

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WALMART INC. and WALMART STORES TEXAS, LLC,
Petitioner

v.

SECURITY TECHNOLOGY, LLC,
Patent Owner

Case IPR2025-00809
U.S. Patent No. 11,562,402

**DECLARATION OF BERNARD J. JANSEN, PH.D.,
IN SUPPORT OF PATENT OWNER'S PRELIMINARY RESPONSE**

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Security Tech EX2019
Walmart v. Security Tech
IPR2025-00809

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MY BACKGROUND AND QUALIFICATIONS	2
III.	LIST OF DOCUMENTS CONSIDERED	7
IV.	LEGAL UNDERSTANDING	9
	A. My Understanding of Claim Construction	9
	B. My Understanding of Obviousness	10
	C. My Understanding of a Person Having Ordinary Skill in the Art	12
V.	PERSON OF ORDINARY SKILL IN THE ART	13
VI.	THE '402 PATENT	13
	A. Overview of the '402 Patent	13
	B. Claim Construction	18
VII.	OVERVIEW OF THE GROUND REFERENCES	18
	A. Grannan	18
	B. Chung	22
	C. Yang	24
	D. Ramaiyer	26
VIII.	MR. SHERWOOD'S PROPOSED OBVIOUSNESS GROUNDS	26
	A. Mr. Sherwood does not show that Grannan teaches "wherein the determining of the first quality level is based at least in part on a unique identifier" (elements [1c], [10d], and [19c]).	27
	B. Mr. Sherwood does not show that the prior art teaches "wherein the determining of the first quality level is based at least in part on . . . clustering" (elements [1c], [10d], and [19c]).	33
	C. Mr. Sherwood does not show that the prior art teaches determining "a first quality level" based on a "first search" or "first purchase," and determining "an indication of interest in a first category" based on a "second search" or "second purchase" (elements [1b], [1d], [10c], [10e], [19b], and [19d]).	38

1.	Mr. Sherwood does not identify “a first purchase” used to determine “a first quality level” or “a second purchase” used to determine “an indication of interest in a first category.”.....	39
2.	Mr. Sherwood does not identify “a first search” used to determine “a first quality level” and “a second search” used to determine “an indication of interest in a first category.”.....	43
D.	Mr. Sherwood does not show that the prior art teaches the limitations of dependent claims 6 and 15.....	49
E.	Mr. Sherwood does not show that the prior art teaches the limitations of dependent claims 7 and 16.....	50
IX.	CONCLUSION.....	53

I, Bernard J. Jansen, hereby declare as follows.

I. INTRODUCTION

1. I have been retained as an expert witness on behalf of Patent Owner Security Technology, LLC (“Patent Owner”) and RavenWhite Licensing LLC (“Exclusive Licensee”) for the above-captioned *inter partes* review (“IPR”). I am being compensated for my time in connection with this IPR at my normal hourly rate. My compensation is not contingent on either my expert opinion or the outcome of this litigation. I have no other interest in this proceeding.

2. I understand that this declaration accompanies Patent Owner’s Preliminary Response filed in this IPR involving U.S. Patent No. 11,562,402 (“the ’402 patent”) (EX1001), which resulted from U.S. Patent Application No. 17/201,306 (“the ’306 application”), filed on March 15, 2021, which claims priority as a continuation application to U.S. Patent Appl. No. 13/682,634, filed November 20, 2012, and U.S. Provisional Appl. No. 61/562,235, filed November 21, 2011. I do not offer an opinion on whether the ’402 patent is entitled to claim priority to U.S. Provisional Appl. No. 61/562,235. My opinions regarding the knowledge in the art at the time of the ’402 patent are not dependent on the date to which the ’402 patent is entitled to claim priority and would not materially differ with respect to either of the November 2012 and November 2011 dates. I refer to this general timeframe when I refer to the time of the ’402 patent.

3. In preparing this declaration, I have reviewed the '402 patent and each of the documents cited herein, in light of general knowledge in the art before the time of the '402 patent. In formulating my opinions, I have relied upon my experience, education, and knowledge in the relevant art. In formulating my opinions, I have also considered the viewpoint of a person of ordinary skill in the art ("POSITA") (as discussed further below in Section V) at the time of the '402 patent.

II. MY BACKGROUND AND QUALIFICATIONS

4. My analysis is based on my experience, training, knowledge, and education, and it is formed through the application of that experience, training, knowledge, and education in the principles of search engines, Web search, keyword advertising, display advertising, online advertising, Web analytics, network communications, and related areas.

5. Since 2015, I have been a principal research scientist at the Qatar Computing Research Institute in Doha, Qatar. I was a tenure-track professor at Penn State from 2002 through 2016, departing as a tenured, full-time professor on January 1, 2017, to become a principal research scientist at the Qatar Computing Research Institute. I was a Senior Fellow at the Pew Internet & American Life Project, which is part of the Pew Research Center, from 2010 through 2012. I was a University Expert at the National Ground Intelligence Center from 2011 through

2014. Before my professorship at Penn State, I was a Lecturer in the Computer Science Program at the University of Maryland (Asian Division) for one year. Before that, I was an Assistant Professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy, also known as West Point, for three years.

6. In addition to my academic credentials, my professional experience includes twenty years of practice in the U.S. military, serving in the Infantry as an enlisted soldier and then as a communications officer, upon commissioning, working primarily in a variety of information technology-related positions planning and establishing communication networks from portable ground radios to large satellite communication radios, and evaluating the performance of these networks. I also led a large multimedia team at a major U.S. Army educational facility, responsible for designing, providing, and assessing multimedia products, including the organizational website. I employed various software programs and databases for interactive products and website design for these tasks. I used these programs and others to develop interactive websites and multimedia applications, including employing analytics for the performance evaluation of these websites and applications. During this time, the team received several product awards and honors, including one award for website development, four for multimedia applications development, and one for software development.

7. I am the editor-in-chief of the international academic journal *Information Processing and Management*, a premier journal in computing science and information science, including computational science, online analytics, and social media computing. I am a former interim editor-in-chief of the *International Journal of Information Management*, a leading information systems and information management journal, and a former editor-in-chief of *Internet Research*, a top-ranked journal in the web science and business domains that examines the Internet's social, ethical, economic, and political implications.

8. I have authored more than 400 academic publications on Web searching, search engines, keyword advertising, online advertising, branding, Web analytics, social media, social networks, and related fields. My recent research focuses on online analytics, investigating the qualitative and quantitative attributes of digital content usage and social computing analytics, which investigates social behavior using algorithmic methods. I have authored, co-authored, or co-edited six books, including Web Search: Public Searching of the Web (2007), Understanding User – Web Interactions via Web Analytics (2009), Handbook of Research on Web Log Analysis (2009), Understanding Sponsored Search (2011), Data-Driven Personas (2021), and Understanding Audiences, Customers, and Users via Analytics – An Introduction to the Employment of Web, Social, and Other Types of Digital People Data (2023). In the 2024 edition of the Best Computer Science

Scientists in the World, my research was ranked 1369th worldwide. *See* EX2016.

9. My professional expertise includes search engine optimization, Web analytics, search engines, Web searching, social media, online advertising, online reputation management techniques, and related computer science and data science areas, including programming and computer networks. In my academic career, I have worked with various search engines and information searching applications to understand user information behavior on the Web and other environments. For example, as part of my Master's program in Computer Science, I designed and coded a text-based search engine, and my thesis involved the building of a tool for network performance monitoring. For my Doctorate program in Computer Science, I developed a program interface for Web search engines and implemented it on the Gigabyte search engine. I have been invited to present research at major search engine companies, including Google and Yandex, and many search marketing agencies.

10. As a computer scientist, I have engaged in and am experienced with classic computer science areas, such as programming, software development, algorithms, and networking, along with non-traditional areas, such as data analytics, keyword advertising, and online advertising. I have taught various computer science courses at the undergraduate and graduate levels, including topics such as micro-computing, programming (in various programming

languages), and the Web/Internet. I have taught a Web technology overview course (websites, mobile, social media, Web metrics, market analysis, etc.) and a graduate-level research course for professional masters students. Previously, I taught courses in keyword and display advertising where student teams engaged with small-medium-sized enterprises (SMEs) to implement online advertising campaigns. I have supervised students with SMEs on various online advertising platforms, including Google Ads and Facebook Ads. I have experience with several online marketing platforms, including Google Ads, Facebook Ads, LinkedIn Ads, and Microsoft Advertising.

11. I have conducted research and teaching concerning search engines and websites, including search engine optimization, content creation, search engine keyword advertising, Web searching, and Web analytics. In the field of online searching, online advertising, and Web analytics, I have worked directly with real user searching data from several Web search engines. I have also analyzed Web data of traffic and other attributes from various websites and social media accounts. I have analyzed real user data of a multi-million dollar online advertising marketing campaign that spans multiple years, involving thousands of ads and key terms. I have also analyzed user referral traffic to websites and monetized this traffic via online advertising. I have developed Web analytics models and processes to analyze business goals and have used Web and online advertising

analytics data in my research and teaching.

12. I have advised government agencies and private companies in consulting and expert witness matters, including online searching, online advertising, search engines, locating relevant information, and disseminating defaming statements, among other related areas.

13. I have personal knowledge or have developed knowledge of the technologies discussed in this declaration based upon my education, training, or experience with the matters discussed herein.

14. I understand that a copy of my complete curriculum vitae has been submitted as Exhibit 2015, which includes a list of publications I have authored in the past ten years, a list of cases in which I have testified as an expert in deposition or trial in the past four years, and other details regarding my expertise and qualifications.

III. LIST OF DOCUMENTS CONSIDERED

15. I have considered the following documents listed below in addition to any other documents cited in this declaration. To the best of my knowledge, these documents are true and accurate copies of what they purport to be. An expert in the field would reasonably rely on them to formulate opinions such as those set forth in this declaration.

Paper No.	Description
1	Petition for <i>Inter Partes</i> Review of U.S. Patent No. 11,562,402

Exhibit No.	Description
1001	U.S. Patent No. 11,562,402 (“the ’402 Patent”)
1002	File History of U.S. Patent No. 11,562,402
1003	Declaration of Robert J. Sherwood
1005	U.S. Patent No. 7,809,740 (“Chung”)
1006	Yinghui Yang and Balaji Padmanabhan, “Segmenting Customer Transactions Using a Pattern-Based Clustering Approach” (“Yang”)
1007	U.S. Patent Application Publication 2007/0244750 (“Grannan”)
1009	U.S. Patent Application Publication 2012/0109956 (“Ramaiyer”)
2003	Microsoft Computer Dictionary Fifth Edition (2002) (Excerpts)
2018	“A Dictionary of Computing,” Sixth Edition, Oxford University Press (2008)
2020	“Everything you should know about web cookies!” devowl.io, available at https://devowl.io/cookies/definition-cookies/
2021	Raymond Camden, <u>Client-Side Data Storage</u> , O’Reilly Media, Inc. (2016)
2022	Definition of unique device identifier (UDID), Carnegie Mellon University, available at https://opi.cs.cmu.edu/show/unique_device_identifier
2023	Deposition Transcript of Robert J. Sherwood, June 13, 2025

Exhibit No.	Description
2024	Declaration of Dr. Craig Wills Regarding Claims 1-10 of U.S. Patent No. 10,594,823, <i>Home Depot USA, Inc. v. RavenWhite Security, Inc.</i> , IPR2024-01316, Exhibit 1002 (Sep. 16, 2024)
2011	Craig E. Wills and Mihajlo Zeljkovic, “A Personalized Approach to Web Privacy—Awareness, Attitudes and Actions” (2011)
2012	Deposition Transcript of Craig Ellis Wills, Ph.D., June 17, 2025
2013	Antón <i>et al.</i> , “How Internet Users’ Privacy Concerns Have evolved since 2002,” The IEEE Computer and Reliability Societies (2010), downloaded from IEEE Xplore
2014	Jonathan R. Mayer and John C. Mitchell, “Third-Party Web Tracking: Policy and Technology,” 2012 IEEE Symposium on Security and Privacy (2012), downloaded from IEEE Xplore
2015	<i>Curriculum vitae</i> of Bernard J. Jansen, Ph.D.
2016	“Best computer Science Scientists,” Research.com, Accessed on June 23, 2025, available at https://research.com/scientists-rankings/computer-science
2017	Microsoft Computer Dictionary Fifth Edition (2002) (With Additional Excerpts)

IV. LEGAL UNDERSTANDING

A. My Understanding of Claim Construction

16. I understand that during an *inter partes* review proceeding, claims are to be construed in light of the specification as would be read by a person of ordinary skill in the relevant art at the time of the invention. I understand that claim terms are given their plain and ordinary meaning as would be understood by a

person of ordinary skill in the relevant art in the context of the patent's specification and prosecution history. A claim term, however, will not receive its ordinary meaning if the patentee acted as his or her own lexicographer and clearly set forth a definition of the claim term in the specification. In this case, the claim term will receive the definition set forth in the patent.

B. My Understanding of Obviousness

17. I understand that a patent claim is invalid if the claimed invention would have been obvious to a person of ordinary skill in the art at the time the application was filed. I understand that this means that even if all of the requirements of the claim cannot be found in a single prior-art reference that would anticipate the claim, the claim can still be invalid.

18. To obtain a patent, a claimed invention must have been, as of its priority date, nonobvious in view of the prior art in the field. I understand that a patent claim is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

19. I understand that to prove that prior art or a combination of prior art renders a patent claim obvious, it is necessary to: (1) identify the particular references that, singly or in combination, render the patent claim obvious; (2)

specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how the prior-art references could have been combined in order to create the inventions claimed in the patent claim.

20. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine the references exists so as to avoid impermissibly applying hindsight when considering the prior art. I understand this test should not be rigidly applied, but that the test can be important to avoiding such hindsight.

21. I understand that certain objective indicia can be important evidence as to whether a patent is obvious or nonobvious. Such indicia include: (1) commercial success of products covered by the patent claims; (2) a long-felt need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art.

22. I also understand that “obviousness” is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences

between the claimed invention and the prior art, the level of ordinary skill in the pertinent art, and any objective indicia of non-obviousness. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal conclusion of obviousness or non-obviousness, and when I use the term obvious, I am referring to the perspective of one of ordinary skill at the time of the '402 patent.

C. My Understanding of a Person Having Ordinary Skill in the Art

23. I understand that a POSITA is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity.

24. I understand that the following should be considered when deciding the level of ordinary skill in the art that someone would have had at the time the claimed invention was made:

- the levels of education and experience of persons working in the field;
- the types of problems encountered in the field; and
- the sophistication of the technology.

25. My opinion below explains how a POSITA would have understood the technology described in the documents I have identified herein around the time of the '402 patent.

26. Regardless of whether I use “I” or a “POSITA” during my technical analysis below, all of my statements and opinions are always to be understood to be based on how a POSITA would have understood or read a document at the time of the '402 patent.

V. PERSON OF ORDINARY SKILL IN THE ART

27. Based on my review of the '402 patent, it is my opinion that a POSITA at the time of the '402 patent would have had a bachelor's degree in computer science, computer engineering, electrical engineering, or a similar discipline, as well as two years of academic or industry experience in computer networking and digital advertising, or comparable industry experience.

VI. THE '402 PATENT

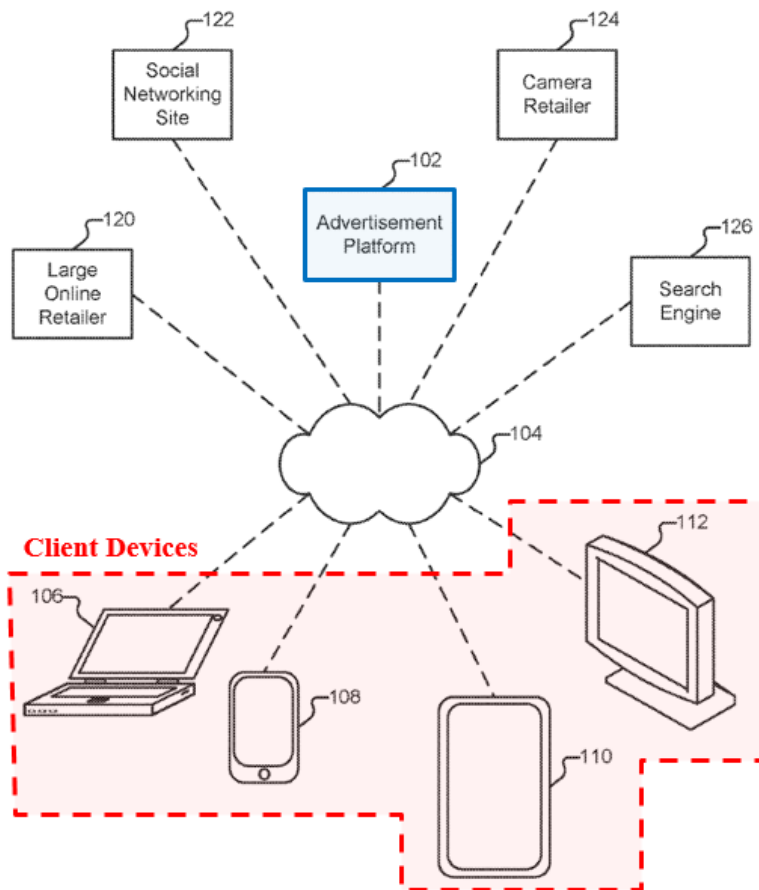
A. Overview of the '402 Patent

28. From my review of the '402 patent, the '402 patent is generally directed to “[t]iered advertisement bidding” in which “[a]n advertisement bid is selected from a plurality of tiered bids” based on “quality metrics associated with a user profile.” EX1001, Abstract. As the patent explains, “[e]xisting approaches to online advertising typically involve pricing schemes in which multiple advertisers specify an amount of money they are willing to pay per impression (or per click or

per other action), and in which an advertisement is selected for display to a user based on which advertiser is willing to pay the most money.” EX1001, 1:21-26.

But “there are inefficiencies in this approach,” as they do not properly assess “the quality of the user to whom the advertisement will be shown.” EX1001, 1:26-29, 3:2-7.

29. Figure 1 of the ’402 patent “illustrates an embodiment of an environment in which advertisements are served.” EX1001, 2:20-21, FIG. 1.



EX1001, FIG. 1 (annotated).

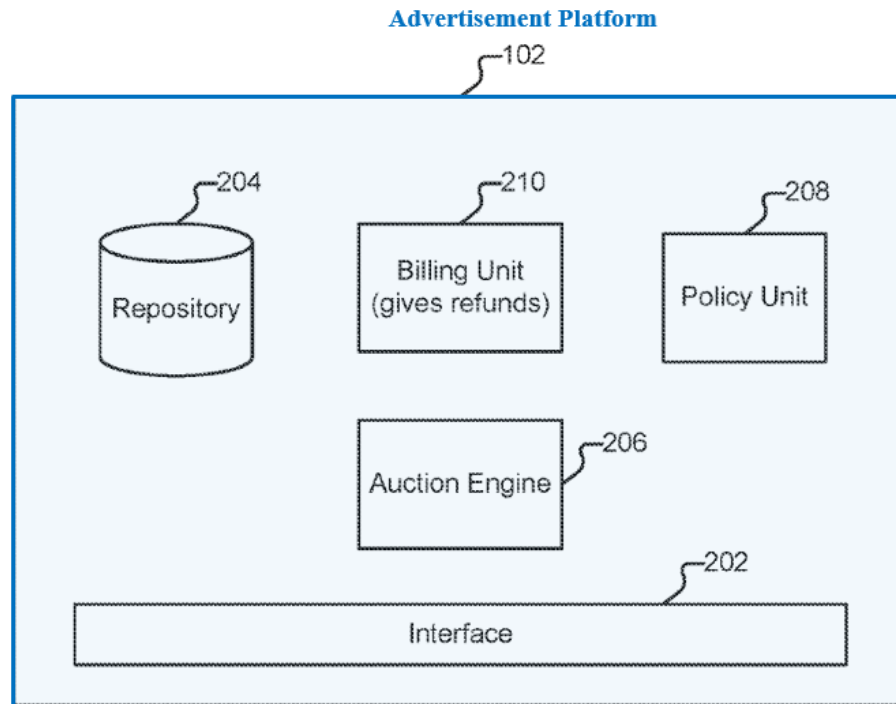
30. As illustrated above, “client devices 106-112 connect, via one or more

networks (represented as a single network cloud 104), to services 120-126 (also referred to herein as ‘sites’) provided by providers.” EX1001, 2:21-25. “Also included in FIG. 1 is advertisement platform 102, which is configured to facilitate the display of advertisements on client devices 106-112.” EX1001, 2:38-41. “For example, retailers 120 and 124 can use platform 102 to bid on the placement of advertisements on pages served by search engine site 126 or social networking site 122.” EX1001, 2:41-44.

31. The ’402 patent describes that “entities such as retailer 120 and 124 can use platform 102 to engage in tiered bidding for advertisements (e.g., based on bands of an assessed measure of the quality of the user to whom the advertisement will be shown, if selected).” EX1001, 3:2-7. “For example, an advertiser can specify that it is willing to pay \$0.40 for an advertisement to be shown to a user having a particular assessed value (e.g., a quality score of 70 or better) but is only willing to pay \$0.10 if the value is below that.” EX1001, 3:7-11.

32. As Figure 2 illustrates, “[a]n auction engine 206 runs advertisement auctions in accordance with policies supplied by policy unit 208 and assessments of user profile information (e.g., one or more user profiles associated with Alice and Bob) stored in repository 204.” EX1001, 3:26-30. “[A]dvertisement platform 102 supports a tiered billing structure in which an assessed quality (e.g., a conversion assessment of a user profile) is taken into consideration when

determining the cost of displaying an advertisement (or for receiving a click or other interaction).” EX1001, 3:56-61.



EX1001, FIG. 2 (annotated).

33. In the embodiments provided in the '402 patent, users are identified based on “unique identifiers,” such as “cookies” or a “UDID” (Unique Device Identifier). EX1001, 3:32-35, 15:63-65. In either case, the “unique identifier” is a value that “correspond[s] to a single, readily identifiable user.” EX1001, 3:30-32; EX2021, 4 (Cookies use “a ‘name=value’ format to define the name and value” of the cookie); EX2020, 2 (A cookie consists of a name-value pair; the value may be, for example, “a ‘randomly generated’ number to identify the visitor’s computer.”).

34. Quality assessments for the user may then consider a number of

factors, including “user account information,” “user context information,” and “general context information.” EX1001, 4:23-5:13. User account information may include, for example, “user-provided information (e.g., demographic information supplied directly by the user); observed behavior (e.g., observed by platform 102); and reported behavior (e.g., purchases observed by a third-party provider, such as site 120 and provided to platform 102).” EX1001, 4:26-37. User context information may include, for example, “recent searches, mouse-over and click behavior, and information of recent pages requested by the user.” EX1001, 4:38-59. General context information may include, for example, “user context information of other users, such as the activities of other users with whom the user has a connection,” and “temporal information, such as estimates of how likely the desired behavior is at the current time of the day, the day of the week, or the day of the month.” EX1001, 4:60-5:13.

35. In addition to considering the above-mentioned information, advertising platform 102 may be “configured to determine when a need has been met.” EX1001, 5:15-16. For example, “[s]uppose a user is interested in buying a camera and performs searches for terms such as ‘buy camera’ and ‘camera review’ with search engine 126,” and “at some point in the future, platform 102 receives an indication that the same user is interested in buying a lens cap for a camera or a photo album.” EX1001, 5:15-33. Advertising platform 102 may use this

information to determine “it is likely that the user purchased a camera, and thus the user’s ‘need’ for a camera was met.” EX1001, 5:33-36. A “conversion assessment” may be determined “based at least in part on the determination of whether the need has been met,” which may result in a determination that selecting a different or related “category of advertisement . . . would likely result in higher profit.” *Id.*, 5:41-50, 6:9-12.

B. Claim Construction

36. I have been informed that, absent a definition provided by the patentee, claim terms are given their plain and ordinary meaning as would have been understood by a POSITA in light of the specification and prosecution history. Therefore, I have accorded each claim term its plain and ordinary meaning, as would have been understood in the context of the ’402 patent and its prosecution history, in my analysis.

VII. OVERVIEW OF THE GROUND REFERENCES

37. I understand that Petitioner’s expert, Mr. Sherwood, relies on four references in his proposed obviousness grounds challenging the claims of the ’402 patent: Grannan (EX1007), Chung (EX1005), Yang (EX1006), and Ramaiyer (EX1005). I provide brief overviews of these references below.

A. Grannan

38. Grannan “relates generally to providing selected advertising to send to a recipient.” EX1007, ¶2. Grannan explains that “[t]argeted advertisements have

historically been sent to targeted recipients based on geographic areas so that regional advertisers reach only those advertising recipients who are deemed by the advertiser as most likely to be responsive to their advertisements.” EX1007, ¶5. Additionally, according to Grannan, “[t]argeted advertisements have also been directed to selected demographic sectors of the population so that the targeted advertisement is sent only to those members of a selected demographic sector who are deemed by advertisers to be most likely to be responsive to their advertisements.” EX1007, ¶5.

39. Grannan’s Figure 1 “depict[s] an illustrative embodiment of a system and method for selecting targeted advertising showing an Advertising Knowledge Management System (AKMS) acting as an intermediary between a subscriber with various access devices, advertisers and content and service providers.” EX1007, ¶7.

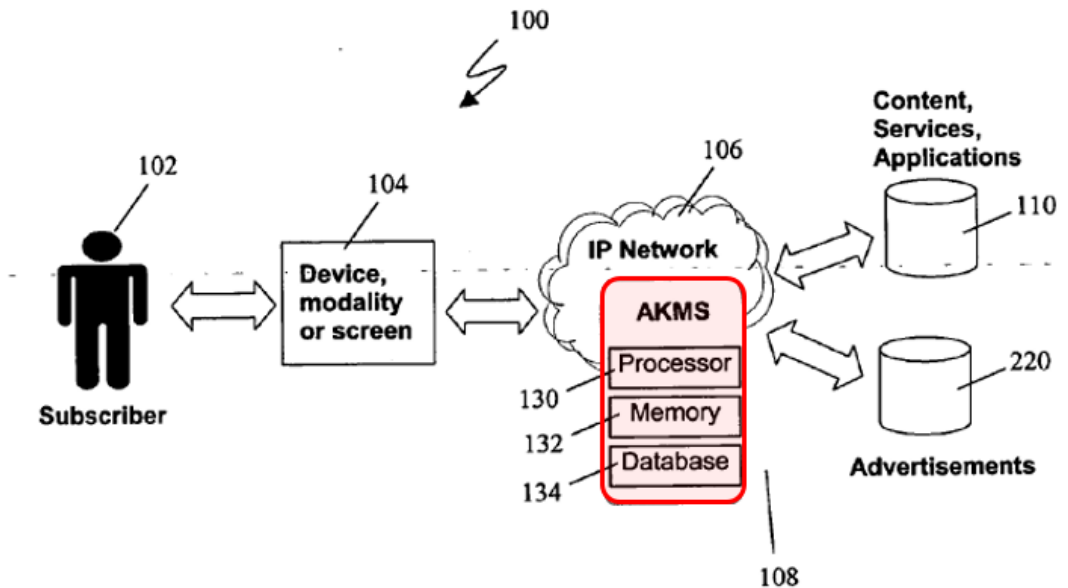


Figure 1

EX1007, FIG. 1 (annotated).

40. Grannan describes that “the AKMS 108 monitors and compiles a subscriber’s event data including but not limited to current session and the device characteristics of the access device 104 being used to access IP-based services over an IP network 106, along with previous usage history to assist service providers and advertisers in evaluating the potential appeal of their services and advertisements to the particular subscriber.” EX1007, ¶61. To “evaluat[e] the potential appeal of their services and advertisements to the particular subscriber,” Grannan’s system “calculates a product interest correlation score,” referred to as a “PIC” score by Mr. Sherwood in his declaration (EX1003, ¶60), “and recommends and/or selects an advertisement, access device and advertisement modality to be used to send a selected advertisement to a selected subscriber access device based

on the subscriber's current usage scenario." EX1007, ¶¶61-62. "For example, in an illustrative embodiment a product interest correlation score may range from 1 to 100." EX1007, ¶63.

41. Grannan also describes "product interest correlation 'contribution' score[s]" that "can be added to the subscriber's current product interest correlation score." EX1007, ¶¶83, 100. For example, when a subscriber "surfs" to a particular URL associated with "a particular car model," a "contribution" score can be added to the user's "product interest correlation score for this particular category" of products. EX1007, ¶83.

42. Grannan provides an example of its targeted advertising techniques in which an individual named "Susan is planning to purchase children's books as a Christmas present for her nephews." EX1007, ¶56. "She goes online to a retailer's web site and browses through a number of titles but decides to hold off on a purchase," and "[p]resuming Susan has exercised an opt-in preference that allows the AKMS system to monitor her URI and her Internet surfing behavior as a subscriber for this Internet session, this URI visitation information regarding the retailer's web site is mined and stored." EX1007, ¶56. Grannan's system then uses Susan's Internet surfing information to calculate "[a] product interest correlation score." EX1007, ¶56. Then, "[l]ater when Susan is walking through the local mall to finish her other shopping, she receives a targeted text advertisement on her cell

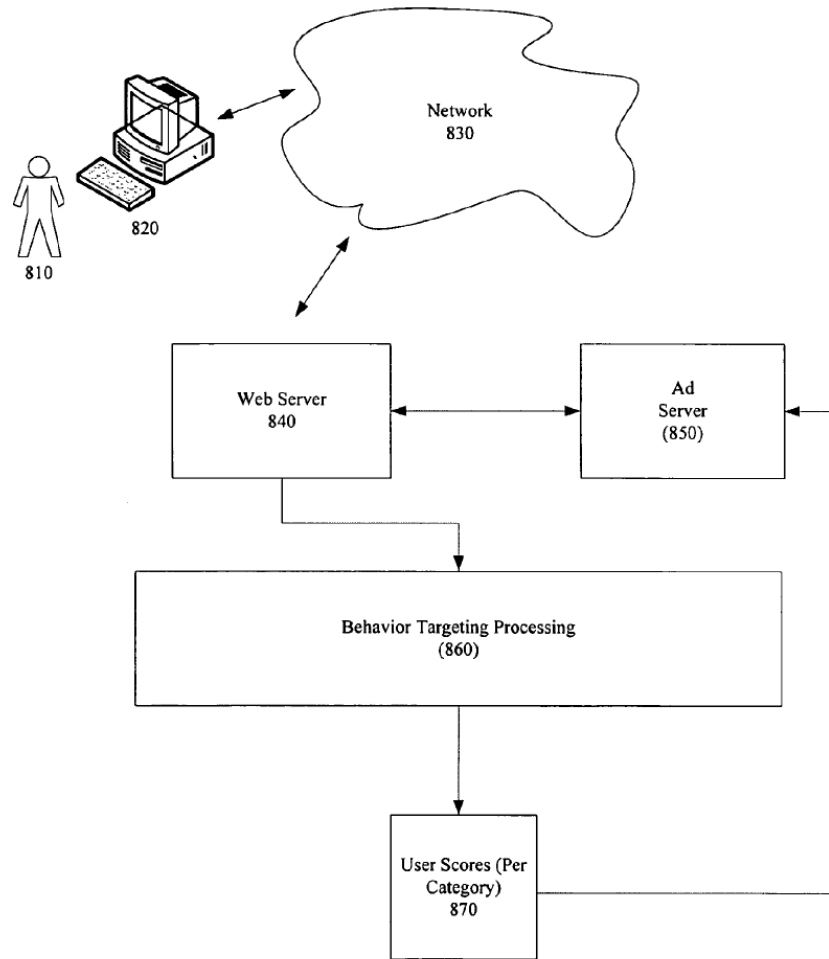
phone from the AKMS for the local book store indicating a discount sale on children's books." EX1007, ¶57. Notably, in this example, Grannan's system needs only to consider Susan's Internet surfing behavior to calculate a PIC score and provide a targeted advertisement.

43. Grannan also describes "user profile[s]" that include various "user profile data and user profile settings." EX1007, ¶73. The "[u]ser profiles may also include proactive product interest input [] provided by a subscriber." EX1007, ¶73. And "user profile settings" include settings allowing a user "to opt in to being monitored by the internet profiling module." EX1007, ¶47. These settings allow a user to control "how much of the subscriber's usage history can be monitored" by Grannan's system. EX1007, ¶47.

B. Chung

44. Chung is generally directed to "[a] behavioral targeting system [that] determines user profiles from online activity." EX1005, Abstract. "Event information, which comprises on-line activity of the user, is received at an entity." EX1005, Abstract. "The behavioral targeting system generates a user profile score for a target objective, such as brand advertising or direct response advertising." EX1005, Abstract.

45. Figure 8 of Chung illustrates "one embodiment for serving advertisements using a behavioral targeting system." EX1005, 11:9-10.



EX1005, FIG. 8.

46. In “this example embodiment, the example infrastructure includes network 830, web server 840, advertisement (ad) server 850 as well as computer 820 for user 810.” EX1005, 11:11-13. Chung states that “[t]he web server (840) receives information based on user behavior, such as events,” and “[t]he user behavioral information is input to behavioral targeting processing (860).” EX1005, 11:13-16. Chung explains that “[i]n one embodiment, events include advertisement clicks, search queries, search clicks, sponsored listing clicks, page views, and

advertisement views.” EX1005, 6:38-40. “[B]ehavioral targeting processing 860 generates raw user scores (870), on a category-by-category basis, using the user behavioral information,” and “[t]he user scores are input to the ad server (850), which in turn serves advertisements to web server 840.” EX1005, 11:16-20.

Specifically, as discussed with respect to Chung’s Figure 4, “classified events are input to dimension processing 450 and to model & rules 440,” which are used to formulate a “user interest score.” EX1005, 5:21-48. Then, the “user interest score is input to a mapping module 460,” and “mapping module maps raw user scores to one or more output metrics.” EX1005, 5:49-51. “For example, one output metrics may determine the propensity for a user to click on an advertisement classified in the category.” EX1005, 5:50-53.

47. Importantly, these “mapped scores” do not take into account additional event data; they simply provide different representations of the raw user scores. EX1005, 20:46-49 (“[R]aw scores are converted or mapped to more useful scores, referred to herein as mapped scores, for target optimization purposes.”). “As a result” of Chung’s techniques, “customize[d] ads are served to user 810 on computer 820.” EX1005, 11:21-22.

C. Yang

48. I understand that Mr. Sherwood relies on Yang (Ground 1) and Ramaiyer (Ground 2) in the alternative for disclosure of “*clustering*,” which is

recited in independent claims 1, 10, and 19. *See* EX1003, ¶¶96-101, 194-95

(“Ground II is based on the exact same grounds as Ground I above, except with respect to limitation 1[c], 10[d], and 19[c], Ground II relies on Ramaiyer for the disclosure of ‘clustering,’ instead of Yang.”). From my review of Mr. Sherwood’s declaration, Mr. Sherwood does not rely on Yang or Ramaiyer for the teaching of any other features of the independent claims.

49. Yang appears to be an IEEE conference publication titled “Segmenting Customer Transactions Using a Pattern-Based Clustering Approach.” EX1006, 1, 12. Yang explains that “[g]rouping customer transactions into categories helps understand customers better.” EX1006, 12. The Yang publication “investigate[s] using ‘pattern-based’ clustering approaches to grouping customer transactions,” which clusters “transaction data based on natural behavioral patterns.” EX1006, 12.

50. Yang’s techniques “start with real session-level Web browsing data for users” and “create 46 features describing the session.” EX1006, 13. Yang then describes taking “Web transactions from different users (without maintaining the user ID) – and examin[ing] how the method does in separating transactions that belong to the individual users as compared to traditional clustering techniques.” EX1006, 16. Yang explains that “around 70% of the clusters” produced “are more than 95% pure (a cluster is considered ‘95% pure’ if at least 95% of transactions in

the cluster belong entirely to a single user.” EX1006, 16. Although Yang does not say that its results are used for user identification, to the extent they are, Yang’s techniques require analysis of user session data *before* a user can be identified. EX1006, 16-18.

D. Ramaiyer

51. Ramaiyer is generally directed to “[a] profile prediction system [that] may identify one of multiple user profiles for a single computer.” EX1009, Abstract. “For example, a home computer may have multiple users that may not be targeted unless the user on the home computer can be identified,” and “[t]he system’s user identification may be based on a clustering model that considers various browsing characteristics.” EX1009, Abstract. To perform its identification, Ramaiyer explains that “the profile predictor 112 may monitor or track behavior on the user device 102,” such as “browsing history of a session,” “to predict the particular user of the device based on the behavior.” EX1009, ¶29. Thus, similar to Yang, Ramaiyer’s user-identification techniques require analysis of user session data *before* a user can be identified.

VIII. MR. SHERWOOD’S PROPOSED OBVIOUSNESS GROUNDS

52. I understand that Mr. Sherwood has provided a table of claims in his declaration with claim element labels. EX1003, pp. x-xiii. I refer to these claim element labels in my analysis below. For the independent claims, I focus my

analysis on the elements of independent claim 1, but my analysis applies equally to corresponding elements in independent claims 10 and 19.

A. Mr. Sherwood does not show that Grannan teaches “wherein the determining of the first quality level is based at least in part on a unique identifier” (elements [1c], [10d], and [19c]).

53. Independent claim 1 recites, “*wherein the determining of the first quality level is based at least in part on a unique identifier and clustering.*”

EX1001, 18:59-61. Mr. Sherwood does not show that the determination “*of the first quality level is based at least in part on a unique identifier.*” EX1001, 18:59-61 (emphasis added).

54. In his declaration, Mr. Sherwood explicitly maps Grannan’s “user profile” to the claimed “unique identifier” of element [1c]. EX1003, ¶92. (“Grannan teaches that the [PIC] score associated with **each subscriber’s user profile (unique identifier)** is weighted based on the contents of the user profile, i.e., the settings/characteristic that are stored in each user profile.”) (italics in original, bolding added). A POSITA would have understood that Grannan’s “user profile” is not “*unique identifier*” in the context of the ’402 patent. In my opinion, the ’402 patent claims, specification, and technical dictionary definitions all support that Grannan’s user profile, which is a collection of various data (e.g., “settings/characteristic that are stored in each user profile,” as Mr. Sherwood explains, EX1003, ¶92), would not have been understood as an “*identifier*” as

claimed.

55. First, the claims recite and expressly differentiate between a “*user profile*” and a “*unique identifier*.” In particular, claim 1 recites both “*determining a first quality level associated with **a user profile**,*” and that “*the determining of the first quality level is based at least in part on **a unique identifier** and clustering.*” EX1001, 17:54-18:29 (emphasis added). Thus, a POSITA would have understood that separate from the “*first quality level*” being associated with the “*user profile*,” it also needs to be determined “*based at least in part on a unique identifier.*” Therefore, the claim language itself indicates that the claimed “*user profile*” is different from the claimed “*unique identifier.*”

56. Mr. Sherwood makes no attempt in his declaration to address the distinction between the “*user profile*” and the “*unique identifier*” recited in claim 1. EX1003, ¶¶92-94. Instead, Mr. Sherwood merely states: “As the quality score must be weighed and scored based on the user profile (*unique identifier*), a POSITA would have understood that it is necessarily the case that the *first quality level* is based at least in part on the unique identifier.” EX1003, ¶94 (emphasis in original). Again, that statement does not provide any explanation as to why a POSITA would have considered Grannan’s user profile to be a “*unique identifier*” in the context of the ’402 patent claims.

57. Moreover, I understand that Mr. Sherwood’s statement (“it is

necessarily the case”) invokes the concept in patent law known as inherency. I disagree that Grannan’s disclosures related to the user profile demonstrate that it is inherent that the claimed first quality level is based at least in part on a unique identifier. Even if Grannan’s user profile includes one or more unique identifiers, it would include other information as well. Indeed, Mr. Sherwood expressly relies on other information in the user profile, such as a subscriber’s “location and Internet connectivity,” to show that the *“first quality level is based at least in part on the unique identifier.”* EX1003, ¶¶93-94 (“For example, the subscriber’s unique location and Internet connectivity may be used in weighting PIC scores.”). Therefore, even if Grannan determines a quality level based on the user profile, as Mr. Sherwood alleges, that does not necessarily mean that the quality level is determined using any alleged unique identifier (as opposed to other information) in the profile. Because it is possible to use information, such as location, Internet connectivity, age, family size, ethnicity, and other information from Grannan’s profile to develop a quality level (EX1003, ¶¶92-93), I disagree with Mr. Sherwood that, in using Grannan’s profile, “it is necessarily the case” that the quality level would be based at least in part on a unique identifier.

58. Second, the ’402 patent specification supports a distinction between an identifier and a user profile. The ’402 patent specification provides examples of *“unique identifier[s]”* and explicitly differentiates those from profiles. For

instance, the '402 patent describes “cookies” and “a UDID” (Unique Device Identifier) as examples of “unique identifiers.” EX1001, 3:32-35, 15:63-65. In either case, the “unique identifier” is an alphanumeric value that “correspond[s] to a single, readily identifiable user.” EX1001, 3:30-32; EX2021, 4 (Cookies use “a ‘name=value’ format to define the name and value” of the cookie); EX2020, 2 (A cookie consists of a name-value pair; the value may be, for example, “a ‘randomly generated’ number to identify the visitor’s computer.”); EX2022, 1 (“A unique device identifier (UDID) is a unique alphanumeric code assigned to a device such as a computer, smartphone, or tablet.”).

59. In contrast, the '402 patent describes “user profile information” that may include information such as “user-provided information (e.g., demographic information supplied directly by the user); observed behavior (e.g., observed by platform 102); and reported behavior (e.g., purchases observed by a third-party provider,” as well as “recent searches, mouse-over and click behavior, and information of recent pages requested by the user.” EX1001, 3:26-30, 4:26-32, 4:38-43. The specification, therefore, differentiates between an identifier used to *identify* a user and a user profile that is not itself an identifier but contains various information *about* a user.

60. The user profile information described in the '402 patent is similar to the “[u]ser profile data” that Mr. Sherwood points to in Grannan. For example, as

Mr. Sherwood notes, Grannan’s user profile incorporates many elements, such as “ages, family size, ethnicity, language spoken, address, subscriber user identifiers for family members, etc,” as well as “device opt-in settings for selecting access devices through which a subscriber 102 is willing to allow advertising to be received” and “privacy (opt-in) settings defining specifically what categories of advertising may be received, and in what format.” EX1003, ¶92 (citing EX1007, ¶¶44, 73, 80, FIG. 2). Therefore, a POSITA would have understood that Grannan’s user profile is not an “*identifier*” as described in the ’402 patent—rather, it is a collection of information and settings associated with a user.

61. The distinction between Grannan’s user profile and the claimed “*unique identifier*” is further supported by the ordinary meanings of the terms, as demonstrated by well-known technical dictionaries. In particular, a POSITA would have understood that Grannan’s user profile, which is a collection of various data, is different from an “*identifier*.” For example, the Microsoft Computer Dictionary explains that an “identifier” is “[a]ny text string used as a label, such as the name of a procedure or a variable in a program or the name attached to a hard disk or floppy disk.” EX2017, 264 (emphasis added); *see also* EX2018, 244 (defining “identifier” as “[a] string of characters used to identify (or *name) some element of a program”) (emphasis added). In contrast, a “user profile” is “[a] computer-based record maintained about an authorized user of a multiuser computer

system.” EX2017, 544 (emphasis added). Grannan’s user profile is not a text string, consistent with the ordinary meaning of an “*identifier*”—it is an organized record that includes various data about one or more users.

62. I understand that during deposition, Mr. Sherwood tried to change his mapping, alleging that the “*unique identifier*” is an “identifier that’s used to pinpoint a specific subscriber in the case of Grannan.” EX2023, 121:3-6. Mr. Sherwood further asserted that a POSITA would have “recognize[d] that if we have a subscriber, we could have a -- we should have a unique identifier in this subscriber.” EX2023, 121:7-16. I do not see this theory presented anywhere in Mr. Sherwood’s declaration. *See* EX1003, ¶¶92-94. As I noted above, Mr. Sherwood explicitly mapped Grannan’s “subscriber’s user profile” to the recited “*unique identifier*,” not some other identifier that could be used for the subscriber. EX1003, ¶92. Nevertheless, Mr. Sherwood does not explain how that supposed identifier would be used in determining the claimed “*first quality level*,” as the claims specifically require.

63. I further understand that the Board noted in its Institution Decision in related case IPR2024-01420 that “Grannan discloses that ‘[u]ser profile data includes . . . **subscriber user identifiers for family members**, etc.,’” and that “Grannan discloses a subscriber is enrolled by creating a ‘**single sign-on (SSO) information** 602 if one does not already exist, obtaining desired **subscriber ID**

and password with which to authenticate from all devices used henceforth.”

IPR2024-01420, DI, 26 (citing EX1007, ¶¶73, 107). While the Board correctly quotes Grannan, Mr. Sherwood does not point to either Grannan’s “subscriber user identifiers for family members” or “single sign-on (SSO) information” for the claimed “*unique identifier*.” EX1003, ¶¶92-94. Even if Mr. Sherwood had pointed to this information, Mr. Sherwood still does not explain how such information would be used in determining “*the first quality level*.” EX1003, ¶¶92-94 (stating only, “[a]s the quality score must be weighed and scored based on the user profile (*unique identifier*), a POSITA would have understood that it is necessarily the case that *the first quality level is based at least in part on the unique identifier*.”). As the user is already known when Grannan’s PIC score is determined, Grannan provides no reason why its AKMS would further weight the PIC score based on “subscriber user identifiers” or “single sign-on (SSO) information.” EX1007, ¶¶73, 107.

64. Therefore, it is my opinion that Mr. Sherwood does not show that the prior art renders obvious elements [1c], [10d], and [19c] of the independent claims.

B. Mr. Sherwood does not show that the prior art teaches “wherein the determining of the first quality level is based at least in part on . . . clustering” (elements [1c], [10d], and [19c]).

65. Element [1c] of claim 1 also requires that “*the determining of the first quality level is based at least in part on . . . clustering*.” EX1001, 18:59-61 (emphasis added). For this aspect of claim 1, Mr. Sherwood asserts that “[t]he

technique of differentiating between multiple users of the same computer, based on identifying clusters of user behavior (i.e., clustering) was a known technique” taught by Yang and Ramaiyer. EX1003, ¶¶97-99, 197-200. Mr. Sherwood further asserts that “it would have been obvious to a POSITA to **use Yang’s clustering of user behavior in Grannan** or the Grannan-Chung combination to differentiate between unique users on a shared device, so as to determine which user profile information to use for calculating the first quality level (PIC score).” EX1003, ¶99 (emphasis added); *see also* EX1003, ¶200 (“It would have been obvious to a POSITA to **use Ramaiyer’s clustering of user behavior in the Grannan-Chung combination** to differentiate between multiple users on a single device, so as to ascertain which user profile to associate activity such as browsing and clicking behavior”).

66. In my opinion, however, a POSITA would not have sought to implement Yang’s or Ramaiyer’s alleged clustering techniques within Grannan’s system. Grannan’s advertising knowledge management system (AKMS) already employs a “profiling process” that is “able to identify the subscriber via single sign-on (SSO) credentials,” which then allows the system to “monitor and profile subscriber surfing history, traffic characteristics, port usage, etc.” for the subscriber. EX1007, ¶86. These “SSO credentials can be defined and cached in the access device (e.g. television set top box, cell phone, PC, laptop, etc.) to avoid

requiring the subscriber to sign in each and every time the Internet is accessed with such a device”—minimizing the burden on users when they were the last to use a device. EX1007, ¶86.

67. Grannan’s SSO technique’s makes sense in view of Grannan’s emphasis on user privacy. As Grannan explains, “[g]iven the privacy concerns of subscribers,” Grannan’s system “provides subscriber directed **privacy controls that include utilizing subscriber usage information as opt in settings** defined by the subscriber, and maintained in the user’s profile.” EX1007, ¶18 (emphasis added). These “privacy settings enable subscribers to **control what information they are willing to have monitored** and used by the AKMS.” EX1007, ¶78 (emphasis added); *see also* EX1007, ¶86 (monitoring of “subscriber surfing history, traffic characteristics, port usage, etc. . . . would only be used based on **positive privacy allowance or opt-in settings 206 defined by the subscriber allowing specific monitoring permissions.**”) (emphasis added). In other words, Grannan stresses the importance of user privacy, permitting monitoring and use of user activity *only* if the user opts in. EX1007, ¶¶18, 78, 80, 86. Grannan’s SSO techniques for identifying a user do not require use of monitored user activity, allowing the system to adhere to user-specified privacy settings.

68. In contrast to Grannan, both Yang’s and Ramaiyer’s techniques require monitoring user activity in order to identify a user—that is, *before* a user

can be identified—effectively requiring Grannan’s system to disregard user-specified privacy settings. For example, Yang describes techniques for “[c]lustering user-centric Web transactions” for different users, which rely on “the entire Web surfing behavior for each user.” EX1006, 16; Pet., 22-23. Similarly, Ramaiyer describes a “profile predictor 112 [that] may monitor or track behavior on the user device 102 to predict the particular user of the device based on the behavior.” EX1009, ¶29; Pet., 64 (“Ramaiyer teaches the tracking of sessions of user behavior on a device to predict the user of the device based on clustering of the data.”) (emphasis added).

69. The privacy concerns expressed in Grannan were well known at the time of the ’402 patent. For example, a survey conducted in 2008 “revealed an increase in individuals’ level of concern about information collection—specifically, Web sites collecting information about previously visited sites.” EX2013, 24; *see also* EX2013, 24 (“[I]n 2006, [Facebook’s] members became aware that their Facebook actions were suddenly being tracked online,” and “members opt[ed] out of the tracking activity”); EX2014, 4 (“User surveys have consistently shown opposition to third parties collecting and using browsing activity.”). These concerns are for good reason. As an article for the 2012 IEEE Symposium on Security and Privacy explained, “[t]he risk of harm to consumers from web tracking arises from myriad potential scenarios.” EX2014, 4. For

example, data may be “transferred, sold, stolen, misplaced, or accidentally distributed,” leading to “physical, psychological, or economic” harm to the user. EX2014, 4.

70. I also understand that Petitioner’s expert in related case IPR2024-01316, Dr. Wills, claims to be an expert in Web privacy. EX2024, ¶3. I understand that Dr. Wills opined that “it is important for users to have a choice of whether their online activity is monitored,” and that “if a user opts out of having their online activity monitored,” it is “desirable” that “third parties respect that preference.” EX2012, 32:16-33:12. I agree with Dr. Wills’s concerns. Moreover, Dr. Wills’s own article published around the time of the ’402 patent confirms the importance of adhering to user privacy preferences. EX2024, ¶3 (citing EX2011). Specifically, Dr. Wills and his team “surveyed [users] regarding their attitudes towards tracking” and “found that 63% of users agreed with a statement of concern for third parties monitoring activities.” EX2011, 1. In fact, users were most concerned with their online activity being monitored, compared to other data that may be tracked by third parties such as location and demographic information. EX2011, 10. In view of these user privacy concerns, a POSITA would have had no reason to replace or augment Grannan’s existing SSO identification techniques with those described by Yang or Ramaiyer.

71. Therefore, to the extent Yang and Ramaiyer teach techniques for

identifying individual users, it is my opinion that those techniques would conflict with Grannan's user privacy teachings because Yang's and Ramaiyer's techniques require user activity to be monitored *before* a user can be identified. And Mr. Sherwood provides no reason that I see to replace Grannan's user-identification techniques, which do not require use of monitored user activity, with Yang's and Ramaiyer's techniques that do.

72. For these additional reasons, it is my opinion that Mr. Sherwood does not show that the prior art renders obvious elements [1c], [10d], and [19c] of the independent claims.

C. Mr. Sherwood does not show that the prior art teaches determining “a first quality level” based on a “first search” or “first purchase,” and determining “an indication of interest in a first category” based on a “second search” or “second purchase” (elements [1b], [1d], [10c], [10e], [19b], and [19d]).

73. Element [1b] requires that “*the first quality level is determined based at least in part on at least one of: (1) a first search associated with the user profile or (2) a first purchase associated with the user profile,*” and element [1d] requires that “*the indication of interest in the first category is determined based at least in part on at least one of: (1) a second search associated with the user profile or (2) a second purchase associated with the user profile.*” EX1001, 17:55-18:2 (Claim 1, elements [1b] and [1d]) (emphasis added). In my opinion, Mr. Sherwood does not show these claim elements because: (1) Mr. Sherwood does not identify “*a first*

purchase” or “*a second purchase*” in Grannan or Chung, and (2) Mr. Sherwood does not identify “*a first search*” different from “*a second search*” in Grannan or Chung. I note that Mr. Sherwood does not rely on Yang or Ramaiyer for either of these elements. Therefore, it is my opinion that the prior art does not teach these specific elements of claim 1.

1. Mr. Sherwood does not identify “a first purchase” used to determine “a first quality level” or “a second purchase” used to determine “an indication of interest in a first category.”

74. Mr. Sherwood maps Grannan’s “product interest correlation (‘PIC’) score” to the claimed “*first quality level*.” EX1003, ¶77. Mr. Sherwood then states within his analysis that the “final PIC score for each subscriber is tallied by evaluating several factors including ‘previous purchases.’” EX1003, ¶87 (citing EX1007, ¶¶90, 105). Although Grannan generally mentions “previous purchases,” Mr. Sherwood does not identify as part of his analysis any purchase in Grannan used to determine “*a first quality level*,” let alone a different “*second purchase*” used to determine “*an indication of interest in a first category*,” as recited in independent claim 1.

75. Specifically, in his analysis, Mr. Sherwood relies on an example scenario described in Grannan in which an individual named “Susan is planning to purchase children’s books as a Christmas present for her nephews.” EX1007, ¶56. EX1003, ¶87. In that example scenario, Grannan describes that Susan “goes online

to a retailer's web site and browses through a number of titles but decides to hold off on a purchase," but Grannan's system uses "the web pages visited by Susan to determine her intent for the URI visit and correlates this intent to an interest in certain product categories." EX1007, ¶56. "Later when Susan is walking through the local mall to finish her other shopping, she receives a targeted text advertisement on her cell phone from the AKMS for the local book store indicating a discount sale on children's books," and "Susan impulsively walks into the store and makes a purchase." EX1007, ¶57.

76. Based on this scenario, Mr. Sherwood asserts that "a POSITA would have recognized or found it obvious that the targeted ad from the AKMS was based on a *quality level* (PIC score) for Susan that was calculated based on her historic shopping behavior, including her past product purchases," and that "[o]ne of these historic purchases is the *first purchase* on which her quality level (PIC score) is based that was used to send the targeted ad as disclosed." EX1003, ¶87 (citing EX1007, ¶57). Contrary to Mr. Sherwood's assertion, a POSITA would not have understood the "shopping behavior" referenced in the "Susan" example to include past product purchases. EX1007, ¶57.

77. The paragraph of Grannan referenced by Mr. Sherwood states: "The targeted advertisement Susan received on her cell phone was based on her historic surfing/shopping behavior combined with Susan's presence in a certain location

that is close to a merchant selling products in which she is interested determined by her surfing/shopping behavior.” EX1007, ¶57. Grannan makes clear in the previous paragraph that the “historic surfing/shopping behavior” refers to online browsing of retailer websites—*not* past purchases: “[Susan] **goes online to a retailer's web site and browses** through a number of titles but decides to hold off on a purchase. Presuming Susan has exercised an opt-in preference that allows the AKMS system to monitor her URI and her Internet surfing behavior as a subscriber for this Internet session, **this URI visitation information regarding the retailer's web site is mined and stored.**” *Id.*, ¶56 (emphasis added). In other words, a POSITA would have recognized that the “historic surfing/shopping behavior” mentioned in ¶57 is a reference to Susan’s shopping (i.e., browsing) on the retailer’s website in ¶56.

78. In fact, Grannan’s “Susan” example discusses only one, single purchase, which Mr. Sherwood relies on for the claimed “*third purchase.*” EX1007, ¶¶56-57; EX1003, ¶116. As Grannan explains, Susan’s determination of “interest” in children’s books is based on “the web pages visited by Susan,” not any previous purchases. EX1007, ¶56. Therefore, I do not see any “*first purchase*” in Grannan identified by Mr. Sherwood that is used to determine the recited “*first quality level.*” Indeed, in the Susan example, such information is not needed. The information regarding Susan’s browsing of book titles on the retailer’s website

provides more than enough information for Grannan's system to appropriately tailor the advertisement.

79. Mr. Sherwood similarly does not identify a "*second purchase*" in Grannan used to determine an "*indication of interest in the first category*." Mr. Sherwood identifies Grannan's "contribution scores" as the claimed "*indication of interest*," EX1003, ¶102, but Mr. Sherwood does not identify any "*second purchase*" used to determine Grannan's contribution score.

80. For this element, Mr. Sherwood alleges that "[t]he disclosed 'contribution score' is an indication of interest that is calculated based on the subscriber's purchases, since Grannan also discloses that the 'final [PIC] score is tallied by evaluating . . . previous purchases.'" EX1003, ¶102 (citing EX1007, ¶90). Again, nowhere does Grannan disclose that these "previous purchases" are used to calculate a contribution score. Indeed, the cited paragraph of Grannan contains no discussion of a contribution score at all. EX1007, ¶90.

81. Mr. Sherwood again references the same "Susan" example in his analysis. EX1003, ¶104. From this example, Mr. Sherwood concludes that "a POSITA would have recognized that the targeted ad from the AKMS was based on a PIC score for Susan that was calculated based on multiple contribution scores calculated from multiple purchases and web surfing in Susan's historic behavior." EX1003, ¶104. This scenario, however, is not disclosed or suggested

anywhere in Grannan. As noted above, Grannan explains that Susan's determination of "interest" in children's books is based on "the web pages visited by Susan," not any previous purchases. EX1007, ¶56. Mr. Sherwood's conclusion, therefore, does not follow from Grannan's actual disclosure. Therefore, I do not see any "*second purchase*" in Grannan identified by Mr. Sherwood that is used to determine the recited "*indication of interest in the first category*."

82. Chung does not fill Grannan's gaps with respect to the claimed "*first purchase*" or "*second purchase*." Mr. Sherwood does not allege that Chung discloses a "*purchase*" upon which a "*first quality level*" or "*indication of interest in a first category*" is based. EX1003, ¶¶81-91, 102-10. Chung's list of "events" relied on by Mr. Sherwood, in fact, does not include purchases. EX1003, ¶107 (citing EX1005, 2:48-49, 6:38-41).

2. Mr. Sherwood does not identify "a first search" used to determine "a first quality level" and "a second search" used to determine "an indication of interest in a first category."

83. Because Mr. Sherwood does not identify either "*a first purchase*" or "*a second purchase*," as I discuss above, Mr. Sherwood must show that the prior art discloses or renders obvious "*a first search*" used to determine "*a first quality level*" and "*a second search*" used to determine "*an indication of interest in a first category*." It is my opinion that Mr. Sherwood has not made this showing.

84. First, Mr. Sherwood does not identify a "*first search*" or "*second*

search” in Grannan. For the claimed “*first search*,” Mr. Sherwood points to Grannan’s disclosure of “browsing to a new web site” and “web surfing history.” EX1003, ¶84 (citing EX1007, ¶¶76, 80, 83-90, 98). Similarly, for the claimed “*second search*,” Mr. Sherwood alleges that Grannan’s “[c]ontribution scores are calculated based on URI links that a user may browse.” EX1003, ¶¶102-04 (citing EX1007, ¶¶57, 83). As I discuss below, web “browsing”/“surfing” is different from performing a “*search*,” as recited in claim 1.

85. In the portions of Grannan referenced by Mr. Sherwood, Grannan explains that “contribution score[s]” are generated when a user browses (i.e., “surfs”) to a particular website:

This spidering information can be used to create a high product interest correlation “contribution” score for Autos → By Make → Manufacturer → Model as well as Autos → By Style → Sedans → Midsize → Manufacturer Model. **When a subscriber subsequently surfs to this link**, the “contribution” score can be added to the subscriber’s current product interest correlation score for this particular category.

EX1007, ¶83 (emphasis added); *see also* EX1007, ¶56 (discussing the “Susan” example in which “[s]he **goes online to a retailer’s web site and browses** through a number of titles”) (emphasis added).

86. While Grannan discusses browsing or surfing a website, a POSITA would have understood that searching, as recited in the independent claims, is

different from Web surfing, as disclosed by Grannan. This understanding is supported by technical dictionaries around the time of the '402 patent. For example, the Microsoft Computer Dictionary explains that “[a] search is carried out by a program through comparison or calculation to determine whether a match to some pattern exists or whether some other criteria have been met,” and a “search engine,” “[o]n the Internet [is] a program that searches for keywords in files and documents found on the World Wide Web.” EX2017, 469.

87. In contrast to searching, “surf” is defined as “[t]o browse among collections of information on the Internet, in newsgroups, in Gopherspace, and especially on the World Wide Web.” *Id.*, 503. In other words, a POSITA would have understood that a user browsing through a website, clicking on links to move between pages, is different from the user performing a search. Mr. Sherwood’s citations to Grannan refer only to browsing activity. EX1003, ¶¶84, 102-04. Mr. Sherwood does not identify a “*search*” that Grannan’s contribution score is based on, let alone a “*second search*” different from a “*first search*,” as recited in claim 1.

88. Mr. Sherwood also asserts, “[t]o the extent that web ‘browsing’ and ‘surfing’ are not expressly a first search, in my opinion a POSITA would have found it obvious to calculate the Grannan PIC score based on the user’s web search engine queries, in addition to user browsing information.” EX1003, ¶85. Mr.

Sherwood continues, “[t]his is because a POSITA would have been motivated to improve the accuracy of the PIC score by using other information well-known at the time to indicate a user’s purchase likelihood, such as the user’s search engine queries.” EX1003, ¶85.

89. Mr. Sherwood, however, provides no reason why incorporating web search engine queries into Grannan’s processing would improve the accuracy of the PIC score. Grannan already includes “a web spidering process” that “parses the text on each web page visited by a subscriber and infers product category interest intent for a subscriber visiting the web page for one or more product categories.” EX1007, ¶70. As in the “Susan” example, Susan’s “brows[ing] through a number of titles” on the “retailer’s web site” provides more than enough information to “determine her intent for the URI visit and correlate[] this intent to an interest in certain product categories.” EX1007, ¶56. Incorporating a user’s web search engine queries, as Mr. Sherwood suggests, would add little benefit to Grannan’s system, considering that search results browsed by the user would already be captured as part of Grannan’s “web spidering process.”

90. Second, Mr. Sherwood does not identify a “*second search*” different from a “*first search*” in Chung. Mr. Sherwood identifies Chung’s “mapped score” as the recited “*first quality level*” of element [1b], EX1003, ¶88, and Chung’s “user interest score” / “interest score” / “user profile score” as the recited “*indication of*

interest in a first category,” EX1003, ¶106. Mr. Sherwood states that “[u]ser events, such as user search queries, are input into the system disclosed by Chung and used to determine user scores which are in turn used to produce the mapped score.” EX1003, ¶89 (citing EX1005, 6:39-41, 6:62-7:2). Mr. Sherwood, however, ignores that Chung’s “score[s]” are based on the same events, not separate “*first*” and “*second*” searches, as recited in claim 1.

91. In particular, although Chung does describe “search queries” as potential events, EX1005, 6:38-41, Mr. Sherwood does not identify “*a second search*” relevant to element [1d] that is different from “*a first search*” identified for element [1b]. Instead, Mr. Sherwood identifies the same disclosure in Chung for both elements. *Compare* EX1003, ¶89 (citing EX1005, 6:39-41) *with* EX1003, ¶107 (citing EX1005, 6:38-41).

92. Chung describes that “classified events are input to dimension processing 450 and to model & rules 440” to generate a raw “user interest score.” EX1005, 5:21-22, 5:43-48. Then, as Mr. Sherwood, “‘the user interest score is input to a mapping module 460’ to generate the ‘mapped score.’” EX1003, ¶79 (citing EX1005, 5:49-50); *see also* EX1005, 5:50-51 (“In general, the mapping module maps raw user scores to one or more output metrics.”).

93. Importantly, Chung’s “mapped score” does not take into account additional event data; it simply provides a different representation of the raw user

interest score. EX1005, 20:46-49 (“[R]aw scores are converted or mapped to more useful scores, referred to herein as mapped scores, for target optimization purposes”). Indeed, Chung describes that the raw user interest score “is converted to a mapped score using a nonlinear polynomial mapping equation.” EX1005, 21:18-19. That equation provides a conversion based on various factors—but none of those factors account for additional events that were not already used to calculate the raw user interest score. EX1005, 21:23-39. Therefore, Chung’s “user interest score” and “mapped score” are based on the *same* events—that is, “events” in Chung are used to calculate raw user interest scores, which are simply converted to mapped scores.

94. I have been told that when a claim lists elements separately, the clear implication of the claim language is that those elements are distinct components of the patented invention. Here, in contrast to Chung, the claims require that the recited “*first quality level*” and “*indication of interest in a first category*” be based on *different* events (i.e., different searches or purchases). See EX1001, Claim 1. In my opinion, Mr. Sherwood has not made this showing because Chung does not disclose different events used to calculate its raw user interest scores and mapped scores.

95. Therefore, it is my opinion that Mr. Sherwood does not show that the prior art renders obvious elements [1b], [1d], [10c], [10e], [19b], and [19d] of the

independent claims.

D. Mr. Sherwood does not show that the prior art teaches the limitations of dependent claims 6 and 15.

96. Each of the dependent claims 6 and 15 requires that “*at least one of the first quality level or the second quality level is determined with respect to the advertisement.*” EX1001, 18:41-43, 19:43-45. Mr. Sherwood asserts that “Grannan discloses that the *first quality level* (PIC score) is based at least in part on a conversion assessment associated with the user profile,” “for example, purchasing a car.” EX1003, ¶152 (emphasis in original). Mr. Sherwood then concludes that Grannan teaches the limitations of these claims because “the PIC scores are applied to an advertisement database **to select an advertisement in the product category** to send to the user.” EX1003, ¶153 (emphasis added).

97. Claims 6 and 15, however, require “*the advertisement*” to be used as a basis for determining the claimed “*first quality level or the second quality level.*” EX1001, 18:41-43 (“*at least one of the first quality level or the second quality level is determined with respect to the advertisement.*”) (emphasis added). Otherwise, the “*first quality level*” would not be “*determined **with respect to the advertisement.***” EX1001, 18:41-43 (emphasis added).

98. The ’402 patent specification supports this operation. For example, the ’402 patent describes “generat[ing] **a quality measure** for the user **in the context of one or more particular advertisements**—such as an advertisement for

a camera lens of a particular type.” EX1001, 10:42-46. In other words, the ’402 patent describes that “an advertisement for a camera lens of a particular type” is taken into account in determining the “quality measure for the user.” EX1001, 10:42-46; *see also id.*, 9:37-39 (describing a “quality metric” “indicating how likely it is that a given individual will click on an advertisement”).

99. In Mr. Sherwood’s mapping, Grannan’s PIC score is merely used to “select and advertisement” *after* it has been calculated. EX1003, ¶153. Mr. Sherwood does not explain, however, how the claimed “*first quality level*” is “*determined with respect to the advertisement,*” as claims 6 and 15 require EX1003, ¶¶152-53. Therefore, it is my opinion that Mr. Sherwood does not show that the prior art renders obvious claims 6 and 15.

E. Mr. Sherwood does not show that the prior art teaches the limitations of dependent claims 7 and 16.

100. Each of the dependent claims 7 and 16 requires that “*at least one of the first quality level or the second quality level is used to determine at least one of a discount or a surcharge.*” EX1001, 18:44-46, 19:46-48. Mr. Sherwood asserts that “Grannan discloses using discounts and surcharges” because, for example, “Grannan discloses text advertisements are lower cost than TV advertisements, . . . and that advertisers can set [PIC] score thresholds for when text advertisements versus TV advertisements are sent to users.” EX1003, ¶¶154-55. Grannan’s selection of a particular advertisement, however, does not involve applying any

“*discount*” or “*surcharge*” to the cost of that advertisement.

101. Specifically, Grannan describes that “a [PIC] score may range from 1 to 100,” and “[a]n advertiser may set a product interest correlation score threshold of 20 for sending a text advertisement to a subscriber’s cell phone, a product interest correlation score threshold of 50 for sending a video advertisement to the subscriber’s cell phone and set a product interest correlation score threshold of 90 for sending a video advertisement to the subscriber’s IPTV receiver.” EX1007, ¶¶63. Although Grannan explains that a text advertisement may be “lower cost” compared to a TV advertisement, Grannan does not disclose applying a discount or surcharge to either advertisement. EX1007, ¶¶63, 77. That is, the cost of each advertisement is not adjusted in any manner—the cost remains the same regardless of Grannan’s PIC score.

102. In contrast to Grannan’s operation, the ’402 patent discloses applying “*a discount or a surcharge*” to the price of a particular advertisement based on quality levels. For example, “if a user is found to have a quality level of 8 out of 10 at the time discounts are applied, and an advertiser bids \$0.10 for an impression to be displayed to this user, then the system may discount the impression by 20% (or 2 out of 10).” EX1001, 15:8-12. Mr. Sherwood has not shown that Grannan teaches applying any similar “*discount*” or “*surcharge*” to the price of an advertisement. EX1003, ¶¶154-56. Therefore, it is my opinion that Mr. Sherwood

does not show that the prior art renders obvious claims 7 and 16.

IX. CONCLUSION

In signing this declaration, I recognize that the declaration will be filed as evidence in an *inter partes* review before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination within the United States during the time allotted.

I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, that all statements made herein of my own knowledge are 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.

Executed on this 17th day of July, 2025, in Utrecht, Netherlands.



Bernard J. Jansen