nature of HTML code in websites, and not merely rely on the visuals:

This feature is especially useful in dealing with interactive websites. An interactive website is one which solicits input from the client-user. A good example is the website known as AMAZON.COM. This website allows a client-user to request searches of available inventory. The

search request data is transmitted from the client-user to the host-server. The host-server, or more commonly another linked system, then conducts the search and reports the results back to the client-user.

The interaction between the client-user and the host-server can be observed and analyzed **by studying the HTML (and other) code that is transmitted back and forth between the two systems.** A “macro” can be created to interact with the host-server. It would function much like the prior art “macros” designed to run within specific applications. However, **the open nature of the code used to transmit information over the Internet allows for functionality far beyond simply recording and repeating a sequence of user inputs. A much more sophisticated level of automation is possible....**

(Ex1014, 2:46-63) (emphasis added).

226. Indeed, as Allen explains, “[t]he present invention **uses all the code** (displayed and **non-displayed**) in learning a step in a task.” (Ex1014, 3:33-35) (emphasis added). Thus, in the context of teaching the book buying task, although a user “move[s] movable cursor 18 to the location of the ‘Title’ input variable”, PLOW **“understands the step of filling in the title as more than simply mimicking the user’s actions.”** (Ex1014, 8:55-63). Because PLOW relies on the HTML code, PLOW is able to “automatically execute the task”, even “in new situations” (*Id.*, Abstract).

227. Allen also explains that, “[o]nce the client computer is asked to submit the interactive responses, another ASCII transmission is sent from the client computer back to the hosting server.” (Ex1014, 2:22-24).

228. In my opinion, a POSITA as of November 5, 2017 would understand from Allen’s disclosure that PLOW does not necessarily interact with a GUI in execution simply because, after obtaining information, “PLOW would then perform the steps it was previously taught and complete the transaction” (Ex1014, 12:66-13:1). Instead, in accordance with the teaching process, a POSITA as of November 5, 2017 would have understood that instead of “filling in the title” by “simply mimicking the users interactions” (Ex1014, 8:55-82; cf. [g]), Allen could interface directly with the HTML code, which it already accesses and uses during the learning process. Indeed, PLOW “search[es] the HTML code” to “identify the text object corresponding to the book’s title” before “submitting the title”. (Ex1014, 12:19-25). Rather than interact with an “input field” or “widget” in the GUI itself (cf. [h]), a POSITA as of November 5, 2017 would have understood that PLOW could have just as easily modified the values using the HTML code accessible to PLOW. As another example, a POSITA as of November 5, 2017 would understand that Allen could return values directly using HTML by, for example sending “another ASCII

transmission ... from the client computer back to the hosting server.” (Ex1014, 2:22-24).

229. Accordingly, in my opinion, a POSITA as of November 5, 2017, would understand that it is not inherent in Allen that the taught book-buying “automation process ... interact[s] with a Graphical User Interface (GUI) of the web-based target system and simulate[s] user input to the GUI of the web-based target system” by “filling in a text input field **in the GUI**” and by “**interacting with a widget in the GUI** to cause the web-based target system to perform a predefined functionality”.

230. In the alternative, Dr. Beigi asserts that it would, in any event, be obvious to interact with a Graphical User Interface. (Ex1003, ¶ 178). As motivation, Dr. Beigi points to the teaching in Allen that a “graphical user interface (‘GUI’) is preferably provided so that the user can easily monitor the system’s actions”. (*Id.*, citing Ex1014, 4:66-5:1). However, Allen does not teach or suggest that all of GUI 10, or even browser 12, is used to “monitor the system’s actions”. Instead, as Dr. Beigi recognizes (Ex1003, ¶178), the monitoring occurs using a “task log 16” and “speech interface display 20”:

Task log 16 is presented on the right side of the display area. The task log shows the tasks that have been learned so far in this learning session. Speech interface display 20 is presented across the bottom of

the display area. These displays allow the user to monitor his or her interaction with PLOW, as will be explained momentarily.

(Ex1014, 5:14-20). Dr. Beigi does not suggest (nor could he), that either the “task log 16” or “speech interface display 20” display a GUI used to execute a learned task or displaying a GUI , or would meet the elements requiring interactions with text input fields or interactions with a widget in the GUI. A POSITA as of November 5, 2017, would understand that Allen simply does not teach a user using aspects of GUI 10 to monitor a task being performed after it is trained and confirmed to be working. Thus, Dr. Beigi’s conclusion “the system’s actions would have to involve interactions with the GUI” (Ex1003, 178) is contradicted directly by the teachings he relies upon.

231. Dr. Beigi also ignores how the task monitoring is used in Allen. Rather than monitor task execution, as Allen explains, and a POSITA would understand, the task log 16 and speech interface display 20 “allow the user to monitor **his or her interaction with PLOW**” (Ex1014, 15:19-20) which enables the user to understand “whether PLOW has correctly understood the present objective” being learned. (Ex1014, 5:60-62). This allows the user to take “corrective action” while teaching PLOW. (Ex1014, 7:64-8:5). For example, the user can correct PLOW if it erroneously displays “BUY A BOX” in the task log instead of “BUY A BOOK”.

(*Id.*). In my opinion, a POSITA as of November 5, 2017 would understand that once the task is learned and tested, such monitoring no longer serves a purpose.

232. In short, despite Dr. Beigi's assertions that "the system's actions would have to involve interaction with a GUI" "in order for the user to easily monitor the system's actions" (Ex1003, ¶ 178), Allen's disclosure on monitoring does not teach monitoring interactions with a GUI during execution, but instead interactions between the user and PLOW during training. In my opinion, a POSITA as of November 5, 2017 would understand that once the task is learned and tested, it is no longer necessary or useful to have the user monitor PLOW's interactions. Dr. Beigi's suggested modification to continue monitoring after a task is learned and tested, makes no sense, and does not find support in Allen.

233. Accordingly, Dr. Beigi fails to demonstrate that Allen teaches, or renders obvious, an "automation process" which "interact[s] with a Graphical User Interface (GUI) of the web-based target system and simulate[s] user input to the GUI of the web-based target system" by "filling in a text input field **in the GUI**" and by "**interacting with a widget in the GUI** to cause the web-based target system to perform a predefined functionality" as required by Claims 1, 9, and 16 of the '317 Patent.

3. Claims 6 and 14 – “wherein the information comprises information of the user, whereby personalizing the automation process”

234. Claim 6 (dependent on Claim 1) and Claim 14 (dependent on Claim 1) require the “automation process” to be “personaliz[ed]” based on “information of the user”. (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52).

235. Dr. Beigi’s analysis treats these claims as satisfied so long as the automation process uses “information of the user”. Specifically, Dr. Beigi asserts that “Allen discloses claim 6” because PLOW can “build in ‘authorization’ steps” such as obtaining “price and delivery date information” (Ex1003, ¶196, quoting Ex1014, 12:65-66). For that disclosure, Dr. Beigi then asserts “in order to determine the delivery date, the system would need to know the destination address for delivery” (Ex1003, ¶196). He then identifies the “user’s home or work address” is “information of the user that personalizes the automation process.” (Ex1003, 197). Dr. Beigi offers as a second example a “hotel searching task” where he asserts since the user enters a specific address, “the automation process is specific to the user”. (Ex1003, 198). (Ex1003, ¶¶ 197-198). . Dr. Beigi’s analyses misreads Allen and again misreads Claims 6/14.

236. First, contra Dr. Beigi’s assertion Allen does not disclose using the user’s “home or work address”. Dr. Beigi offers no support for the proposition that

if PLOW needed “home or work address” that it would do anything other than present a Form like FIG. 6 for a user to fill in such information. See Par. 218, above. But more importantly, Dr. Beigi’s suggestion that using information obtained during a questioning of the user is “personalizing the automation process” is wrong. In my opinion, as discussed in Paragraphs 188, above, a POSITA as of November 5, 2017, would understand that Claims 6 and 14 require more than merely using the information to fill in fields as part of the automation process as in Dr. Beigi’s examples. Instead, based on the language of the claims themselves, a POSITA would understand that the claims require the “automation process” to be “personaliz[ed]” based on “information of the user”. (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52). Accordingly, the steps of the automation process itself must vary in some form depending on the information the user provides.

237. Dr. Beigi, however, fails to show that the automation process in Allen would change based on the provision of personal information. At most, Dr. Beigi asserts that Allen merely uses the collected information in the automation process. This is not “personalizing the automation process”.

238. Accordingly, in my opinion, a POSITA would understand that Allen, which only discloses using the information collected in the automation process, does

not personalize the automation process based on personal information of the user as required by Claims 6 and 14.

4. Claim 7 – “wherein the chat-bot program product is configured to utilize credentials of the user, whereby the chat-bot is privy to user-specific information”

239. Claim 7 requires that “the chat-bot program product is configured to utilize credentials of the user”. (Ex1001, 26:4-7). It also requires that “the chat-bot is privy to user-specific information.” (Ex1001, 26:4-7).

240. Rather than point to any teaching in Allen which suggests PLOW “utilize[s] credentials of the user” or “is privy to user-specific information”, Dr. Beigi first falsely asserts that “the ’317 patent provides example user credentials: Employee ID, First Name, and Last Name ([Ex1001], 20:17-27)” (Ex1003, ¶ 200).

241. However, the ’317 Patent does not call these “credentials” that the chatbot is “privy to”. Instead, each of these are disclosed as being parameters that can be “gathered by Question Step[s]” as part of a conversation:

In some exemplary embodiments, Parameter 564a may be selected to refer to **Employee ID, gathered by Question Step 550b** of FIG. 5B. Parameter 564a may be matched to Automation Parameter 564b, `{employeeID}`. As another example, Parameter 566a may be selected to refer to **First Name, gathered by Question Step 550c** of FIG. 5B. Parameter 566a may be matched to Automation Parameter 566b, `{firstName}`. As yet another example, Parameter 568a may be selected

to refer to **Last Name, gathered by Question Step 550d** of FIG. 5B.

Parameter 568a may be matched to Automation Parameter 568 b, $\${lastName}$.

(Ex1001, 20:17-20:27) (emphasis added)

242. As the '317 Patent explains, information collected via “Question Steps 550b 550c, 550d” (the “Employee ID”, “First Name” and “Last Name”) is different than information “available to the chat bot”, such as “user credentials”:

The user may associate parameters gathered by the conversation (e.g., by Question Step 550b, 550c, 550d, 550e of FIG. 5B). Additionally, or alternatively, the user may associate parameters available to the chat bot, such as based on the user credentials, environment variables, or the like.

(Ex1001, 20:10-15).

243. Accordingly, in my opinion, a POSITA would understand that the “Employee ID”, “First Name, and “Last Name” are not “user credentials” as Dr. Beigi argues. (Ex1003, ¶ 200). Instead, in my opinion, a POSITA as of November 5, 2017 would understand that a credential is used to authenticate the user. Allen does not disclose such authentication. Similarly, a POSITA would understand that the chatbot is not “privy” to the “Employee ID”, “First Name”, and “Last Name”, but obtains it via questions (as opposed to “parameters available to the chat bot, such as based on the user credentials, environment variables, or the like.”)

244. From this flawed understanding of the '317 Patent, Dr. Beigi then goes on to provide conjecture about how PLOW might use information that a POSITA as of November 5, 2017 would not consider to be a credential, all without citation:

A POSITA would understand that there are other user credentials, such as the user's home or work address. The user's home or work address are credentials of the user that are provided to the system (e.g., needed to obtain delivery date information and to deliver the book), so the system is privy to user-specific information.

(Ex1003, ¶ 201).

245. Dr. Beigi's analysis, besides failing to point to any express disclosure in Allen providing that PLOW uses the "user's home or work address", fails to show that these are "credentials" that would be used to authenticate the user, nor that PLOW would not obtain this information from the user directly.

246. Accordingly, in my opinion, particularly since Dr. Beigi fails to identify any "credentials" which PLOW is "privy to", a POSITA as of November 5, 2017 would understand that Allen does not disclose or render obvious Claim 7.

5. Claims 8, 15, and 20 – “wherein said implementing the automation process comprises: automatically identifying the widget in the GUI; and automatically identifying the text input field in the GUI”

247. Claims 8, 15, and 20 require, as an additional step in “implementing the automation process”, “automatically identifying the widget in the GUI” as well as

“automatically identifying the text input field in the GUI”. (Ex1001, Claim 8, 26:8-11; Claim 15, 26:53-56; Claim 20, 27:28-31).

248. Dr. Beigi’s explanation of how this element is met relies, like his analysis in Ground 1, on his assertion that PLOW, during training “observes the user identifying a widget in the GUI and identifying a text input field in a GUI”. (Ex1003, ¶ 203). But, as explained with respect to [h] in Claim 1, this occurs as part of the training process, where, as Dr. Beigi explains, the “user demonstrates actions”. (Ex1003, ¶ 202).

249. To actually support the assertion that PLOW, during execution of the automation process, identifies any elements “in the GUI”, Dr. Beigi can only point to Allen’s disclosure that PLOW can “automatically execute the task” after being taught. (Ex1003, ¶ 202). As I discuss above (*see* pars. 224-232, *supra*), with respect to Claim 1, however, PLOW does not necessarily operate in the same way it was taught, since PLOW relies upon HTML code, which it correlates with what the user has identified during the training process, and provides little details as to how a taught execution process is actually performed.

250. Moreover, even assuming that Allen executes the automation process using a graphical user interface (which I disagree with), Allen does not discuss identifying any “widget in the GUI” or any “text input field in the GUI” (as opposed

to in this HTML code) during automation. Although a *user* identifies these fields using a GUI during training (so that PLOW can understand the user's instructions (Ex1014, 5:21-6:11), even assuming that PLOW replicates the user's actions, in my opinion, a POSITA as of November 5, 2017 would not understand that PLOW was performing any "identification" during execution "in the GUI" as the claims require.

251. Accordingly, particularly because Dr. Beigi relies on Allen's disclosure regarding teaching PLOW, and Allen does not disclose executing a learned process by "automatically identifying the widget in the GUI" or "automatically identifying the text input field in the GUI", a POSITA as of November 5, 2017, would understand that Allen does not disclose Claim 8.

6. Dependent Claims 2-8 (for Claim 1), 10-15 (for Claim 9), 17-20 (for Claim 16) are Also Not Obvious For At Least the Same Reason as Claims 1, 9, and 16

252. I understand that to the extent a claim is found not to be anticipated or rendered obvious by a particular reference or combination of reference, then claims which depend from such claim would also not be anticipated or rendered obvious.

253. With respect to each of the dependent claims in Ground 1, to the extent that Allen does not anticipate or render obvious Claims 1, 9 and 16, then by definition it also does not anticipate nor render obvious their dependent claims, i.e.,

Claims 2-8 (for Claim 1), Claims 10-15 (for Claim 16) and Claims 17-20 (for Claim 16).

C. GROUND 3 – “Krishnan and Radhakrishnan [Purportedly] Render Obvious Claims 1-4, 6, 7, 9-12, 14, 16-18” Fails

254. In support of Ground 3 of the Petition, Dr. Beigi asserts Claims 1-4, 6, 7, 9-12, 14, 16-18 of the ‘317 Patent are rendered obvious by U.S. Patent No. 10,839,798, to Krishnan et al. (“**Krishnan**”, Ex1016) (and related references discussed below) and U.S. Patent No. 10,503,627, to Radhakrishnan et. al (“**Radhakrishnan**”, Ex1018). (Pet. at 62-85; Ex1003, ¶¶ 239-304). For the reasons set forth herein, I disagree.

1. Summary of Krishnan

255. In support of Ground 3 of the Petition, Dr. Beigi also identifies U.S. Patent No. 10,839,798, to Krishnan et. al (“**Krishnan**”, Ex1016), which was filed on January 30, 2018, after the priority date of the ’317 Patent.

256. Krishnan claims priority to U.S. App. No. 62/581,550 (“**550 Application**”, Ex1017), which was filed on November 3, 2017. While Dr. Beigi sets forth what he asserts is support for the issued claims in Krishnan from the ’550 Application (Ex1003, Table 1, at 122-126) as well as some specific subject matter. (Ex1003, Table 2, at 126-129). I understand that this analysis does not address the relevant question for this proceeding. Rather, I understand that to determine what

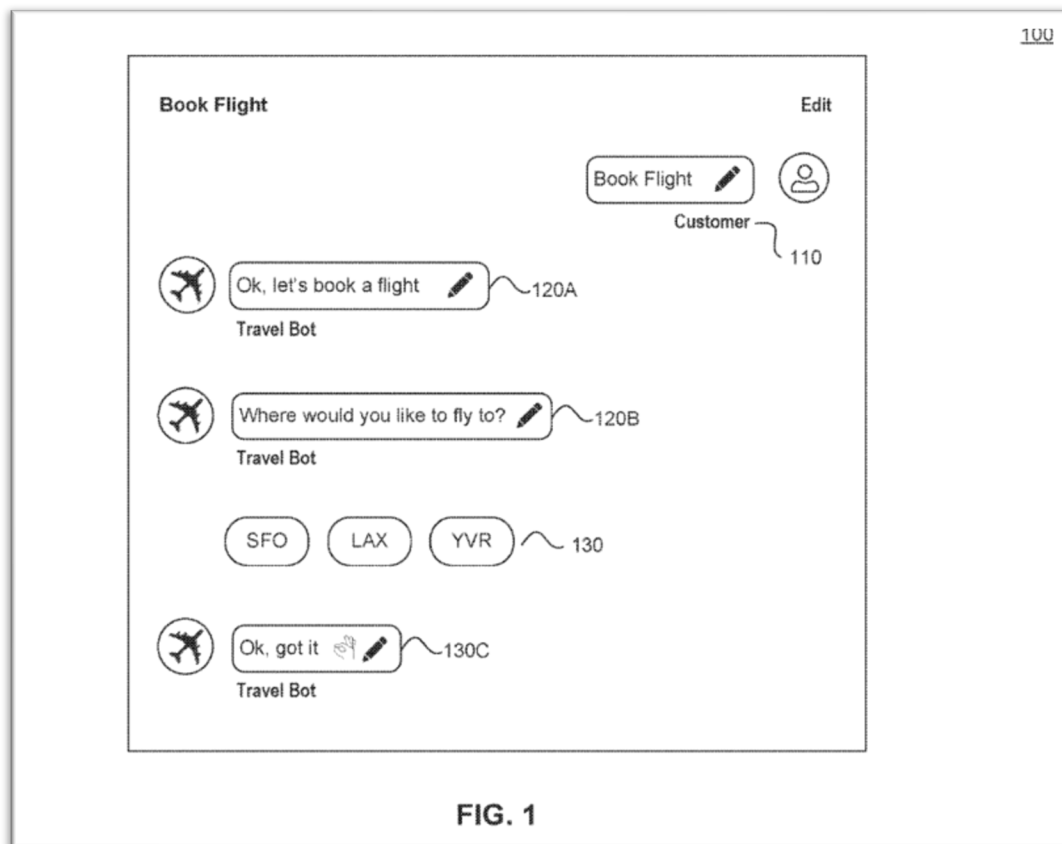
portions of the issued patent (Ex1016) is prior art, the proper inquiry is whether a POSITA reading such passages would understand that the passages relied upon by Dr. Beigi from Ex1016 were supported in the '550 Application (Ex1017). I understand if such material is not supported then it would not be considered prior art for purposes of this proceeding. Dr. Beigi does not appear to have performed the correct analysis. In my opinion, Dr. Beigi failure to provide the correct analysis is significant, as I discuss here, at least some of the key portions that Dr. Beigi relies upon, in my opinion, are not taught in the '550 Application, and thus would not constitute prior art for purposes of this IPR.

257. Most notably, the key passage from Krishnan (Ex1016, 2:7-11) which Dr. Beigi relies upon to support the alleged motivation to combine is absent from the provisional '550 Application. In particular, Dr. Beigi states that “Krishnan use[s] bots for the advantages that they offer: ‘greater convenience for users and lower costs for an organization (relative to having a live person interact with the user and handle the requests’” (Ex1003, ¶ 257, citing Ex1016, 2:7-11). However, the '550 Application contains no passage corresponding to Col 2, lines 7-11 of Krishnan, nor does Dr. Beigi assert that this passage is covered by the specific subject matter in the '550 Application. (*See, e.g.*, Ex1003, Table 2, at 126-129). Separately, as discussed below (*see par. 312, infra*) this alleged motivation to combine is based on an

incomplete and commingled understanding of the belated teaching in Krishnan and Radhakrishnan.

258. As for what is supported by the provisional application, as Dr. Beigi notes, Krishnan generally discloses a visual chat bot builder which enables a chat bot to execute a selected dialog, including performing an action. (Ex1003, ¶ 240).

259. For example, as Dr. Beigi points out (Ex1003, ¶240), Krishnan discloses that a “Travel Bot” may enable a conversation with a customer “110” to book a flight, as shown in the interface of Fig. 1:



(Ex1016, FIG. 1).

260. A POSITA as of November 5, 2017 would understand that the conversation depicted in Figure 1 of Ex1016 does not necessarily constitute a natural language interface, at least since the user is enabled to select a destination as a button, not as free text. Moreover, the figure does not show any free text field through which the user can provide free text information, indicating that the conversation is not a natural language interface.

261. Additionally, while the '550 Application generally provides support for the idea that this dialog can be used to “request additional information from the user” and “process[] the request to book the flight”, it does not, despite Dr. Beigi’s reliance (Ex1003, ¶ 251) on such disclosure, provide the specific examples of “dates of travel, seat preferences, and credit card information, and then processes the request to book the flight.” (*Compare* Ex1017, [0004] *with* Ex1016, 2:67-3:3).

262. Krishnan explains that the chatbot is used to provide “customer service” and teaches that the chatbot “serve[s] as an interface between the customer and one or more backend database, information, or other processing systems.” (Ex1016, 2:27-35; Ex1017, [0002]). In my opinion, a POSITA as of November 5, 2017 would understand the term “backend” to refer collectively to “databases, information, or other processing systems”, which are associated with, but not visible to, a chatbot for user. For example, in the context of the example given by FIG. 1, a POSITA as

of November 5, 2017 would understand that the backend systems would enable the user to book a flight by, for example, changing values in databases relating to reservations and ticket availability, but would not display the operations associated with such changes to the user of the chatbot.

263. Moreover, in my opinion, a POSITA would also understand that the chatbot is tied to the backend systems; it either calls, or interacts with a program that calls, the information requested directly from the databases without needing to interact using a displayed user interface. Further, in my opinion, a POSITA would understand since Krishnan has direct access to the backend databases etc., it would make no sense and be less efficient to access such system through a user interface (as required in the patented claims at issue). Thus, given this direct integration with the backend, in my opinion, a POSITA would understand not only that there would be no reason to use automation processes that involve using the displayed user interface, since data can be manipulated directly in the backend by the chatbot, but it would in fact be undesirable as a more costly and less efficient means to update the database.

264. In short, Krishnan fails to teach an automated process that, when executed, uses input fields in, and interacts with interactable widgets in, a graphical user interface of a web-based target system. Indeed, Dr. Beigi relies upon

Radhakrishnan for these elements. (Ex1003, ¶¶ 255, 264-267), Similarly, a POSITA as of November 5, 2017 would understand that it also fails to teach determining an automated process which is executed using a graphical user interface.

2. Summary of Radhakrishnan

265. In further support of Ground 3 of the Petition, Dr. Beigi also identifies U.S. Patent No. 10,503,627, to Radhakrishnan et. al (“Radhakrishnan”, Ex1018), which is based on U.S. Application Serial No. 15/798,095 that was filed on Oct. 30, 2017, and issued on December 10, 2019.

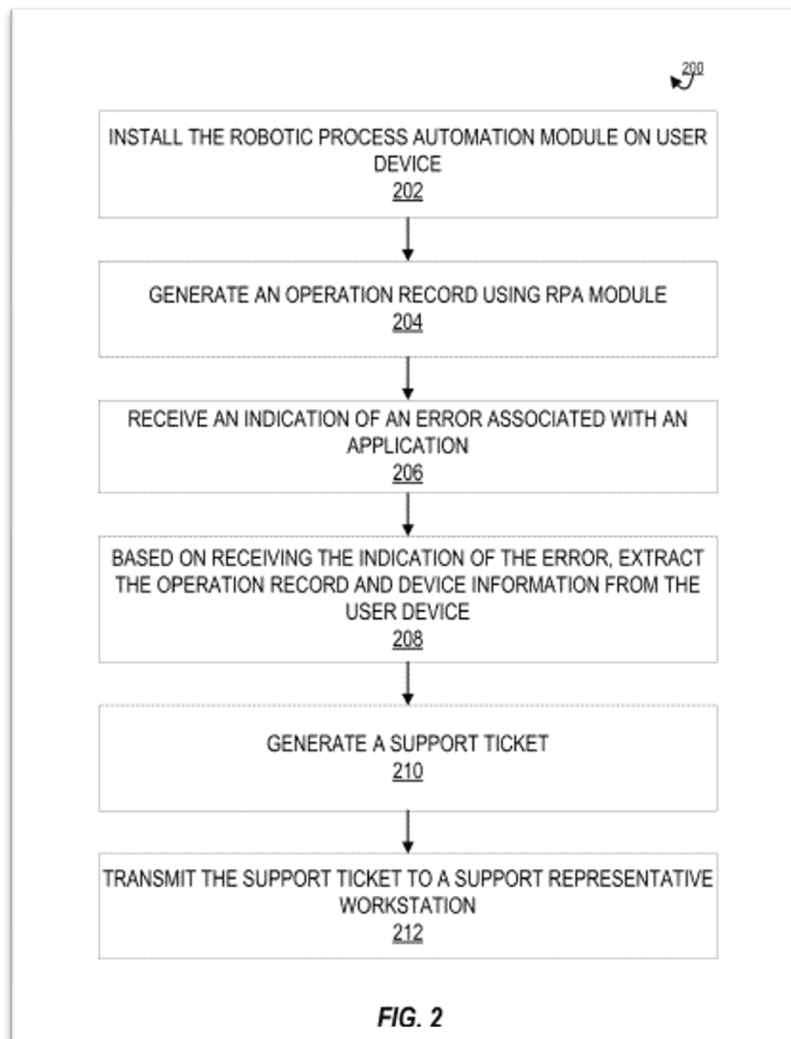
266. I understand that although Radhakrishnan was published after the priority date for the '317 Patent of November 5, 2017, since the application it is based on was filed prior to that date, for purposes of this proceeding, it is considered prior art. I am not offering any opinions on the prior art status of Radhakrishnan, but assume for purposes of my analysis that it is prior art.

267. The abstract in Radhakrishnan, which Dr. Beigi relies upon, confirms that the invention is directed to “providing a robotic process automation” which “generate[s] an operation record for automatically generating and transmitting a **diagnosis and correction** request to a workstation.” (Ex1018, Abstract, cited and discussed in Ex1003, ¶241). As Dr. Beigi confirmed in his deposition, Radhakrishnan is “reporting” related to “error diagnosis and correction” (Ex2003,

267:24-268:5). In other words, in my opinion, a POSITA as of November 5, 2017 would understand, unlike the '317 Patent, the robotic process disclosed in Radhakrishnan would not, in the context of a system for booking a hotel or flight, be used to book the hotel or flight, but rather monitor whether there are system errors in how the user interface interacts with a user, simulate the user interactions in a virtual environment and seek to diagnose and correct such errors based on the simulation. (*Cf.* Ex2003, 269:19-270:18). This is a very different process than the claimed invention, which requires “determin[ing] to implement on automation process” based on a “user instruction”, “collect[ing] information to be used as part of the automation process”, and “implement[ing] the automation process by interacting with a Graphical User Interface (GUI)”. (Ex1001, Ex1001, 25:24-50; 26:12-34) and Claim 16 (*Id.*, 26:57-27:13). In my opinion, a POSITA as of November 5, 2017 would not understand that the “robotic process automation” disclosed and discussed in Radhakrishnan is relevant to the claimed “automation process” in the '317 Patent.

268. As shown in FIG. 2 of Radhakrishnan, relied upon by Dr. Beigi (Ex1003, p. 132), Radhakrishnan discloses using a robotic process automation (RPA) module to “generate an operation record” (step 204), which, after an “indication of an error associated with an application” is received (step 206), is

“extract[ed] . . . from the user device” (step 208), and then used to “generate[] a support ticket” (step 210) which can be sent to a “support representative workstation” (step 212):



(Ex1018, FIG. 2 (Described at Ex1018, 9:57-12:46)).

269. Dr. Beigi asserts that the RPA bot in Radhakrishnan disclosed “interacts with a GUI” and “simulates user input to the GUI” in executing **the automation process** (EX1003, ¶ 256). Dr. Beigi’s assertion is misleading and inaccurate. The

RPA bot in Radhakrishnan serves a different and irrelevant purpose. In my opinion, a POSITA would understand that the bot disclosed in Radhakrishnan, as illustrated, is focused on capturing user action for error reporting, in contrast to performing automated processes using a user interface. As Radhakrishnan explains, “[i]n general, the RPA module detects one or more operations of the user within an application on the user device” and “may **operate in the background** of another application without interrupting the normal operating routine of the user within an application.” (Ex1018, 10:33-34, 10:43-46)). The fact that it can ‘mirror’ the user’s operations in a virtual environment to generate an “operation record” does not, despite Dr. Beigi’s assertions, mean that the RPA bot’s actions interact with a GUI, or even act as an automation process that can be invoked. As Radhakrishnan explains, “[i]n one example, the RPA module is configured in real-time on the user device while monitoring the user input operations of the user on the user device.” (Ex1018, 10:4-6).

270. In other words, a POSITA would understand that Radhakrishnan is directed towards capturing user input and execution of process for purposes of reporting an error, and not for the purposes of later performing them in response to a user command or conversation.

271. In this vein, while Radhakrishnan discloses that, “[i]n some embodiments, the RPA module interacts directly with a presentation layer of the application **within a virtual environment**”, (Ex1018, 11:41-43), Radhakrishnan does not disclose using a displayed user interface to perform a captured automated process, only to generate an operation record. The “operation record” is simply a “list of executed commands or input data detected by the RPA module such as in a text file, .csv file, or the like” (Ex1018, 11:6-9), which is then “extracted” and used to “generate[] a support ticket”, not to perform the automated process. (Ex1018, 12:24-46).

272. In accordance with the above, I note that Dr. Beigi does not even argue that Radhakrishnan teaches:

- “receiv[ing] a user instruction” (Element [a]; Ex1003, ¶¶ 244-247),
- determining to implement “an automation process” “in response to the user instruction” (Element [b], Ex1003, ¶¶ 248-250),
- using information “as part of the automation process” (Element [c]; Ex1003, ¶¶ 251-252), or
- executing an automation process on a “third-party web-based target system” (Element [e]; Ex1003, ¶¶ 260-261).

273. Dr. Beigi also fails to show that Radhakrishnan teaches “implement[ing] the automation process by interacting with a Graphical User Interface of the web-based target system” by “filling in a text input field in the GUI” and “interacting with a widget in the GUI ... to perform a predefined functionality.” (Elements [d], [g], [h]; Ex1003, ¶¶ 256, 264, 266).

274. Indeed, the whole point of Radhakrishnan is that the RPA module is not intended to be invoked in response to particular user commands or conversations, but that it was always active in the background, in order to capture errors in automated processes as they occurred, without needing to be invoked first.

3. Krishnan and Radhakrishnan do not disclose or render obvious Claims 1, 9 or 16 (and by extension their dependent claims)

275. Dr. Beigi asserts Krishnan (Ex1016) and Radhakrishnan (Ex1018) render obvious Claims 1, 9 and 16 of the '317 Patent. (Ex1003, ¶¶242-267, 277-285, 290-301). I disagree.

276. In particular, Dr. Beigi offers Krishnan for its disclosure relating to using a “chatbot to ‘provide customer service to users’” and is using Radhakrishnan for its disclosure related to using an “RPA bot that helps diagnose computer software-related errors . . .” (Ex1003, ¶ 257).

277. First, in my opinion, a POSITA as of November 5, 2017, would have understood that Radhakrishnan relates to a different field of endeavor than the ‘317 Patent and is not reasonably pertinent to problems addressed in the ‘317 Patent. As such, in my opinion, a POSITA as of November 5, 2017 would not conclude that Radhakrishnan is analogous art, and thus, a POSITA would have no reason to look at Radhakrishnan. (*See* pars. 281-290, *infra*).

278. Second, Dr. Beigi’s proposed combination is not well-defined and would not meet the limitations of the ‘317 Patent claims. Specifically, Dr. Beigi asserts “[a] POSITA would have been motivated to fulfil [Krishnan’s] customer service request by an RPA bot” (Ex1003, ¶ 259). Thus, I understand that Dr. Beigi appears to suggest combining the chatbot of Krishnan with the RPA module disclosed by Radhakrishnan. I note that Dr. Beigi does not clearly identify what proposed modification he would make to Krishnan using Radhakrishnan. Rather, in the context of each element, he merely cites passages of disclosure in each, and then has a general (and I submit unsupported) conclusion that the combination meets the claims limitation. (Ex1003, ¶¶ 242-267).

279. In my opinion, a POSITA as of November 5, 2017 would understand that at best a combination of Krishnan’s “customer service request” with Radhakrishnan’s teachings about “RPA bot[s]” as Dr. Beigi proposes (Ex1003,

¶ 259) would merely have the same conversation as implemented in Krishnan (Fig. 3) being monitored by the RPA module of Radhakrishnan to determine if there are system errors, with user activity being simulated in parallel in a virtual environment by an RPA module. As discussed herein, even if Radhakrishnan were considered analogous art for purposes of the ‘317 Patent (which it is not, as I discuss in pars. 281-290), the combination would not teach or suggest determining or performing an automation process “with respect to [a] third-party web-based target system” (elements [b] and [e]) or implementing a determined automation process “by interacting with a Graphical User Interface of the web-based target system and simulating user input to the GUI”, by both “filling in a text input field” or “interacting with a widget ... to cause the web-based target system to perform a predefined functionality” (elements [d], [g], [h]) . (*See* pars. 294-309, *infra*).

280. Finally, Dr. Beigi has not established a proper motivation to combine Krishnan and Radhakrishnan in relevant manner. His proposed motivations make no sense. (*See* pars. 310-314, *infra*).

a. Radhakrishnan is Non-Analogous Art with Respect to the Claimed Invention

281. I understand that, in order for a reference to be considered in an obviousness inquiry, the reference (here, Radhakrishnan, Ex1018), must be analogous art to the claimed invention. In particular, Dr. Beigi needs to establish that

Radhakrishnan (Ex1018) must either be from the same field of endeavor as the claimed invention of the '317 Patent, or reasonably pertinent to the problem faced by the invention of the '317 Patent.

282. In my opinion, a POSITA as of November 5, 2017 would have understood the claimed invention and Radhakrishnan to be in different fields, and would have understood that the problem to be solved by Radhakrishnan was very different from the problem to be solved by the claimed invention. Since neither is the case here, in my opinion, a POSITA as of November 5, 2018 would not have considered Radhakrishnan (Ex1018) analogous art to the claimed invention of the '317 Patent.

i. Radhakrishnan (Ex1018) is directed to a different field of endeavor from the '317 Patent

283. The claimed invention in the '317 Patent is directed to a method of determining and executing an automation process based on an input received from a user from a natural language interface which interacts with the graphical user interface of a web-based target system. (Ex1001, Claim 1, 25:24-50; Claim 9, 26:12-34; Claim 16, 26:57-27:13).

284. In particular, the '317 Patent claims “[o]ne technical solution” of using **“a natural language interface to receive input from the user, and based thereon, select an automation process to be executed”** and “[t]he automation process may

be executed in a manner that manipulates the GUI of the target system, in a similar manner to the manner in which the user operates.” (Ex1001, 9:3-10).

285. Radhakrishnan is in a different field than the claimed invention in the ’317 Patent. Rather than provide ways of executing automation processes based on, and using, information received from a user, as Dr. Beigi recognizes (Ex1003, ¶ 241), Radhakrishnan is “directed to providing a robotic process automation enabled **file diagnosis and correction.**” (Ex1018, Abstract; *see also* Ex1018, 6:43-61 (providing an “automated error diagnosis and correction system and environment” (FIG. 1) and flows “for automated error diagnoses and correction” (FIGs. 2 and 3)). Indeed, Radhakrishnan sought to overcome problems specifically relating to diagnosis of system problems, not gathering information to implement an automated process:

With an increasing dependence on technology, computer systems are relied upon to complete various tasks and increase user and/or process efficiency. However, difficulties such as program crashes, file corruption, and operating errors can present themselves and interrupt typical operation of a system or device. Further these errors can be extremely technical in nature requiring expert knowledge or specialized tools outside the realm of a typical user in order to repair. Due to the complex nature of computer system and device errors and the level of technical detail required for proper correction, a tool for efficient diagnosis and rectification of said errors is required.

(Ex1018, 1:7-18).

286. Accordingly, in my opinion, a POSITA as of November 5, 2017 would understand that Radhakrishnan and the '317 Patent are not in the same field of endeavor.

ii. Radhakrishnan (Ex1018) is not reasonably pertinent to the problems faced by the inventors of the '317 Patent

287. Nor is Radhakrishnan reasonably pertinent to the problems faced by the claims of the '317 Patent. As taught by the '317 Patent, its claims are meant to address difficulties relating to improving chatbots and automated processes, including by “simplify[ying] the end-user experience by collecting data from him and executing a predefined automation flow on the target system”, for example, by “implement[ing] a natural language interface, such as a text-based conversation, an oral conversation, or the like” as well as utilizing “a Graphical User Interface (GUI)... in order to activate the functionalities of the target system”. (Ex1001, 8:8-21). There is no discussion in the '317 Patent about using the claimed technology to diagnose system problems that occur during operation by a user.

288. Radhakrishnan does not provide disclosure which is pertinent to the problems sought to be addressed by the patented claims, which revolve around invoking automated processes using a natural language interface and using a

graphical user interface to invoke functionality of a target system. Instead, as discussed, Radhakrishnan is focused on providing “a tool for efficient diagnosis and rectification” of computer errors. (Ex1018, 1:17-18). Indeed, Radhakrishnan does not implement an automation process according to information provided from a user. Dr. Beigi also agreed during his deposition that “Radhakrishnan does not address chatbots” and that “Radhakrishnan does not address automation processes that would be invoked by a chatbot”. (Ex2003, 278:15-24). Accordingly, in my opinion, a POSITA would understand that the techniques disclosed by Radhakrishnan are not pertinent to the problems sought to be tackled in the ’317 Patent.

289. Finally, I note that while Dr. Beigi relies on Radhakrishnan to assert that the claims of the ’317 Patent are obvious, he provides no analysis to suggest that Radhakrishnan is analogous art to the ’317 Patent or any other reasoning to support the idea that a POSITA would have considered Radhakrishnan in addressing the problems addressed by the ’317 Patent.

290. Accordingly, in my opinion, because Radhakrishnan is in a distinct field from the ’317 Patent, and is not reasonably pertinent to the problems attempted to be solved by the ’317 Patent, it is non-analogous art to the ’317 Patent. Dr. Beigi’s obviousness analysis which relies on Krishnan in combination with Radhakrishnan accordingly fails for this reason.

b. Neither Krishnan nor Radhakrishnan, either Alone or in Combination, Teach or Suggest Implementing an Automation Process by Interacting with a GUI of the Web-based Target System

291. Dr. Beigi proposes combining Krishnan and Radhakrishnan, and claims that such a combination would be obvious and render the claims of the '317 Patent obvious. I disagree.

292. A review of Dr. Beigi's analysis of the independent claims reflects that he was not able to identify any teachings in either Krishnan nor Radhakrishnan that teach:

- Determining and performing “an automation process” to be performed with “respect to [a] third-party web-based target system” as required by elements [b] and [e]
- Implementing the determined automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, including using text fields and a widget to execute a functionality of the target system, as required by elements [d], [g], and [h]

293. Accordingly, as I discuss below, this means that Dr. Beigi's combination fails to teach the elements of the claims.

- i. **1[b], 9[b], 16[b] “determine to implement an automation process on a web-based target system in response to the user instruction”
[e] “wherein the automation process is performed with respect to third-party web-based target system”**

294. Claims 1[b], 9[b], 16[b] require a determination to be made, based on a “user instruction” received via a natural language interface, “to implement an automation process on a web-based target system”. (Ex1001, Claim 1, 25:31-33; Claim 9, 26:15-17; Claim 16, 26:61-63). Claims 1[e], 9[e] and 16[e] require that the determined “automation process is performed with respect to [the] third-party web-based target system.” (*Id.*, Claim 1, 25:39-41; Claim 9, 26:23-25; Claim 16, 27:2-4).

295. Dr. Beigi’s asserts that Krishnan discloses these elements. (Ex1003, ¶¶250, 261). I disagree. As I discuss below, not only does Krishnan not determine “an automation process”, but it does not disclose using a “third-party” “web-based target system” as required by elements [b] and [e].

296. To demonstrate that Krishnan discloses “determining to implement an automation process...”, Dr. Beigi points to Krishnan’s “flight booking task” as if Krishnan taught using the conversation to invoke an automation process. (Ex1003, ¶¶ 248-250). But the “flight booking task” is not an automation in Krishnan in the same sense as the “automation process” is in the ’317 Patent claims. Rather, in my opinion, a POSITA as of November 5, 2017 would understand Krishnan implements

the flight booking task, as well as all the other tasks it calls out, in the same way that it obtains information—by directly accessing “one or more backend databases or other information processing systems” and updating such “backend databases and other information processing systems.” (Ex1016, 2:33-35). This is a mere script execution and does not perform an “automation process” that interacts with GUI elements or simulates user inputs, as required by element [d]. (*See* Ex1003, ¶ 255 (recognizing that “Krishnan is silent regarding whether or not its automation process interacts with a GUI and simulates user input to the GUI”). It simply discloses another way of gathering information from a user to carry out system functionality (flight booking).

297. Setting aside whether Krishnan even determines an automated process, Dr. Beigi fails to show that the automated process would be implemented “on a [third-party] web-based target system. Instead, Dr. Beigi’s only support for this proposition (“[A] user may visit or log into a website and have customer service requests fulfilled by a chatbot”) (Ex1003, ¶ 250; *see also id.*, ¶ 260) relates to how customers can access chatbots, not on where an automated process is performed:

An example use of a chat bot may be to provide customer service to users via the Internet or a mobile application. Chat bots may provide both greater convenience for users and lower costs for an organization (relative to having a live person interact with the user and handle the

requests). For example, a user may visit or log into a website and have customer service requests fulfilled by a chat bot. In an embodiment, a multi-processing computing system, such as a server, may operate as a chat bot and may simultaneously interact with multiple users over a network.

(Ex1016, 2:5-14).

298. In my opinion, a POSITA as of November 5, 2017 would understand that this disclosure does not identify performing an automation process using a web-based target system as Dr. Beigi asserts. Instead, as discussed, Krishnan implements its scripts by accessing and updating “one or more backend databases or other information processing systems”. (Ex1016, 2:33-35).

299. Nor does Dr. Beigi provide a compelling explanation for why these websites would be understood to be “third-party web-based target system[s]”. Instead, Dr. Beigi asserts that “[i]t would have been obvious that the Internet or a website (for customer service requests) is a third-party web-based target system” because Krishnan provides examples of “different types of customer service requests being fulfilled” that would not have been performed with the same party. (Ex1003, ¶261). I disagree with this assertion.

300. In my opinion, a POSITA as of November 5, 2017 would understand that the examples Dr. Beigi gives (“booking a flight”, “validating a user, making

purchases, requesting status updates, processing refunds, or modifying information”, (Ex1003, ¶ 261 (citing Ex1016, 2:22-24)) would be understood to be able to be performed at the same party. While Dr. Beigi argues that “booking a flight” would “involve[] an airline company as one party”, but “making purchases” would “involve[] an online merchant as another party”, this is wrong and irrelevant. A user could ostensibly “make a purchase” (e.g., buying a ticket) while booking a flight. In any event, if a user uses an airlines chatbot to “book a flight” through the airline’s systems there is no third-party system involved. Similarly, if a user uses an online merchant’s chatbot to “mak[e] purchases, then there is no third-party involved. In both cases, the chatbot provides customer service directly using whatever application or website that is being service, and not separate from it, and there is no “third-party” system on which an automation process is implemented. Dr. Beigi does not point to anything in Krishnan which states otherwise.

301. Accordingly, in my opinion, at least because Krishnan does not disclose using “web-based target systems” during execution of an automation process, let alone a “third-party” “web-based target system”, a POSITA would understand that Krishnan does not disclose element [b], or render obvious element [e], of Claims 1, 9, 16.

- ii. **1[d], 9[d], 16[d]: “implement the automation process by interacting with a Graphical User**

Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system”

1[g], 9[g], 16[g] - “automatically and without user input, filling in a text input field in the GUI”

1[h], 9[h], 16[h] - “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality”

302. Claim elements 1[d], 9[d], and 16[d] claimed “automation process” be implemented “by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system.” (Ex1001, Claim 1, 25:35-39; Claim 9, 26:20-23; Claim 16, 26:66-27:2). Elements 1[g-h], 9[g-h], and 16[g-h] requires the automation process to include “automatically and without user input, filling in a text input field in the GUI” as well as “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality” (*Id.*, Claim 1, 25:45-50; Claim 9, 26:29-34; Claim 16, 27:8-13).

303. For these elements, Dr. Beigi relies on a combination of Krishnan and Radhakrishnan, arguing that it teaches the claimed invention. I disagree.

304. First, while Dr. Beigi asserts that “Krishnan discloses implementing the automation process” and “a GUI of a web-based target system” (Ex1003, ¶¶253-254), as discussed, (*see* pars. 294-301, *supra*) the asserted “automation process”

does not use a GUI and is more akin to script which uses “one or more backend databases or other information processing systems”, (Ex1016, 2:33-35), and the relied upon “web-based target system” is for a chatbot and its GUI is not used for implementation of updating Krishnan’s backend databases. (Ex1016, 2:5-14).

305. Setting aside that Dr. Beigi’s analysis on Krishnan is wrong, even Dr. Beigi recognizes that “Krishnan is silent regarding whether or not its automation process interacts with a GUI and simulates user input to the GUI” (Ex1003, ¶255). He attempts to use Radhakrishnan to fill these, and related gaps between Krishnan and the claims of the ’317 Patent.

306. Not only does Krishnan, by pointing to the use of “backend” systems, teach against implementing an automation process by interacting with, and simulating user input to, a Graphical User Interface, but Radhakrishnan does not teach the remaining elements of Claims 1, 6 or 29. While, as Dr. Beigi points out, Radhakrishnan discusses “simulat[ing] operations” with an RPA module to “Act as a mirror of the actual user operations” (Ex1003, ¶ 256), it does so in order to “generate an operation record for automatically generating and transmitting a diagnosis” (Ex1018, Abstract, 11:32-36), not in order to perform an automation process again or to later be invoked based upon an input from a user using a natural

language input. Instead, the end use of the recorded operations is for inclusion in a “support ticket”. (Ex1018, 12:37-46).

307. By the same token, Dr. Beigi does not show that the RPA module in Radhakrishnan “automatically and without user input, filling in a text input field in the GUI” as well as “automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality” as the claims require. (Id., Claim 1, 25:45-50; Claim 9, 26:29-34; Claim 16, 27:8-13). To show these elements are met, Dr. Beigi cites to the disclosure in Radhakrishnan which explains how the RPA module “may act as a mirror of the actual user operations” (Ex1003, ¶¶ 260, 266, citing Ex1018, 5:49-56, 11:29-36). Notably, while Dr. Beigi concludes that mirroring the user operations means that the RPA module would “fill[] in a text input field [sic] in the GUI” and “interact[] with a widget in the GUI”, this is not part of an automation process, since, as Radhakrishnan explains, the RPA module works “within a virtual environment”:

In some embodiments, the RPA module interacts directly with a presentation layer of the application within a virtual environment. In this way, the RPA module can execute an operation while simulating a user interaction with the application. In some embodiments, the RPA module may transmit an input signal to the application that simulates a user interaction with a user interface.

(Ex1018, 11:41-47). In other words, Radhakrishnan teaches “mirroring” the user’s activity *while the user is performing the activity*, as opposed to invoking an automation process which uses the information obtained by the chatbot (element [b]), uses input fields in the GUI (element [g]), or causes the system to perform a predetermined functionality by interacting with a widget in the GUI (element [h]).

308. Finally, while Dr. Beigi recognizes that a user interacting with a widget would “cause the system to perform a predefined functionality”, he does not assert that the RPA module “mirroring” the user “interacting with a widget” would also cause the RPA module to “perform a predefined functionality”. (Ex1003, ¶ 266). This makes sense, given Radhakrishnan’s disclosure that the RPA module operates within a “virtual” environment. Nor does he explain how the combination of Krishnan and Radhakrishnan (which only “mirrors” the user’s activity) would use “information as part of the automation process”, as required by claim element [b]. (See Ex1003, ¶¶ 251-252).

309. Accordingly, in my opinion, a POSITA would understand that neither Krishnan nor Radhakrishnan, either in alone or in combination, disclose elements [d]/[g]/[h] of claims 1, 19 and 29.

**c. A POSITA Would Not Have Been Motivated to
Combine Krishnan and Radhakrishnan**

310. In my opinion, a POSITA as of November 5, 2017 would not have had a motivation or other reason to combine Krishnan and Radhakrishnan in the manner suggested by Dr. Beigi.

311. As evidence of the motivation to combine, Dr. Beigi asserts that a POSITA would be motivated to have the automation process in Krishnan be configured to interact with a GUI and simulate interactions with the graphical user interface of the web-based target system, asserting that:

Both Krishnan and Radhakrishnan use bots for the advantages that they offer: ‘greater convenience for users and lower costs for an organization (relative to having a live person interact with the user and handle the requests’ [Ex1016, 2:7-11] and ‘reduce[d] [] amount of computing resources required to execute tasks when compared with executing the same tasks using a traditional application programming interface (API).’ (... EX1018, 6:21-34.)

(Ex1003, ¶ 257).

312. Dr. Beigi’s citation to Krishnan, however, is unsupported by the ’550 Application, which does not include the cited disclosure. (Ex1017). And Dr. Beigi’s reference to reducing “computing resources” in Radhakrishnan is in the context of the “invention” disclosed therein, i.e., error detection, where a universal, non-

application specific RPA bot has advantages over types of automation which would otherwise require integration. (*See, e.g.*, Ex1018, 6:20-38). In my opinion, a POSITA as of November 5, 2017 would understand that a reduction in computing resources is not a normal advantage of RPA bots in other contexts, such as automating processes in backend systems, which are typically more resource-intensive than API calls. Accordingly, in my opinion, a POSITA as of November 5, 2017 would not have been motivated to modify Krishnan with Radhakrishnan based on the reasons provided by Dr. Beigi.

313. Moreover, in my opinion, a POSITA as of November 5, 2017 would have no reason to combine Krishnan with Radhakrishnan. Krishnan's system of interacting directly with "one or more backend databases or other information processing systems" already worked (Ex1016, 2:34-35), and a POSITA would understand that it would ordinarily be able to retrieve, and edit values from, those databases using database calls. In such a system, a POSITA would understand that it would be more cost effective, and take fewer computing resources, to simply directly call a database or provide a computer instruction to change a value, rather than simulate a task to be performed on a displayed user interface. There would be few challenges associated with this approach - obtaining permissions poses no issues in Krishnan (unlike some embodiments of the claimed invention), since the chatbot has

direct access to the backend systems which it seeks to perform an automation action upon.

314. By a similar token, to the extent a POSITA as of November 5, 2017 would have been motivated to combine Radhakrishnan with Krishnan, it would not, as discussed above, result in a combination which uses a simulation on a displayed user interface to perform automation processes which is displayed on a screen. Radhakrishnan discloses how to improve error collection using RPA bots, and does not provide a motivation to cause execution of an automation process using a displayed user interface of a computer program. (Ex1018, 6:50-51). A POSITA as of November 5, 2017 would not have been motivated to make a combination resulting in the elements of the claimed invention.

**4. Claims 2, 10 – implementing the automation process “by a client device used by the user”
Claims 3, 11, 17 – implementing the automation process “by a browser that is executed by the client device”**

315. As discussed, Claims 2 (dependent on Claim 1) and 10 (dependent on Claim 9) provide that implementing the automation process “is performed by a client device **used by the user.**” (Ex1001, Claim 2, 25:51-53; Claim 10, 26:35-36). Claims 3 (dependent on Claim 2) and 11 (dependent on Claim 10) further require that the automation process is performed “by a browser that is executed by the client device”

(i.e., the client device of the user). (*Id.*, Claim 3, 25:54-57; Claim 11, 26:37-39).

Claim 17 combines both of these elements.

316. Dr. Beigi identifies the “client device” as the “bot-builder interface” because it is a “computing device”. (Ex1003, ¶ 268). This cursory analysis is flawed for at least two reasons.

317. First, the “bot-builder interface” is not a “client device” used to access, or implement an automation process which interacts with, a website (such as a flight booking site), which Dr. Beigi asserts to be the target web-based system. The “bot-builder interface”, as its name suggests, and as Krishnan confirms, allows a “developer” to “construct and configure dialogs” to be used by a chatbot. (Ex1016, 3:19-26). It is not a “client device”.

318. Dr. Beigi also does not point to any disclosure in Krishnan suggesting that the client device (here, asserted to be the “bot-builder interface”) would execute a browser that implements the automation process (as required by Claims 3, 11 and 17). Instead, he simply points to the disclosure stating that “a user may visit or log into a website and have customer service requests fulfilled by a chat bot”, (Ex1003, ¶ 270). but this does not mean an automation process is executed using the browser.

319. Next, Dr. Beigi does not show that a user using the natural language interface (e.g., “Customer 110”) would even use the “bot-builder” interface at all.

320. As I discuss with respect to Ground 1 (*see* par. 168, *supra*), in my opinion, a POSITA as of November 5, 2017 would understand that because “the user” derives its antecedent basis from element [a] (“a user instruction from a user using a natural language interface” (Ex1001, Claim 1, 25:29-30; Claim 9, 26:13-14; Claim 16, 26:59-60)), the “client device” must be “used by” the “user using [the] natural language interface” to provide an instruction and the “browser” must be on the same client device of the same “user of the natural language interface”.

321. I understand the user identified by Dr. Beigi is the “Customer 110” attempting to book a flight with the “user instruction” “Book flight”. (Ex1003, ¶ 246). However, Krishnan explains that a “developer”, not the Customer 110, uses the asserted “client device”. (*See* Ex1016, 3:19-26). In other words, the asserted client device (the bot-builder interface) is not “used by the user” of the natural language interface (the Customer 110).

322. Accordingly, particularly in view of Dr. Beigi’s inconsistent and confusing read which confuses the “bot-builder interface” used by a developer with a client device of a customer using the natural language interface, a POSITA would understand that Krishnan does not disclose Claims 2-3, 10-11, and 17.

5. Claims 6 and 14 – “wherein the information comprises information of the user, whereby personalizing the automation process”

323. Claim 6 (dependent on Claim 1) and Claim 14 (dependent on Claim 9) require the “automation process” to be “personaliz[ed]” based on “information of the user”. (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52).

324. Dr. Beigi’s analysis treats these claims as satisfied so long as the automation process uses “information of the user”. Dr. Beigi asserts that “Krishnan discloses claim 6” because “Krishnan discloses collecting information of the user and performing the automation with the user-specific information, whereby personalizing the automation process.” (Ex1003, ¶ 272).

325. Contra Dr. Beigi’s interpretation, in my opinion, a POSITA at the time of the filing of the ’317 Patent would understand that Claims 6 and 14 require more than merely using the information to fill in fields as part of the automation process. Instead, based on the language of the claims themselves, a POSITA would understand that the claims require the “automation process” to be “personaliz[ed]” based on “information of the user”. (Ex1001, Claim 6, 26:1-3; Claim 14, 26:50-52). Accordingly, the steps of the automation process itself must vary in some form depending on the information the user provides.

326. Dr. Beigi, however, fails to show that the asserted flight booking task (or another task) would change based on the provision of personal information. Not only is this counter-intuitive in the context of Radhakrishnan (which does not disclose using any information provided or modifying the mirrored automation process), but the “verification” Dr. Beigi only asserts that “Krishnan discloses collecting information of the user and performing the automation with the user-specific information” (Ex1003, ¶ 272).

327. Dr. Beigi thus fails to show that the flight booking task (or another task) in Krishnan would change based on the provision of personal information.

328. Accordingly, in my opinion, a POSITA would understand that neither Krishnan, which only discloses using the collected information to book a flight, would not, in combination with Radhakrishnan, personalize the automation process based on personal information of the user as required by Claims 6 and 14.

6. Dependent Claims 1-4, 6, and 7 (for Claim 1), 10-12, 14 (for Claim 9), 17-18 (for Claim 16) are Also Not Obvious For At Least the Same Reason as Claims 1, 9, and 16

329. I understand that to the extent a claim is found not to be anticipated or rendered obvious by a particular reference or combination of reference, then claims which depend from such claim would also not be anticipated or rendered obvious.

330. With respect to each of the dependent claims in Ground 1, to the extent that Allen does not anticipate or render obvious Claims 1, 9 and 16, then by definition it also does not anticipate nor render obvious their dependent claims, i.e., Claims 1-4, 6 and 7 (for Claim 1), Claims 10-12, and 14 (for Claim 16) and Claims 17-18 (for Claim 16).

VIII. Conclusion

331. For the foregoing reasons, it is my opinion that each of the challenged claims (Claims 1-6, 9-16, and 18-21) of the '317 Patent are not invalid in view of any of the grounds set forth in the Petition, and the support declaration of Dr. Beigi. (Ex1003).

I hereby declare that all statements made herein are of my own knowledge and true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code.

Dated: July 8, 2024

By: 
Ivan Zatkovich

APPENDIX A

(Listing of Claims of U.S. Patent No. 11,558,317 (Ex1001) at Issue In IPR2024-00065)

What is claimed is:

1. A chat-bot program product, wherein the chat-bot program product comprises non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to:
 - [a] receive a user instruction from a user using a natural language interface;
 - [b] determine to implement an automation process on a web-based target system in response to the user instruction;
 - [c] collect information to be used as part of the automation process; and
 - [d] implement the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, [e] wherein the automation process is performed with respect to third-party web based target system and [f] without relying on an Application Programming Interface (API) exposed by the web based target system, [g] wherein the implementation of the automatic process comprises:
 - automatically and without user input, filling in a text input field in the GUI of the web-based target system; and
 - [h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.
2. The chat-bot program product of claim 1, wherein the chat-bot program product is configured to implement the automation process by a client device used by the user.
3. The chat-bot program product of claim 2, wherein the chat-bot program product is configured to implement the automation process by a browser that is executed by the client device.
4. The chat-bot program product of claim 1, wherein the chat-bot program product is configured to converse with the user in natural language using a vocal interface.
5. [a] The chat-bot program product of claim 1, wherein the automation process is configured to automatically fill information in an online form, wherein the online form comprises the text input field, [b] wherein the widget is configured to invoke

submission of the online form, [c] wherein the chat-bot program product is configured to request user validation from the user before submitting the online form.

6. The chat-bot program product of claim 1, wherein the information comprises information of the user, whereby personalizing the automation process.

7. The chat-bot program product of claim 1, wherein the chat-bot program product is configured to utilize credentials of the user, whereby the chat-bot is privy to user-specific information.

8. The chat-bot program product of claim 1, wherein implementation of the automation process is performed by automatically identifying the widget in the GUI and by automatically identifying the text input field in the GUI.

9. A method comprising:

[a] receiving a user instruction from a user using a natural language interface of a chat-bot;

[b] determining to implement an automation process on a web-based target system in response to the user instruction;

[c] collecting information to be used as part of the automation process; and

[d] implementing the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system,

[e] wherein the automation process is performed with respect to third party web-based target system and [f] without relying on an Application Programming Interface (API) exposed by the web-based target system, [g] wherein said implementing the automatic process comprises:

automatically and without user input, filling in a text input field in the GUI of the web-based target system; and

[h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.

10. The method of claim 9, wherein said implementing is performed by a client device used by the user.

11. The method of claim 10, wherein said implementing is performed by a browser that is executed by the client device.

12. The method of claim 9, wherein the chat-bot is configured to converse with the user in natural language using a vocal interface.

13. [a] The method of claim 9, wherein the automation process is configured to automatically fill information in an online form in the GUI, wherein the online form comprises the text input field, [b] wherein the widget is configured to invoke submission of the online form, [c] wherein the method further comprises requesting user validation from the user before submitting the online form.

14. The method of claim 9, wherein the information comprises information of the user, whereby personalizing the automation process.

15. The method of claim 9, wherein said implementing the automation process comprises:

automatically identifying the widget in the GUI; and

automatically identifying the text input field in the GUI.

16. A computerized apparatus comprising a processor and coupled memory, the processor being adapted to perform:

[a] receiving a user instruction from a user using a natural language interface of a chat-bot;

[b] determining to implement an automation process on a web-based target system in response to the user instruction;

[c] collecting information to be used as part of the automation process; and

[d] implementing the automation process by interacting with a Graphical User Interface (GUI) of the web-based target system and simulating user input to the GUI of the web-based target system, [e] wherein the automation process is performed with respect to third-party web-based target system and [f] without relying on an Application Programming Interface (API) exposed by the web-based target system, [g] wherein said implementing the automatic process comprises:

automatically and without user input, filling in a text input field in the GUI of the web-based target system; and

[h] automatically and without user input, interacting with a widget in the GUI to cause the web-based target system to perform a predefined functionality.

17. The computerized apparatus of claim 16, wherein the computerized apparatus is a client device used by the user, wherein said implementing is performed by a browser that is executed by the client device.

18. The computerized apparatus of claim 16, wherein the chat-bot is configured to converse with the user in natural language using a vocal interface.

19. [a] The computerized apparatus of claim 16, wherein the automation process is configured to automatically fill information in an online form in the GUI, wherein

the online form comprises the text input field, [b] wherein the widget is configured to invoke submission of the online form, [c] wherein the method further comprises requesting user validation from the user before submitting the online form.

20. The computerized apparatus of claim 16, wherein said implementing the automation process comprises: automatically identifying the widget in the GUI; and automatically identifying the text input field in the GUI.

Ivan Zatkovich

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Ivan Zatkovich has 30 years experience in computer science, computer networks, digital circuit design, and software engineering. Mr. Zatkovich is the principal consultant with eComp Consultants, a technology consulting firm specializing in intellectual property consulting for telecommunications, computer related technology, and Network Communications. Mr. Zatkovich has 15 years experience providing expert testimony for patent litigation and software contract disputes in Telecommunications and computer technology, providing expert reports, depositions, and trial testimony.



Mr. Zatkovich is an eBusiness Director and Patent Consultant specializing in Telecommunications and Internet / eCommerce technology including CTI (Computer Telephony Integration) with specific experience in VoIP, teleconferencing, Streaming Media, Call Center/ Contact Center applications, Speech recognition, and Unified Messaging technology. Companies consulted for include Verizon, Deutsche Telekom, PTT Netherlands, Bell Canada, Qwest. Ivan has been an expert for 24 cases including 12 Telecommunications software & patent litigation cases.

Director / Project Manager	13 years	Managed 6 to 35 member teams. Software development, systems Integration, critical path management, PMP/CMM methodologies.
Telecommunications Call Center, Speech recognition	11 years	Mobile & Wireless Communications, Computer Telephony Integration (CTI). Speech Recognition, Natural Language recognition. Teleconferencing, and Unified Messaging (Verizon, Bell Canada, PTT Netherlands, and Mercury Communications).
Commercial Web, eCommerce, eMarketing	8 years	Commercial B2B & B2C websites, CRM applications for Call Centers / Contact Centers, chat-bot automation, Personalization, Analytics
Expert Witness	9 years	Expert testimony and damage assessment for ecommerce litigation, internet & software copyright, telecommunications. Over 24 cases providing expert reports, depositions, & trial testimony.

Education:

B. S. Computer Science	1980	University of Pittsburgh
Minor in E.E. digital circuit design		
Master's study and thesis in Computer Networks, Results published in Byte Magazine		

Professional Experience:**2000 to
Present****Principal Consultant
eComp Consultants****Tampa, FL**

Provide consulting on design and development of software product development, and ecommerce technology. Provide technology consulting and expert support for telecommunications, internet, and ecommerce applications in the areas of:

- Patent portfolio evaluation, market valuation, identification of potential prior art, and licensing opportunities.
- Independent consulting for Alcatel-Lucent (AT&T Bell Labs) to review, recommend, and rate Alcatel's extensive Patent portfolio specifically in the area of telecommunications and web-based ecommerce.
- Patent litigation consulting for telecommunications and internet technology patents.
- Software contract and due diligence consulting for disputes involving custom software projects.
- Internet publishing and copyright consulting for web content management and licensing.
- Commercial websites, search engine, and web marketing strategies.
- Sample clients include: Alcatel-Lucent, LogicLink, NWI Corp, Jones Day, Finnegan Henderson, Fish & Richardson, Cozen O'Connors, Morrison Foerster

2007 to 2008**Global Web Manager
Smith & Nephew Inc.****Clearwater, FL**

Smith & Nephew is a global manufacturer of medical, wound, orthopedic, and surgical supplies. Smith & Nephew has facilities in 33 countries and maintains 35 websites for different product areas and country marketing.

- Designed the Smith & Nephew corporate web architecture for all intranet, extranet, and internet sites.
- Directed a staff of web professionals in developing and managing 35 individual Smith & Nephew websites maintained in the US and 14 countries for both Smith & Nephew clients and internal users.
- Managed and maintain the 650 domains currently owned by Smith & Nephew
- Optimized search engine ranking and website meta tagging.
- Developed corporate technology and IT standards and policies including:
- Created web hosting agreements and IT service contracts (SLAs)
- Defined web development standards
- Researched page ranking, redirection, and domain optimization strategies.

2002 to 2007**eBusiness Director
Eva-Tone Inc****Clearwater, FL**

Eva-Tone is a \$45M commercial multimedia company specializing in ecommerce and marketing solutions, media and content customization, order processing and fulfillment, print & web publishing, CD & DVD manufacturing.

- Set strategic direction of client service offerings in ecommerce and content management.
- Consulted with clients on: web marketing strategy using personalized sales collateral. Defined client profile information to be used to generate customized presentations and brochures.
- Aggressively controlled project scope, managed project timelines, budgets and client expectations.

- Projects proposed and delivered included:
 - McGraw-Hill – Enterprise Content Management and automated Web publishing system.
 - ProMarine USA – B2B storefront, complex part search, order processing and fulfillment.
 - Resource Rabbit – Sales collateral manager. This system retrieves user preferences and client profile information to generate customized electronic presentations and brochures.
 - AAA Travel – CRM sales collateral system, instant customized brochures, print-on-demand.

1999 to 2002
eBusiness Engagement Manager
Tanning Technology and IMRGlobal

Tanning Technology is an international systems integrator specializing in network infrastructure and channel integration for financial markets and the insurance industry. Proposed and managed eBusiness and Internet infrastructure projects focused on client and user personalization, data mining, and web marketing practices.

Client web engagements proposed and managed:

- Eckerd Pharmacy – Developed eBusiness and web marketing for personalized client web content.
- GEICO – Developed a personalized policyholder web service that uses clients' account history and demographics to customize product literature for cross-sell & up-sell opportunities.
- Hartford Insurance – Integrated 3 tier online claims processing & subrogation with legacy systems
- Citicorp Bank – Designed mortgage and loan payment system; managed sale of loan contracts
- Smith Barney – Developed remote access network infrastructure & wireless PDA financial system
- Medwerks – Created medical insurance clearinghouse, MDs centrally process insurance payments

1996 to 1999
Director of Network & Customer Support
Utility Partners, Inc.

Tampa, FL

Utility Partners developed and customized utility company software for scheduling service appointments, assigning and routing mobile workforce (field technicians), and dispatching and coordinating resources during power outages.

- Managed client engagement leads for development of client customizations and standardization of product features.
- Setup client support department to manage UP's growing client and product base. This department:
 - Provided Network and IT management for over 800 customer users
 - Created a 24x7 Helpdesk for Utility dispatch centers and IT departments
 - Developed system and network monitors for real-time client system monitoring
 - Received trouble calls & provided live client support for the following applications:
 - MobileUP – Mobile Workforce Dispatcher
 - TroubleUP – Power outage manager
 - Smartnom – Web Gas Auction System for private gas auctions
 - CAS – Customer Appointment and Call Center application

**1987 to 1996 Project Manager: Telecom Software
Verizon / GTE**

Tampa, FL

GTE was an \$8B Telecommunications company and formed the Commercial Services division to customize their telephone business software to sell to other telephone companies internationally.

- Managed large Call center implementations using speech recognition for menu selection and natural language commands.
- Developed project proposals, and provided client pre-sales support.
- Created project plans, managed resources, and set expectations for customer delivery projects.
- Specific projects managed:
 - Mercury Communication – setup Service Bureau to bill their new intelligent network services.
 - PTT Netherlands – managed \$5M inter-carrier billing project for PTT Netherlands
 - Bell Canada – developed Pricing Plan & Table Management system
 - Deutsche Telekom – designed and developed a German billing prototype system.
 - Received GTE personal best award.

**1980 to 1987 Software Engineer / Technical Lead
Digital Equipment Corp.**

Maynard, MA

As Technical Lead, led the development of manufacturing automation and control software. Projects Included:

- Supply Chain, CAD/CAM – Designed system to retrieve parts information from circuit board CAD design. Developed a parts ordering system based on expected volumes.
- Pick & place automation – Automatically program IC insertion machines. Developed system to determine IC insertion order, generate machine instructions, and download program to machine.

As Software Engineer for embedded controllers and video subsystems, designed and developed PDP-11 operating system and device drivers.

- Enhanced high-speed DecNet drivers for Synch, Asynch, and Parallel communications.
- Designed/developed disk firmware and drivers for floppy & Winchester disks.
- Developed and enhanced video controller firmware and layered graphics system for PRO-350.
- Developed Computer Telephony Integration (CTI) product for telephone answering machines.

Technical Tools & Environments:

- Unix, Windows, NT, Microsoft .NET, C#, C/C++, VB, Assembler
- Java, Java script, JSP, IBM Websphere, Microsoft Commerce engine, Blue Martini
- SQL, Oracle, Foxpro, DB2, Crystal Reports, Active-Reports, MQ Series, Tuxedo, Documentum, Interwoven

Certifications & Publications:

- Industry Speaker: Internet Publishing standards (Momentum conference)
- Department of Justice: Proposal for internet forensics technology
- IBM Websphere – Certified ecommerce Solutions Expert

- Byte Magazine – Published Network Design articles
- Sync Magazine – Published Programming Techniques and Tutorials
- IEEE SigGraph – Presented ICGS Computer Graphic Standards for IEEE SigGraph conference.
- CMM & PMP – Project management methodologies
- ISO and ANSI – On International ISO and National ANSI Committees for Disk and Media format standards

Non-litigation consulting work:

The following lists the companies for whom I was employed or for whom have consulted for non-litigation matters for at least the last 5 years.

- eComp Consultants – 2001 - present
- Alcatel – Lucent – 2008 - 2011
- Verisign - 2011
- Smith & Nephew – 2001 - 2002
- Evatone, Inc – 2002 - 2007
- McGraw Hill - 2002 - 2006
- AAA Travel – 2004 - 2005
- Pro Marine – 2005 - 2006
- Capitol One – 2007
- Network 1 Security Solutions – 2012 – 2013 – evaluation of call center technologies
- LGreen Deals – 2012 – 2015 – evaluation of technologies and startup companies for investment opportunities
- Vaud Advisors Social Media Technology Funds – 2014 – 2016 – identification and selection of technology startup companies
- 3M Futures South Africa – 2014 – 2016 – Mobile payment authentication
- Logiclink – 2015 – IP evaluation for hotel business kiosks
- Mario Constanze – 2019 – Evaluation of Blockchain and Cryptocurrency technology

Certifications & Publications:

- Industry Speaker: Internet Publishing standards (Momentum conference) – 2006
Publishing high volume content for print and web
- Department of Justice: Proposal for internet forensics technology – 1999
Methods for fingerprinting and detecting copyright material during transmission
- IBM Websphere – Certified ecommerce Solutions Expert - 2000
- Byte Magazine – Published Network Design articles. 1980
- Sync Magazine – Published Programming Techniques and Tutorials 1980-1982
- IEEE SigGraph – Presented ICGS Computer Graphic Standards for IEEE SigGraph conference. 1984
- CMM & PMP – Project management methodologies – 1996 - 1998
- ISO and ANSI – On International ISO and National ANSI Committees for Disk and Media format standards – 1981-1984

Court Testimony Experience:

The following is a list of matters in which I have testified in court in at least the past five years.

- *3M Future Africa (PTY) LTD v. The Standard Bank of South Africa LTD, MTN Group Limited and MTN Mobile Money SA (PTY) LTD*, Case #: Patent 2002/2337 (South African High Court) Testifying expert patent infringement and patent validity for the Plaintiff for Online Payments Technology. Bench trial: Testified on the stand for 2.5 days (bench trial). The judge ruled in favor of the Plaintiff on all points of contention for both Infringement and Patent Validity and cited the expert's opinion in each ruling.

- Kenneth Nkosano Makate v Vodacom, Case number: 08/20980 (SOUTH GAUTENG HIGH COURT, JOHANNESBURG, SOUTH AFRICA)
 Testifying Expert with Report and Trial Testimony opining on the viability of Makate's concept idea for the "Buzzing Option" that became the "Please Call Me" product; explain other similar concepts used by other service providers and how other business would reward for such a concept that significantly increase revenue and profit for the company. Technology in this case was Unstructured Supplementary Service Data (USSD) a protocol used by GSM cellular telephones to communicate with service provider's computers. USSD can be used for WAP browsing, prepaid callback service, mobile-money services, location-based content services, menu-based information services, and as part of configuring the phone on the network. The judge ruled that Makate should be granted an arbitration hearing to receive compensation for his invention.
- Swapalease, Inc. v. Sublease Exchange.com, Inc., 1:07 CV 00045-SSB (S.D. Ohio 2007)
 Expert for Plaintiff on infringement for the Plaintiff. Patent litigation involving online auto leasing technology. Testified at *Markman* Hearing. The judge accepted 3 out of 5 of the Plaintiff's claim constructions.
- Fintech v. iControl Systems, 8:17-cv-00190 (M.D. Florida), filed 1/24/17
 Testified on the misappropriation of financial transaction and ecommerce trade secrets for the regulated purchase and sale of alcoholic products. Judge awarded compensatory damages and double punitive damages to the plaintiff.
 January 2018 – March 2020
- Logiclink v. Keylink, CV07-1056-DOC(MLGx) (C.D. Cal.)
 Patent infringement dispute for the Plaintiff, concerning eCommerce for Kiosks for Hotel Business centers. Bench trial: The judge ruled in favor of, and awarded damages to the client.
- Black Hills Media, LLC v. Samsung, et al. INV# 337-TA-882 [ITC case], filed 5/13/2013
Samsung, LG, Panasonic, Toshiba, Sharp
 Testifying Expert on infringement and patent validity for the plaintiff, regarding media streaming, playlists, and geolocation technology. Testified at the ITC hearing. The ITC administrative judges ruled that the accused products did meet the limitation of the claims, but were not in an infringing state at the time of importation.
 July 2014-October 2016
- CertusView v. Se@N, 2:13-cv-346 (MSD) (LRL) (E.D. Virginia), filed 5/29/13
 Testifying Expert regarding geolocation. U.S. PATENT # 8,265,344, 8,290,204, 8,340,359, 8,407,001, AND 8,532,341. Testifying Expert in inequitable conduct trial concerning impact of undisclosed prior art.
 March 2014-March 2016
- LivePerson, Inc. v. 24/7 Customer, Inc., Case No. 4:17-cv-01268-JST (N.D. California), filed 3/10/17; 1:14-cv-01559-RWS (S.D. New York), filed 3/4/14
 Testified in an eCommerce and eMarketing regarding the monitoring of user online behavior, online traffic and tracking based on user behavior versus sales conversions.
 March 2018 - 2021
- Dynamics Inc. v. Samsung Electronics, Co., Ltd., ITC Inv. No. 337-TA-1170 Filed July 12, 2019
 Testified at ITC hearing regarding infringement and validity of mobile and wireless payment technology for emulation of NFC / RFID and MST (Magnetic Secure Transactions) to POS terminals.

July 2019 – 2021

- AnywhereCommerce/BBPOS v. Ingenico, Inc., et al.; Case No: 1:18-cv-05824-MLB (N.D. Georgia) 1:19-cv-11457 (D. Massachusetts), filed 12/20/18
Testifying Expert regarding eCommerce, Wireless Networks, Point-of-Sale devices and transactions
March 2021 – May 2023

Case History:

The following is a list of matters in which I have testified and/or provided expert services (the underlined party identifies which party I was retained by), including all such matters where I have provided written or oral testimony in at least the past five years.

- Progressive v. State Farm, et al. CBM2012-00003 (filed 9/16/12), CBM2013-00004 (filed 10/15/12) (PTAB)
State Farm Insurance, Hartford Insurance, Liberty Mutual Insurance, Safeco Insurance, Ohio Casualty Insurance, Open Seas Solutions, Octo Telematics
Testifying Expert regarding e-Commerce and vehicle telematics systems. Provided Patent Re-exam Declarations.
March 2013 – February 2014
- Black Hills Media, LLC v. Samsung, et al. INV# 337-TA-882 [ITC case], filed 5/13/2013
Samsung, LG, Panasonic, Toshiba, Sharp
Testifying Expert regarding Google Latitude running on smartphones and smart phones running software which can direct the streaming of content between, for example, a laptop and a TV or Blu-ray player. Providing device analysis and code review, Infringement Reports and Rebuttal Reports.
July 2014 – October 2016
- Rembrandt Social Media, LP v. Facebook, Inc. and ADDTHIS, Inc., 1:13cv158 (TSE/TRJ) (E.D. Virginia), filed 2/4/13
Testifying Expert regarding social media user content and 3rd party interaction -the diary page and "Like" feature. Provided Non-Infringement Report and deposition.
May 2013 – June 2014
- Indacon, Inc v. Facebook, Inc. 5:10-cv-966-OLG (W.D. Texas), filed 12/1/10
Testifying Expert regarding automated creation of user-defined hyperlinks in a database. Provided Non-Infringement Report and deposition.
March 2014 – August 2014
- GeoTag, Inc v. Frontier Communications Corp. et al. 2:10-cv-00265 (E.D. Texas) [Multiple cases], filed 7/23/10
Macy's, Genesco, AGCO Corp., The Rockport Company, LLC, Hennes & Mauritz LP (H&M), Gander Mountain Company, Godiva Chocolatier, DSW, National Interlock Systems
Testifying Expert regarding e-Commerce, Geo location, store locator-based technology. Provided Non-Infringement Reports for multiple defendants.
July 2013 – January 2014
- ComplementSoft v. SAS Institute, 12-cv-7372 (N.D. Illinois), filed 9/14/12
Expert regarding software development tools, database manipulation, SAS programming.
March 2013-February 2015
- Media Rights Technologies v. Capital One, et al., 1:13-cv-476-AJT/TRJ (E.D. Virginia), filed 4/19/13
Expert regarding secure internet Banking System technology USPatent# 7316033.

August 2013 – January 2014

- *CertusView v. Se~~o~~N*, 2:13-cv-346 (MSD) (LRL) (E.D. Virginia), filed 5/29/13
Testifying Expert regarding geolocation. U.S. PATENT # 8,265,344, 8,290,204, 8,340,359, 8,407,001, AND 8,532,341.
MA 2014-DECEMBER 2014

- *Bright Edge v. SearchMetrics*, 4:14-cv-01009 (N.D. California, San Francisco), filed 3/4/14
Testifying Expert regarding search optimization, USPatent# 8478700, USPatent# 8478746.
July 2014 – November 2014

- *Black Hills Media, LLC v. Sonos*, 2:14-CV-00486 SJO (PJWx) (W.D. California), filed 1/21/14
Testifying Expert regarding delivery of stored and streaming audio content over wide-area and local area networks. U.S. PATENT # 6,757,517, 7,236,739, 7,742,740 and 6,826,283
July 2014 – October 2016

- *Yamaha Corp of America v. Black Hills Media, LLC*, 2013-00593, IPR2013-00594, (PTAB), filed 9/18/13
Testifying Expert regarding software which can direct the streaming of content between devices, for example, a laptop and a TV or Blu-ray player. Providing Inter Parties Review Declaration Reports. U.S. PATENT # 8,050,652, 8,045,952
July 2014 – August 2014

- *Samsung Electronics, et al. v. Black Hills Media, LLC*, IPR2014-00737 (filed 5/8/14), IPR2015-00334 (filed 12/3/14), IPR2014-00740 (filed 5/9/14), IPR2015-00340 (filed 12/3/14), IPR2014-00735 (filed 5/7/14) (PTAB)
Testifying Expert regarding software which can direct the streaming of content between devices, for example, a laptop and a TV or Blu-ray player. Providing Inter Parties Review Declaration Reports. U.S. PATENT # 8,050,652, 8,045,952, 6,618,593
July 2014-October 2016

- *GT Nexus v. Intrta, Inc.*, 4:11-cv-02145-SBA (N.D. California), filed 5/2/11
Testifying Expert regarding networks & systems used for logistics management. Provided Declaration for CBM petitions. U.S. Patent No. 7,761,387, 7,752,142, 7,827,119, 7,756,794
January 2015 – Sept 2016

- *MyKey Technology, Inc. v. Intelligent Computer Solutions, Inc.*, 2:13-ml-02461-AG (PLAx) MDL NO. 2461 (C.D. California, Southern Division), filed 8/16/13
Testifying Expert regarding hard drives and other mass storage devices, how to access "hidden" storage and cleaning a disk. Provided Validity Rebuttal and MSJ Declaration. U.S. Patent No. 6,813,682, 7,228,379
March 2015 – June 2015

- *Biosignia Inc. v. Life Line Systems*, 1:12-cv-01129-UA-JEP (M.D. North Carolina), filed 10/22/12
Testifying Expert regarding Contract Dispute concerning Health Risk Assessment System.
July 2015 – January 2016

- *Versata Software, Inc. et al. v. Callidus Software Inc.*, C.A. No. 1:10-cv-00781-SLR (D. Delaware), filed 9/14/10

- *Versata Software, Inc. et al. v. Callidus Software Inc.*, C.A. No. 1:12-cv-00931-SLR (D. Delaware), filed 7/19/12

Testifying Expert regarding expertise in sales force automation, workflow analysis, process automation, event management and detection, rules-based systems. Provided analysis for infringement report.
August 2014 – November 2014

- BuySafe v. Google, 3:13-cv-00781-HEH (E.D. Virginia), filed 11/25/13

Testifying Expert regarding patent litigation concerning eCommerce specifically to determining the efficacy (effectiveness, strength, success, etc.) of offers that are related to online transactions. The efficacy is determined based on a user's actions in the online environment.

May 2014 – September 2014

- Phoenix v. General Motors, 2:13-cv-1093 (E.D. Texas), filed 12/11/13

Testifying Expert regarding patent litigation concerning US Patent 5,987,434 - Apparatus and method for transacting marketing and sales of financial products, US Patent 7,890,366 - Personalized communication documents, system and method for preparing same, US Patent 8,352,317 - System for facilitating production of variable offer communications.

May 2015 – August 2015

- Macropoint v. FourKites, 1:15-cv-01002 (N.D. Ohio), filed 5/19/15

Testifying Expert regarding patent litigation concerning U.S. Pat. Nos. 8,604,943, 9,070,295, 9,082,097, 9,082,098, and 9,087,313. At a very high level, the patents are directed to methods and systems for monitoring and tracking the location of a vehicle or freight in transit. Evaluated the claims of the asserted patents to opine on whether the claims are: 1) directed to an abstract idea, and 2) in the event the court would find the claims directed to an abstract idea, how the limitations of the claims transform that abstract idea into patentable subject matter based on the Supreme Court Alice decision being barely a year old.

August 2015 – September 2015

- Macropoint, LLC v. Ruiz Food Products, Inc., 6:16-cv-1133-RSW-KNM (E.D. Texas, Tyler Division), filed 8/30/16

Testifying Expert regarding patent litigation.

October 2017 – May 2018

- Longitude v. Apple, 3:14-cv-04275 (N.D. California, San Francisco), filed 9/23/14

Testifying Expert regarding patent litigation concerning Flash Memory Technology. Provided claim construction support.

April 2015 – February 2016

- Global Tel Link Corp. v. Securus Technologies, Inc., CBM2015-00145 (PTAB), 5/19/15

Testifying Expert regarding a CBM concerning the 7,860,222-patent titled “Systems and Methods for Acquiring, Accessing, and Analyzing Investigative Information,” generally directed to acquiring, accessing, and analyzing investigative information or phone call monitoring using speech recognition/transcription of inmates within a jail.

October 2015 - December 2015

- Global Tel Link Corp. v. Securus Technologies, Inc., IPR2015-01222 (PTAB), filed 5/19/15

Testifying Expert regarding an IPR concerning the patent 8,750,486 titled “Call Center for offering goods and services to an inmate population,” generally directed to acquiring, accessing, and analyzing investigative information or phone call monitoring using speech recognition/transcription of inmates within a jail.

January 2016 – May 2016

- Global Tel Link Corp. v. Securus Technologies, Inc., IPR2015-01225 (PTAB), filed 5/19/15

Testifying Expert regarding an IPR concerning the patent 8,886,663 titled “Multi-party Conversational analyzer and logger,” generally directed to acquiring, accessing, and analyzing investigative information or phone call monitoring using speech recognition/transcription of inmates within a jail.

January 2016 – June 2016

- *CaptionCall v Ultratec, Inc.*, IPR2015-01355 (5,974,116) (filed 6/8/15), IPR2015-01357 (6,934,366) (filed 6/8/15), IPR2015-01358 (xpe7,006,604) (filed 6/8/15), IPR2015-01359 (6,493,426) (filed 6/8/15), IPR2015-00636 (8,917,822) (filed 1/29/15), IPR2015-00637 (8,908,838) (filed 1/29/15) (PTAB)
Testifying Expert regarding IPRs concerning call routing/switching that happens when a deaf or hearing-impaired individual makes a phone call.

October 2015 -March 2017

- *Centrak, Inc. v Sonitor Technologies, Inc.*, 1:14-cv-183-RGA (D. Delaware), filed 2/12/14

Testifying Expert regarding patent litigation concerning an application on a smart phone which allows a person to walk into a hospital, have infrastructure pick up patient information and send it to say, an MRI office, so office is ready for the patient when patient arrives. Expertise in low energy blue tooth and way finding and Ultrasonic Tags communicate with Stations. Provided infringement report and invalidity rebuttal.

February 2016 – May 2018

- *Intellectual Ventures II LLC v. T-Mobile USA, Inc., et al.*, C.A. No. 1:13-cv-1633-LPS (D. Delaware), filed 10/1/13;

Intellectual Ventures II LLC v. Nextel Operations, et al., (on behalf of Sprint) C.A. No. 1:13-cv-1635-LPS (D. Delaware), filed 10/1/13;

Testifying Expert regarding non-infringement of US Patent No. 6,115,737 and the 5,339,352 concerning accessing customer contact services over a network and a Directory assistance call completion via mobile systems.

March 2016 – October 2016

- *Askeladden LLC v. N5 Technologies LLC* IPR2017-00083 – 7,197,297 (PTAB), filed 10/14/16;

Testifying Expert regarding IPR of US Patent No. 7,197,297 concerning mobile messaging and authentication of mobile device users.

September 2016 – January 2018

- *Askeladden LLC v. Verify Smart Corp.* IPR2017-00726 – 8,285,648 (PTAB), filed 1/18/17;

Testifying Expert regarding IPR of US Patent No. 8,285,648 concerning electronic transactions and authentication of customers using mobile devices.

November 2016 – February 2018

- *Askeladden LLC v. Digital Verification* IPR2018-00745 – 9,054,860 (PTAB), filed 3/6/18;

Testifying Expert regarding patent litigation.

December 2017 – March 2018

- *Infinity Computer Products, Inc. v. Toshiba America Business Solutions, Inc.*, 2:12-cv-06796-NIQA (E.D. Pennsylvania), filed 12/5/12

Testifying Expert.

November 2017 – May 2018

- *IXI Mobile (R&D) LTD. and IXI IP, LLC v. Blackberry Limited, et al.*, 2:15-cv-01883-JRG-RSP (E.D. Texas, Marshall Division), filed 11/25/15

Testifying Expert.

July 2016 – October 2016

- *Financial Information Technology v. Mark Lopez*, 8:15-cv-02784-T-30AEP (M.D. Florida), filed 12/3/15
Payment processing system, Trade Secrets, Breach of Contract

November 2016 – May 2017

- Fintech v. iControl Systems, 8:17-cv-00190 (M.D. Florida), filed 1/24/17
Testifying Expert.
January 2018 – March 2020

- Alexsam, Inc. v. Green Dot Corporation, Next Estate Communications, Inc., and Does 1 through 10, inclusive, Case No 2:15-cv-05742 CAS(PLAx) (C.D. California, Western Division), filed 7/29/15
Testifying Expert.
January 2017 – July 2017

- Wex Health, Inc. v. Alexsam, Inc., Case No 2:17-cv-00733-RWS-RSP (E.D. Texas, Marshall Division), filed 11/8/17
Testifying Expert.
May 2018 – January 2019

- Bank of the West v. Trisport.com L.L.C., and Seton Claggett and Deborah Claggett, Case No C2013-1286 (Superior Court of Arizona), filed 2013
eCommerce, eMarketing, Internet Sales, Fulfillment and traffic statistics
November 2016 – May 2017

- Noble Systems Corp. v. Kabbage, Inc., JAMS Arbitration No: 14400004993 (Atlanta, Georgia), filed 2016
High Volume Call Center Requirements, Call Center Industry practices
November 2016 – February 2017

- ComplementSoft LLC v. SAS Institute Inc., 1:12-cv-07372 (N.D. Illinois), filed 9/14/12
Testifying Expert.
April 2013 – February 2015

- Intellectual Ventures II LLC v. T-Mobile USA, Inc., et al, C.A No 1:13-cv-1635-LPS (D. Delaware), filed 10/1/13; Intellectual Ventures II LLC v. Nextel Operations, et al, C.A No 1:13-cv-1635-LPS (D. Delaware), filed 10/1/13; Intellectual Ventures II LLC v. United States Cellular Corp., C.A No 1:13-cv-1637 (D. Delaware), filed 10/1/13
Testifying Expert.
March 2016 – November 2016

- ConnectSoft, Inc. v. NEEQ Inc., Case No. 2:16-cv-00548-JRG (E.D. Texas, Marshall Division), filed 5/23/16
Testifying Expert.
January 2017

- LivePerson, Inc. v. 24/7 Customer, Inc., Case No. 4:17-cv-01268-JST (N.D. California), filed 3/10/17; 1:14-cv-01559-RWS (S.D. New York), filed 3/4/14
Testifying Expert.
March 2018 - Current

- Performance Price Holdings, LLC and its affiliates (PPH) v. Google LLC, 1:15-cv-09712-LGS (S.D. New York), filed 12/11/15 – 0:2018bcaag01189; 0:2018bcaag01191 (U.S. Court of Appeals, Federal Circuit - CBM2016-00050 for Patent No. 8,799,059, CBM2016-00049 for Patent No. 7,089,195
Testifying Expert.
October 2015 – March 2017

- Free Stream Media Corp. d/b/a Samba TV v. Alphonso, Inc., 3:17-cv-02107 (N.D. California), filed 4/19/17

Testifying Expert

February 2017 – October 2018

- *TicketNetwork, Inc. et al. v. CEATS, Inc.*, Case Nos. IPR2018-00244 (filed 11/27/17) and IPR2018-00245 (filed 11/28/17) (PTAB);

Testifying Expert regarding patent litigation

September 2018 – December 2018

- *CG Technology Development, LLC et al v. DraftKings, Inc.*, Case No. 2:16-cv-00781 (D. Nevada), filed 4/7/16;
- *CG Technology Development, LLC et al v. FanDuel, Inc.*; Case No. 2:16-cv-00801 (D. Nevada), filed 4/8/16;
- *CG Technology Development, LLC et al. v. 888 Holdings PLC*, Case No. 2:16-cv-00856 (D. Nevada), filed 4/14/16;
- *CG Technology Development, LLC et al v. Big Fish Games, Inc.*, Case No. 2:16-cv-00857 (D. Nevada), filed 4/14/16;
- *CG Technology Development, LLC et al v. Double Down Interactive, LLC*, Case No: 2:16-cv-00858 (D. Nevada), filed 4/14/16;
- *CG Technology Development, LLC et al v. Zynga, Inc.*, Case No: 2:16-cv-00859 (D. Nevada), filed 4/14/16;
- *CG Technology Development, LLC et al v. Bwin.Party Digital Entertainment, PPLC et al*, Case No: 2:16-cv-00871 (D. Nevada), filed 4/15/16;

Testifying expert on network gaming, gaming interfaces, and wagering strategies. Performed code reviews and infringement contentions for all defendants.

June 2017 - Current

- *Great West Casualty Company, Bitco General Insurance Corporation and Bitco National Insurance Company v. Intellectual Ventures II, LLC.*, Case NO. IPR2015-01706, U.S. Patent 7,516,177 (PTAB), filed 8/12/15
April 2019 – June 2019

- *Uniloc v Autodesk*, 2:15-cv-01187 (E.D. Texas), filed 6/30/15
Consulting Expert regarding non infringement of US Patent No 7783,523 & 8,515,820 concerning systems that facilitated the pricing of construction projects.
February 2017 – July 2017

- *Bellsouth v American Infoage, Sago Data Center*, Case No: 14-A-07233-1 (Superior Court of Gwinnett County Georgia), file 2014
Consulting Expert regarding contract dispute where Bellsouth claims they are entitled to easement / free space and power in Sago Data Center. Providing consulting expertise on telecommunication acts, and LEC / CLEC regulation and Data Center practices.
August 2015 – September 2015

- *Karamelion, LLC. v. AT&T Digital Life, Inc.*, Case No. 2:18-cv-331-JRG (E.D. Texas), filed 8/1/18
Closed 9/5/2019
- *Rpost Holdings, Inc et al v. DocuSign, Inc.*, Case No: 2:12-cv-00683-JRG (E.D. Texas), filed 10/25/12
January 2019
- *Paid Easy Corp. d/b/a Paideasy v. Mastercard International Incorporated d/b/a Mastercard*, Index No: 63152/2017 (Supreme Court of New York County of Westchester); filed 2017
Mobile Payments, Point of Sale Integration, Trade Secrets
March 2019

- *International Business Machines Corporation (IBM) v. Expedia, Inc.*, Case No: 1:17-cv-01875-LPS CJB (D. Delaware), filed 12/29/17
Pre-internet partitioned apps w/ Advertising, HTTP state and cookies, single sign-on
May 2019 – July 2019
- *irth Solutions, LLC v. Apex Data Solutions and Service, LLC et al*, Case No: 6:18-cv-06884 (W.D. New York), filed 12/6/18
Utility Location systems, Locator and Dig tickets, Trade Secrets
May 2019 -June 2021
- *CG Technology v. William Hill U.S. Holdco, Inc. and Brandy Wine Bookmaking LLC*, Case No: 1:18-cv-00533 (D. Delaware), filed 4/10/18
Location Determination, Gaming, User Verification/ Age detection
April 2019 – September 2020
- *Microchip Technology Inc. v. Delphi Automotive Systems, LLC*, Case No: 1:17-cv-01194-LPS-CJB (D. Delaware), filed 8/24/17
Peripheral and Devices interfaces, Multi-drop/Multi-host USB and Communications Protocols
February 2018 – current
- *Uniloc USA, Inc. et al. v. Motorola Mobility, LLC*, Case No: 1:17-cv-1658 (D. Delaware), filed 11/15/17
CTI, Configurable Telephony appliances, Device interface protocols
October 2018- January 2019
- *Ubiquitous Connectivity LP v. TXU Energy Retail Company, LLC*, Case No: 3:18-cv-02084 (N.D. Texas), filed 8/10/18
Distributed Appliance monitoring and control, Multi-hop mesh networks
October 2018 – January 2019
- *Digital Media Technologies, Inc. v. Amazon.com, Inc.*, Case No: 0:2017cvpri02409; *Digital Media Technologies, Inc. v. Hulu, LLC*, Case No: 0:2017cvpri02410; *Digital Media Technologies, Inc. v. Netflix, Inc.*, Case No: 0:2017cvpri02408 (U.S. Court of Appeals, Federal Circuit), filed 8/9/17
Media Distribution, Digital Rights Management, Media License Encryption
March 2018 – November 2018
- *Implicit, LLC v. Sandvine Corporation*, Case No: 2:18-cv-00054 (E.D. Texas), filed 3/8/18; *Implicit, LLC v. NETScout Systems, Inc.*, Case No: 2:18-cv-00053 (E.D. Texas), filed 3/8/18
October 2018
- *Alexsam, Inc. v. Mastercard International Inc.* Case No: 1:15-cv-02799(E.D. New York), filed 5/14/15
Point-of Sale, Multifunction Card Activation, Transaction processing
January 2017- Current
- *Alexsam, Inc. v. Cigna Corporation et al*, Case No: 2:20-cv-00081 (E.D. Texas), filed 4/30/20
eCommerce, Banking Networks, Point-of-Sale devices and transactions
February 2021- Current
- *Alexsam, Inc. v. UMB Financial Corp.* Case No: 2:20-cv-00082 (E.D. Texas), filed 3/18/20
eCommerce, Banking Networks, Point-of-Sale devices and transactions
April 2021- Current

- Alexsam, Inc. v. Simon Property Group L.P., Blackhawk Network, Inc., American Express Travel Related Services Company, Inc., U.S. Bank, N.A.; Case No: 2:2019-cv-00331 (Texas Eastern District Court); filed 10/11/2019
Testifying expert for payments systems, multifunction credit cards, and point of sale systems
- Alexsam, Inc. v. WageWorks, Inc.; Case No: 3:2019-cv-04538 (California Northern District Court); filed 8/2/2019
Testifying expert for payments systems, multifunction credit cards, and point of sale systems
October 2019 – December 2020
- Alexsam, Inc. v. Aetna Inc.; Case No: 3:2019-cv-01025 (Connecticut District Court); filed 6/18/2019
Testifying expert for payments systems, multifunction credit cards, and point of sale systems
April 2019
- SiteLock LLC v. Comodo Holdings Limited et al., Case No: 2:17-cv-04080 (D. Arizona), filed 11/3/17
Website Security, Online Trust System, 3rd Party Validation/Transaction Authentication
July 2018- Sept 2018
- Tamabo, Inc. v. Koninklijke Philips N.V., Case No: 2:17-cv-00750 (E.D. Texas), filed 11/21/17
June 2018 – September 2018
- Energy Intelligence Group, Inc. et al v. Mizuho Bank, Ltd, Case No: 1:17-cv-01508 (S.D. New York), filed 2/28/17
ePublishing, Copyright, Digital Rights Management
July 2018- August 2018
- Keynetik, Inc v. Samsung Electronics Co., Ltd and Samsung Electronics America, Inc., Case No: 2:17-cv-02794 (D. New Jersey), filed 4/24/17
Fleet Management, Geolocation, Accounting
September 2017 – June 2018
- Edible International, LLC et al v. Google, LLC, Case No: 3:18-cv-00216 (D. Connecticut), filed 2/5/18
Search Engine Optimization, eMarketing, Geo & Location based Search
May 2018
- Re/Max, LLC v. Quicken Loans, Inc., Case No: 1:16-cv-02357 (D. Colorado), filed 9/19/16
eCommerce Contract disputes, eMarketing, Financial Products, Commercial Websites
May 2018
- Fantasy Interactive Inc. v. HTC Corporation, Case No: 2:16-cv-01720 (W.D. Washington), filed 11/4/16
Industry standards for Website development and software project management
January 2018 – April 2018
- Noble Systems Corp., v. AGR Group, LLC, Case No: 8:16-cv-03406 (M.D. Florida), filed 12/14/16
Call Center Operations, Software Licensing
December 2016 – May 2017
- Payys International, Inc v. Atos Se, et al cases, Case No: 1:14-cv-10105 (S.D. New York), filed 12/23/14
Credit Card Business Process, Copyright, Code review
July 2016 – April 2017

- *IBM v. Amazon.com*, Case No: 9:06-CV-242 (E.D. Texas), filed 10/26/06
May 2019 – Current
- *Dynamics Inc. v. Samsung Electronics, Co., Ltd.*, ITC Inv. No. 337-TA-1170 Filed July 12, 2019
Testifying expert for mobile and wireless payment technology for emulation of NFC / RFID and MST (Magnetic Secure Transactions) to POS terminals.
July 2019 – 2021
- *Dynamics Inc. v. Samsung Electronics, Co., Ltd.*, Case No. 1:19-cv-06479 (S.D. New York), filed 7/12/19
Testifying expert for mobile and wireless payment technology for emulation of NFC / RFID and MST (Magnetic Secure Transactions) to POS terminals. July 2019 – 2021
April 2019 - current
- *AnywhereCommerce v. Square* IPR2019-01625, IPR2019-01627, IPR2019-01629, IPR2019-01649, IPR2019-01650, IPR2019-01651, IPR2019-01652, IPR2019-01653, IPR2019-01654 (PTAB), filed 9/30/19
Mobile/Wireless Point of Sale Data Communications. Financial and Card transactions
July 2019 - current
- *Merck & Co., Inc et al v. Merck KGAA*; Case No. 2:16-cv-00266 (D. New Jersey), filed 1/15/16
Use of Tradenames within a Domain/Area, Web Analytics, Geofencing, Geo-Blocking, Search Engine behavior
June 2019 – August 2019
- *Arendi S.A.R.L. v. Google LLC*, 1:13-cv-919-LPS; *Arendi S.A.R.L. v. Oath Holdings Inc. et al.*, 1:13-cv-920-LPS; *Arendi S.A.R.L. v. Microsoft Mobile Inc.*, 1:12-cv-1599-LPS; *Arendi S.A.R.L. v. Apple Inc.*, 1:12-cv-1596-LPS; *Arendi S.A.R.L. v. LG Electronics Inc., et al.*, 1:12-cv-1595-LPS; *Arendi S.A.R.L. v. Sony Mobile Communications (USA) Inc., et al.*, 1:12-cv-1602-LPS; *Arendi S.A.R.L. v. Blackberry Ltd., et al.*, 1:12-cv-1597-LPS, all pending in the United States District Court for the District of Delaware; and *Arendi S.A.R.L. v. HTC Corp. et al.*, 2:18-cv-1725-BJR, pending in the United States District Court for the Western District of Washington.
User-device interfaces, smart lookup, auto completion technology
August 2019 – February 2020
- *Digital Retail Apps. Inc., v. HEB Grocery Company, LP*; Case No: 6:19-cv-00167 (W.D. Texas), filed 2/20/19
Wireless POS and payment devices, secure payment authorization, dynamic token generation
August 2019 – Current
- *NICE Ltd. et al v. CallMiner Inc.*; Case No: 1:2018cv02024 (Delaware District Court), filed 12/19/2018
Call Center, Call and Event recording, Speech and Data analysis
July 2020 – August 2021
- *Oanda Corporation v. Gain Capital Holdings, Inc. et al*; Case No: 3:20-cv-05784 (D. New Jersey), filed 5/11/20
Financial & Trading Systems, Currency Exchange, Financial transaction
July 2020 – Current

- Oanda Corporation v. StoneX Group, Inc.; Case No: 1:20-cv-07785 (N.D. Illinois), filed 12/30/20
eCommerce, Financial Transactions, eTrading
March 2021 – Current
- AnywhereCommerce/BBPOS v. Ingenico, Inc., et al.; Case No: 1:18-cv-05824-MLB (N.D. Georgia) 1:19-cv-11457 (D. Massachusetts), filed 12/20/18
eCommerce, Wireless Networks, Point-of-Sale devices and transactions
March 2021 – Current
- Flightdocs II, LLC v. Traxxall Services, Inc., and Dawn King; Case No: 19-ca-006797 (Lee County Florida), filed 10/14/19 – Trade Secrets
ERP Systems, Facility Management and Equipment Maintenance
April 2021 – Current
- Alorica, Inc v. Fortinet, Inc.; Case No: 19CV344971 (Superior Court of California, County of Santa Clara), filed 10/21/2020
Call Center Network Communications, VoIP, Routing, Breach of Contract, SD-WAN
December 2020 – Current
- Drips Holdings, LLC v. Teledrip LLC, et al.; Case No: 5:2019-cv-02789 (Ohio Northern District Court) filed 1/26/2019
Conversational Market technology, Natural language recognition, eMarketing
September 2021 - Current
- Island Intellectual Property LLC v. TD Ameritrade, Inc. et al., Case No, 2:21-cv-273 (E.D. Tex.) filed July 20, 2021
Banking and Financial transactions, Aggregate deposit, Sweep Accounts
October 2021 - Current
- Digital Retail App Inc. v. Sam's Club West, Inc. d/b/a Sam's Club; Case No. 2:21-CV-00184-JRG-RSP (E.D. Tex.), filed 5/26/2021
Wireless POS and payment devices, secure payment authorization, in-store self-payment
August 2021 – March 2022
- ClearDoc, Inc. v. RiversideFM, Inc., Case No. 1:2021-cv-01422 (Delaware District Court) filed 10/6/2021
Mobile communication, Media recording and transmission protocols
September 2021 – Current
- B.E. Technology, LLC v. Google, LLC; Case No: 1:2020-cv-00622 (Delaware District Court); B.E. Technology, LLC v. Twitter, Inc.; Case No: 1:2020-cv-00621 (Delaware District Court) Patent Nos: 8,549,410, 8,549,411 and 8,769,440
Targeting Advertising from Content tagging/Keywords (Device id, location, content, and keyword history)
May 2020 – Current
- Semafone Limited and Semafone, Inc., v. PCI PAL (U.S.) Inc., Case No: 3:2021-cv-00486 Western District Court of N. C.); filed 9/15/2021

Call signal processing, CTI/Computer telephony integration, Call center payment transactions
November 2021 - Current

- Applications In Internet Time, LLC v. Salesforce.com; Case No. 3:13-cv-00628-RCJ-VPC (Nevada District Court); filed 11/8/2013
Multi-tenancy call centers, Client/Server/Browser based app design, Dynamic generation of app and UI, Automated change management
October 2021 – September 2023
- Droplets, Inc. v. Yahoo! Inc.; Case No: 12-cv-04047-JST; Droplets, Inc. v. Nordstrom, Inc. Case No: 12-cv-04049-JST (N.D. Court of California); filed 8/1/2012
Web Marketing, Analytics, eCommerce systems, GUI & Web Metrics
Case resulted in 15 million dollar settlement for Droplets client
November 2020 – April 2023
- General Video v. Vivo Technologies Sdn Bhd; Case No: WA-22IP-80-12/2020 (High Court of Malaya at Kuala Lumpur)
Compressed video transmission & synchronization, MPEG, ISO 13818
November 2021 – Current
- Epic Tech, LLC v. Fusion Skill, Inc., et al; Case No: 4:2019-cv-02400 (Texas Southern District Court); filed 7/3/2019
Online Gaming, Sweepstakes, Game payout, Patent & Trade Secrets
June 2020 - Current
- Epic Tech, LLC v. Penn-Tech Associates, Inc.; Case No: 1:2020-cv-02428 (Georgia Northern District Court); filed 6/5/2020
Online Gaming, Sweepstakes, Game payout, Patent & Trade Secrets
September 2020 – Current
- Askeladden LLC v. Mobile Equity Corp.; Patent No. 10,535,058 and 8,589,236 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
November 2021 – Current
- Askeladden LLC v. Electronic Receipts Delivery Systems, LLC; Patent No. 10,535,058 and 8,589,236 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
February 2020 – Current
- Askeladden LLC v. Authwallet LLC; Patent No. 8,280,776 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
August 2020 – Current
- Askeladden LLC v. eCredit Solutions LLC; Patent No. 8,788,353 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
November 2020 – Current
- Askeladden LLC v. Xylon Licensing LLC; Patent No. 8,719,165 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
January 2021 – Current

- Askeladden LLC v. AML IP LLC; Patent No. 6,876,979 (PTAB)
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
September 2021 – Current
- Askeladden LLC v. Kioba Processing LLC; Patent No. 7,110,792 B2
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
July 2022 - Current
- Askeladden LLC v. Liberty Peak Ventures LLC; Patent No. 7,837,100 B2 and 8,905,301 B2
Testifying Expert on Payment transactions, Point of Sale, and Authentication systems
November 2022 – Current
- CoolTVNetwork.com, Inc. v. Facebook, Inc.; Case No: 19-292-LPS-JLH; CoolTVNetwork.com, Inc. v. International Business Machines Corp.; Case No: 19-293-LPS-JLH; CoolTVNetwork.com, Inc. v. Limelight Networks, Inc.; Case No: 19-292-LPS-JLH; CoolTVNetwork.com, Inc. v. Microsoft Corp.; Case No: 19-296-LPS-JLH; CoolTVNetwork.com, Inc. v. Ooyala Inc.; Case No: 19-297-LPS-JLH; CoolTVNetwork.com Inc. v. SNAP Inc.; Case No: 19-534-LPS-JLH; CoolTVNetwork.com Inc. v. Trapelo Corp.; Case No: 19-535-LPS-JLH (District of Delaware); filed 2/11/2019
Media Hotspot/hyperlink actions, User interface for eCommerce activities (shop, bid, interact)
October 2020
- Business Solutions, LLC v. Banir Ganatra et al.; Case No: 8:2018-cv-01426 (California Central District Court); filed 8/10/2018
Search Engine Optimization, Market Segmentation, eMarketing economics and ROI, Trade Secrets
October 2019 – March 2022
- Energy Intelligence Group, Inc. et al v. Lazard Freres & Co. LLC; Case No: 4:2018-cv-02241 (Texas Southern District Court); filed 6/28/2018
Testifying expert for copyright infringement for online subscription and distribution licenses
June 2019 -October 2019
- MQ Gaming, LLC et al. v. LEGO Systems, Inc. et al.; Case No: 1:2019-cv-00905 (Delaware District Court); filed 5/14/2019
Video game controllers, Joystick design and mfg., User Interface
November 2020 -March 2021
- Kenneth Nkosana Makate v. Vodacom (PTY) LTD; Case No:08/20980 (South Gauteng High Court, Johannesburg)
Testifying expert regarding the technology valuation of call back notification messaging
May 2013 – March 2019
- Island Intellectual Property LLC, Lids Capital LLC, Double Roock Corporation and Intrasweep LLC, v. Deutsche Bank Trust Company Americas, and Total Bank Solutions, LLC; Case No: 09Civ. 2675(VM)(ALP) (Southern District Court of New York); filed 3/24/2009
Provide expertise in bank transactions for Sweep Accounts, including features for interest bearing, FDIC insured, Omnibus accounts. Provided expert infringement & invalidity report and Deposition
September 2009 – February 2012
- Parus Holdings, Inc. v. Capital One Bank (USA) N.A., Case No. 2:21-cv-0395-JRG (E.D. Texas); filed 10/22/2021
Telecom speech recognition, Natural language speech recognition, IVR voice commands

February 2022 – Current

- *Parus Holdings, Inc. v. Bank of America Corp.*, Case No:2:21-cv-00394 (E.D. Texas); filed 10/22/2021
Telecom speech recognition, Natural language speech recognition, IVR voice commands
July 2022 – February 2023
- *Stylitics, Inc. v. FindMine, Inc.*; Case No: 1:2022-cv-02983 (S.D. of New York); filed 4/11/2022
Online Retail Systems, Purchase recommendations, Shopping Experience
August 2022 – current
- *XpertUniverse, Inc. v Cisco. Exparte Reexamination*, Control No. 90/014,427
Filed: 12/27/2019
Patent number: 7,499,903 Semantic To Non-Semantic Routing For Locating A Live Expert
Sept. 2022 - current
- *Q Technologies, Inc. v. Walmart, Inc.*; Case No: 6:2021-cv-00779 (D.C. of Texas Western); filed 7/29/2021
Retail POS systems, Payment Systems, Data/Content sharing and distribution
September 2022- Current
- *CloudofChange, LLC v. Lightspeed POS Inc.*; Case no. 6:2021-cv-01102 (W.D. Texas), filed 10/22/2021
Web-based Point of Sale, Configurable POS terminals, Subscription SAS services
April 2023 - Current
- *Blaze Mobile v. Samsung -Patent Reexam*
Patent Nos: 10,825,007; 10,699,259
Mobile Targeted Advertising, eCommerce Online Transactions, POS NFC transactions
April 2023 - Current
- *Result Marketing Group, Ltd v. Southeastern Grocers, LLC et al*; Case no: 3:2021-cv-00611 (M.D. of Florida);
filed 6/17/2021
Trade Secrets, eMarketing, Outsourcing for centralizing media opportunities
January 2023 - Current
- *Sony Group Corporation et al v. inMusic Brands, Inc.*, IPR2023-00294 (PTAB)
filed 12/1/2022
Patent No: 7,567,498 B2,
Audio Signal Encoding, Media transmission, Media Players
October 2023 – Current