

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOME DEPOT U.S.A., INC.,
Petitioners

v.

SECURITY TECHNOLOGY, LLC,
Patent Owner

Inter Partes Review No.: IPR2024-01420
U.S. Patent No. 11,562,402

DECLARATION OF ROBERT J. SHERWOOD

I hereby declare under penalty of perjury under the laws of the United States of America that the statements made herein are true and correct. I further declare 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.

Dated: September 17, 2024

By: Robert J. Sherwood
Robert J. Sherwood

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[1pre] A method, comprising:
[1a] determining a first quality level associated with a user profile,
[1b] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,
[1c] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering
[1d] determining, for a user associated with the user profile, an indication of interest in a first category, wherein 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
[1e] storing, in a record associated with the user, the indication of interest in the first category
[1f] subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;
[1g] based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category, wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;
[1h] in response to determining that the need relative to the first category has been met, determining a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;
[1i] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior; and
[1j] displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level.
[2] The method of claim 1, wherein the second quality level is determined with respect to the second category.

CLAIMS	
[3]	The method of claim 1, wherein at least one of the first quality level or the second quality level is based at least in part on an assessment of a purchase likelihood associated with the user profile.
[4]	The method of claim 3, wherein the purchase likelihood is determined relative to the advertisement.
[5]	The method of claim 1, wherein at least one of the first quality level or the second quality level is determined at least in part by using machine learning.
[6]	The method of claim 1, wherein at least one of the first quality level or the second quality level is determined with respect to the advertisement.
[7]	The method of claim 1, wherein 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.
[8]	The method of claim 1, wherein the event comprises a conversion.
[9]	The method of claim 1, wherein the event comprises a purchase.
[10pre]	A system, comprising:
[10a]	a processor configured to:
[10b]	determine a first quality level associated with a user profile,
[10c]	wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,
[10d]	and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering;
[10e]	determine, for a user associated with the user profile, an indication of interest in a first category, wherein 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;
[10f]	store, in a record associated with the user, the indication of interest in the first category;
[10g]	subsequent to determining the indication of interest in the first category, determine, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;
[10h]	based at least in part on the determination that the need relative to the first category has been met, determine an indication of interest in a second category, wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;

CLAIMS

[10i] in response to determining that the need relative to the first category has been met, determine a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;

[10j] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior; and

[10k] display an advertisement to the user based at least in part on at least one of the first quality level or the second quality level; and

[10l] a memory coupled to the processor and configured to provide the processor with instructions.

[11] The system recited in claim 10, wherein the second quality level is determined with respect to the second category.

[12] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is based at least in part on an assessment of a purchase likelihood associated with the user profile.

[13] The system recited in claim 12, wherein the purchase likelihood is determined relative to the advertisement.

[14] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is determined at least in part by using machine learning.

[15] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is determined with respect to the advertisement.

[16] The system recited in claim 10, wherein 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.

[17] The system recited in claim 10, wherein the event comprises a conversion.

[18] The system recited in claim 10, wherein the event comprises a purchase.

[19pre] A computer program product embodied in a non-transitory computer readable storage medium and comprising computer instructions for:

[19a] determining a first quality level associated with a user profile,

[19b] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,

[19c] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering;

CLAIMS

[19d] determining, for a user associated with the user profile, an indication of interest in a first category, wherein 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;

[19e] storing, in a record associated with the user, the indication of interest in the first category;

[19f] subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;

[19g] based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;

[19h] in response to determining that the need relative to the first category has been met, determining a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;

[19i] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior; and

[19j] displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level.

I, **ROBERT J. SHERWOOD**, hereby declare as follows:

I. QUALIFICATIONS AND BACKGROUND

1. I am citizen of the United States, and I presently reside at 12015 Wenonga Lane, Leawood, Kansas, USA.
2. My qualifications for forming the opinions given in this declaration are summarized here and are addressed more fully in my *curriculum vitae* (CV), which is submitted attached herein as Appendix A, and also submitted as Exhibit 1004.
3. My CV details my educational background and professional experience and also includes a list of the cases in which I have testified at deposition, hearing, or trial during the past six years.
4. By way of experience, I am an expert on Internet advertising, advertising analytics, targeted advertising, and the financial economics associated with advertising spending. I have been involved in the Internet advertising space for more than 20 years.
5. I have designed and developed electronic commerce systems for tracking sales at multiple websites with secure servers for credit card acceptance and a confidential system for secure sales transactions. This includes developing algorithms located on websites for tracking online sales as a result of advertisement placement.

6. I have been active in developing systems for integrating ads with websites for my own software development and deployment, as well as acting as a consultant to other firms in doing the same. I have analyzed and evaluated complex bidding algorithms for the real-time selection and placement of ads for both impressions and pay-per-click ad placement on numerous websites.

7. I have been a board member and consulted with dozens of companies on Internet advertising. For my work, I was awarded the Entrepreneur of The Year Award, which is sponsored by the Kauffman Foundation, NASDAQ, Ernst and Young and INC magazine.

8. I have been engaged by companies such as Google, Facebook, Yahoo!, Amazon, Toyota, Lowe's, and Harley Davidson, to consult and testify on online advertising matters including search technologies and targeted advertising technologies. For example, Facebook and Google engaged me to provide opinions in support of *inter partes* review petitions against a targeted advertising patent.

9. As early as 2004, Yahoo! engaged me as an internet advertising expert when Yahoo! sued Google and other firms for infringement of patents related to pay-per-click advertising and bid-for-placement products.

10. As early as 1990, as Vice President of RasterOps, Inc., I developed Internet advertising and advertising campaigns for more than 5,000 retail computer dealers. When browsers were launched in approximately 1995, I developed

advertising on dozens of websites. When pay-for-view and pay-per-click advertising was launched in 1998, I developed and purchased more than 10 million ad views and click throughs. In this capacity, I analyzed the user results including browsing behavior and identifying user groups with similar behavior for targeting advertising.

11. More specifically, in 1998, I designed, placed and analyzed more than 30 million ad impressions for a video mail company based in Saratoga, California. The analysis included categorizing impression click through events for potential user purchases of the video mail product.

12. I currently serve as president of Identimap, Inc. a company that develops software for personality and culture analysis for talent identification and management. Through this experience, I engage with advertising analytics and advertising software as part of my business responsibilities.

13. I have a Bachelor of Science degree in civil engineering and a Master of Science degree in Environmental Engineering, both from the University of Kansas. I also have a Master of Business Administration, with a major in operations research, from California State University, East Bay, and an honorary doctorate from DeVry University. As a professor, I have taught technology management courses at the University of Kansas and University of Missouri, and as a guest lecturer taught technology management at Stanford University.

14. I have been professionally involved with computer and software technology for more than 40 years. My computer science education began when I was assigned a project to develop a financial and engineering computer model that would run on a computer in Mountain View, California. As a part of this project, I hired a computer science professor from Brigham Young University to move to California for two years and assist me by teaching me everything he taught his college students on computer science.

15. I developed my first software program with FORTRAN and later used C++ and HTML. I was the first professional to design a software program that accessed a mainframe computer in Mountain View, California via telephone connection with an acoustic coupler from an office in London, England. This program was a client mainframe computer model that integrated complex engineering product designs from more than 30 different companies. I designed, directed and approved all the source code development for this computer program that integrated more than 50 products into a single program that used more than 2,700 computer-aided design variables.

16. In 2005, The American Management Association engaged me to develop content and conduct a two-day seminar on Internet advertising including impression fraud detection with banner ad placement. I presented this seminar to

more than 2,500 professionals from more than 50 different companies. The seminar was presented between the years 2005-2008.

17. In one engagement, I examined more than 100 different publisher's websites where pay-for-click advertising or cost-per-impression advertising schemes were implemented. In another instance, I examined the matching of more than 300 publishers' website content with a related advertiser's products and/or services for \$20 million of online impression and cost-per-click advertising methods. The websites included popular website publishers such as CNN and The Wall Street Journal.

18. I was founder and President of SmartText Corporation. I directed an 18-person programmer development team in the introduction of an online software program to process large business document files. The company developed commercial software retail products under such names as LegalPoint, Kiplinger Small Business Attorney and Kiplinger Home Legal Advisor. The products were licensed to prominent firms such as H&R Block and Intuit Corporation. The products sold more than 2 million copies.

19. I was president and co-founder of EDC, Inc., a company backed by Kleiner Perkins, a leading San Francisco Bay Area venture capital firm. The company was highlighted in Business Week and Fortune Magazine and was selected as one of the ten most innovative companies in California.

20. I have consulted for both plaintiffs and defendants in litigation matters regarding software development, advertising, patents and related technology issues. I have written more than 50 expert reports and have testified at trial or depositions on approximately 30 occasions. I provide consulting services to private and public corporations, law firms, venture capital firms, and government institutions.

21. I am being compensated for my time in this case at the rate of \$600.00 per hour. No part of my compensation is dependent on my opinions or on the outcome of this proceeding. I have no financial interest, beneficial or otherwise, in any of the parties to this review.

22. My work is based on my professional experience and materials that I have examined. I have specialized knowledge of the matters set forth herein, and if called as a witness I could and would testify competently thereto. My research and analysis of the materials, documents, allegations, and other facts in this case may be extended at the request of counsel, and if additional information becomes available in this action, I reserve the right to provide additional opinions.

II. INTRODUCTION AND SUMMARY OF OPINIONS

A. Introduction

23. I have been retained by counsel for Petitioner, Home Depot U.S.A., Inc. (“Petitioner”) to serve as an expert witness.

24. I understand that this declaration will be submitted in support of a Petition for *Inter Partes* Review (IPR) filed by Petitioner, which collectively challenges claims 1-19 (the “Challenged Claims”) of U.S. Patent No. 11,562,402 (the ’402 patent).

25. The facts and opinions expressed herein are true and accurate to the best of my knowledge and understanding based on the information I have reviewed to date.

B. Summary of Opinions

26. It is my opinion that the Challenged Claims of the ’402 patent would have been obvious to a person of ordinary skill in the art as of the earliest priority date to which those claims are entitled based on the following grounds:

Ground I: Grannan in view of Chung and Yang

Ground II: Grannan in view of Chung and Ramaiyer.

III. MATERIALS CONSIDERED

27. The analysis that I provide in this declaration is based on my experience, as well as the documents I have considered, including the ’402 patent (EX1001). I have also reviewed the prosecution history of the ’402 patent (EX1002) and the materials discussed herein. My opinions are also based upon my knowledge, education, experience, research, and training in the field that I have accumulated over the years.

28. A list of materials considered is listed above in the Index of Exhibits.

IV. LEGAL STANDARDS

29. I am not a lawyer. Therefore, in formulating the opinions and conclusions set forth in this summary, I have been provided with an understanding of the prevailing principles of U.S. patent law that govern the issues of patent claim construction and obviousness.

30. I have been informed that a determination of whether the claims of a patent are anticipated or rendered obvious by prior art is a two-step analysis: (1) determining the meaning and scope of the claims, and (2) comparing the properly construed claims to the prior art. I have followed that framework in providing the opinions and analysis set forth herein.

A. Obviousness

31. I have been informed that the following four factors are considered when determining whether a patent claim is obvious: (1) the level of ordinary skill in the pertinent art at the time the invention was made; (2) the scope and content of the prior art; (3) the differences between the prior art and the patent claims at issue; and (4) objective evidence of nonobviousness, if any. I understand that such objective evidence of nonobviousness can include evidence of the commercial success of an invention, evidence of a long-felt need that was solved by an invention, evidence that others copied an invention, failure of others facing the

same state of the art to develop a satisfactory solution, professional approval or skepticism, or evidence that an invention achieved a surprising result. I understand that such evidence must have a nexus, or causal relationship, to the claimed invention in order to be relevant to the obviousness or non-obviousness of the claim.

32. I have been informed that an obviousness evaluation can be based on a combination of multiple prior art references. It is my understanding that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I further understand that when a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.

33. I understand that the Supreme Court stated 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 because the result is likely the product not of innovation but of ordinary skill and common sense.

34. I have been informed that often it will be necessary for one addressing the obviousness of a patent claim to look at interrelated teachings of multiple patents, references and prior art products; the effects of demands known to the design community or present in the marketplace; and the background knowledge

possessed by a person of ordinary skill in the art—all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

35. I have also been informed that examples of factors that may support a conclusion of obviousness include:

- (A) combining old and known elements, with no change in their respective functions, according to known methods to obtain predictable results;
- (B) simply substituting one known element for another to obtain predictable results;
- (C) using known techniques to improve similar devices (methods, or products) in the same way;
- (D) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success—in other words, whether something is “obvious to try”;
- (F) using work in one field of endeavor to prompt variations of that work for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art; and
- (G) arriving at a claimed invention as a result of 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.

I have also been informed that other rationales to support a conclusion of obviousness may be relied upon—for instance, that common sense (where

substantiated) may be a reason to combine or modify prior art to achieve the claimed invention.

36. I am also informed that a basis to combine teachings need not be stated expressly in any prior art reference. However, I understand that there must be some evidence showing an articulated reasoning with rational underpinnings to support a motivation to combine teachings and to support the legal conclusion of obviousness.

37. I understand that the obviousness analysis must be performed without the benefit of hindsight. Thus, it is impermissible to use the patented invention as a blueprint or template to perform a hindsight reconstruction of the invention from prior art elements. Using the invention as a roadmap to re-create the invention from the prior art would improperly discount the value of combining various existing features or principles in a new way to achieve a new result, which is often the very essence or definition of invention. Similarly, the motivation to combine references cannot come from the invention itself.

38. I understand that, when prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to have been nonobvious. I have been advised that:

- (A) A reference may teach away when a person of ordinary skill is discouraged from following the path set out in the reference;

- (B) A reference may teach away when a person of ordinary skill is led in a direction divergent from the path that was taken by the applicant; or
- (C) A reference may teach away from a use when that use would render the result inoperable or produce a seemingly inoperative device.

39. I further understand that, when analyzing whether a reference teaches away, it is helpful to understand what does not constitute teaching away:

- (A) It is not teaching away if the reference teaches that modification or combination would be expensive or economically wasteful;
- (B) It is not teaching away when the reference merely lacks a claimed feature; and
- (C) It is not teaching away when a reference teaches a preferred, better, or alternative way.

V. THE '402 PATENT

A. Overview of the '402 Patent

40. The '402 patent claims priority to a number of U.S. applications and lists November 21, 2011, as its earliest possible priority date. EX1001, (60).

41. The subject matter of the '402 patent is directed toward a targeted Internet advertising method in which “quality level[s]” are calculated for users to whom advertisements are to be shown. Advertisers bid for the right to display internet ads to users based on quality level. EX1001, Abstract, 1:21-29, 3:1-14, cls. 1, 10, 19. The '402 patent suggests that “quality levels” are related to the quality of a user for purposes of advertising, *i.e.*, how likely a user is to make a purchase,

referred to in the '402 patent as a "conversion assessment." *Id.*, 3:56-61, 6:1-51, 8:7-9-2, 10:10-13, 14:61-16:19, cls. 1, 10, 19.

42. The claims of the '402 patent require determining first and second quality levels and displaying ads to a user based at least in part on at least one of the first and second quality levels. The claims also recite a number of additional concepts, some of which are used in determining the first or second quality levels and others of which are determined, calculated and/or stored but not used for any purpose in the claims.

43. One of the concepts discussed in the '402 patent is determining for a user indications of interest in a first and second category based at least in part on user searches or purchases. *Id.*, cls. 1, 10, 19, 5:31-40, 16:48-17:51, FIG. 7. An indication of interest is stored in a record associated with the user. *Id.* The patent also claims that the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest. *Id.* The '402 patent suggests indications of interest can be based on searches, *id.*, 5:31-40, as well as on clicks or purchases. *Id.*, 16:48-17:51.

44. The '402 patent claims that quality levels are determined based on several factors, including determining whether a need associated with a user profile has been met for an interest category, an estimate of a likelihood of an event such as a conversion or a purchase, and a conversion assessment. *Id.*, cls. 1, 8, 9. The

'402 patent suggests that a determination that a need has been met can be made based on user searches or purchases. *Id.*, 5:31-50.

45. The '402 patent also claims, “determining of the first quality level is based at least in part on a unique identifier and clustering,” *i.e.*, the quality level is determined based on a unique user ID, which is itself determined by a clustering technique. *Id.*, 3:26-44, 11:40-55, 12:46-13:9, FIG. 6. The '402 patent describes clustering generally as a technique to ascertain a unique user of a device that has multiple users, based on the users' characteristics. *Id.*, 12:63-13:9. By clustering aspects of a user's behavior, on an X and Y-axis for example (FIG. 6), according to dimensions such as “time, distance, and session click-through rate . . . interest of different topics, search terms, and average time spent per page,” the '402 patent states “a clustering of behavior can be performed for each device, where a device may correspond to multiple users, and each user may correspond to multiple personae.” *Id.*, 12:46-13:9.

46. The '402 patent claims also that “at least one of the first quality level or the second quality level is determined with respect to the advertisement.” *Id.*, cl. 6. The '402 patent suggests the quality level is determined with respect to the product category of the advertisement eventually served to the user. *Id.*, 5:51-6:17 (the conversion assessment, a basis of the quality level, is made as to the product category of the advertisement).

B. The Challenged Claims

47. The '402 patent has three independent claims, claims 1, 10, and 19, and sixteen dependent claims, claims 2-9 which depend from claim 1, and claims 11-18 which depend from claim 10. Claim 1 is a method claim, claim 10 is a similar system claim with a processor and memory, and claim 19 is a similar computer program product claim. The two sets of dependent claims mirror one another—the first set depending from the claim 1 method, the second set depending from the claim 10 system.

48. The text of the Challenged Claims is listed above in the “Claims” Table for reference, along with an identifier of each limitation in those claims. I will refer to these limitation identifiers throughout this declaration.

C. Prosecution History

49. The application that issued as the '402 patent was filed on March 15, 2021, as one of a series of applications that claim priority to provisional application No. 61/562,235 filed on November 21, 2011. EX1001 (22, 60, 63). From my review of the prosecution history it appears that the application that issued as the '402 patent (No. 17/201,306) was filed with one claim. EX1002 at 1003 (03/15/2021 Claims). Thereafter, claims 2 through 16 were added to the claim set, and claim 1 was cancelled. EX1002 at 946 (06/25/2021 Amended Claims).

50. The patent examiner made several amendments in an Examiner's Amendment, all of which were accepted by the applicant before allowing the application, resulting in the patent's 19 issued claims. EX1002 at 12 (10/03/2022 Examiner Interview Summary); 1 (01/04/2023 Issue Notification).

51. One such Examiner Amendment to issued claim 1 was the addition of "the determining of the first quality level is based at least in part on a unique identifier and clustering." *Id.* at 15 (10/03/2022 Examiner Interview Summary).

52. The Examiner's Amendment also added language specifying the determinations of a first indication of interest, second indication of interest, and second quality level. One such amendment added language that "wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior." EX1002 at 16 (10/03/2022 Examiner Interview Summary).

D. Person of Ordinary Skill in the Art

53. I understand that the patent claims must be considered through the eyes of a hypothetical "person of ordinary skill in the art" (POSITA). I understand that a POSITA is not a specific or real individual, but rather a hypothetical individual having the qualities reflected by the following criteria: (a) the type of problems encountered in the art; (b) prior art solutions to those problems; (c) the

rapidity with which innovations are made; (d) the sophistication of the technology; and (e) the education level of active workers in the field. Furthermore, a POSITA would be familiar with the entire prior art literature.

54. A person of ordinary skill in the art (“POSITA”) at the time of the alleged invention of the ’402 patent (November 21, 2011) would have had a bachelor’s degree in computer science, electrical engineering, computer engineering, or the equivalent technical training. Additionally, they would have at least three years of experience in designing or programming internet-related processes, such as user profile management and/or web-based targeted advertising. A person may also be considered a POSITA with a combination of higher formal education and less technical experience, or with more technical experience and less formal education.

55. As I have an expertise in advertising on the Internet, advertising analytics, targeted advertising, and the financial economics associated with advertising spending, I am well acquainted with the level of ordinary skill that would be required to implement the systems and methods described in the ’402 patent. I am also capable of rendering informed opinions as to the understanding of one of ordinary skill in the art as of the time of the ’402 patent’s November 21, 2011 claimed U.S. priority date.

E. Claim Construction

56. I understand that in an *inter partes* review, challenged claims are interpreted using the same claim construction standard that is used to construe the claim in a civil action in federal district court.

57. I have been informed by counsel for Petitioner that for the purposes of this declaration, and in accordance with Plaintiff's position from the related district court litigation, each of the terms of the Challenged Claims should be accorded their plain meaning. EX1012. The patent plaintiff (PO's purported exclusive licensee) asserted such a position in *RavenWhite Licensing LLC v. The Home Depot, Inc., et al.*, 2:23-cv-00423 (E.D. Tex.). *Id.*

VI. PRIOR ART

58. My opinions in the declaration are based on the knowledge of a POSITA and the documents described below. The prior art discussed in this declaration is believed not to be cumulative of the prior art relied upon by the PTO during prosecution.

A. U.S. Patent Application Publication 2007/0244750 ("Grannan") (EX1007)

59. Grannan was filed on Apr. 18, 2006, and published on Oct. 18, 2007. EX1007. I have been informed by counsel for Petitioner that Grannan is prior art to the '402 patent under the patent statute, 35 U.S.C. §§ 102(a), 102(b), and 102(e).

60. Grannan discloses a targeted advertising system and method that tracks user “product interest categories” or “product categories” and determines a “product interest correlation score” in those categories based on user behavior. EX1007, Abstract, [0057]-[0059], [0104], FIG. 3, FIG. 5. The product interest correlation (“PIC”) score is reduced, zeroed out, or blocked according to a user’s online searches or purchases, such as when a user makes a purchase in a specific category. *Id.*, [0057]-[0059], [0105].

61. PIC scores are used by the Grannan system—the Advertisement Knowledge Management System (AKMS)—to send targeted advertisements to users interested in particular categories. *Id.*, [0061]-[0065], [0083]-[0090], FIGS. 1-3.

62. Grannan discloses, as an example, a user named Susan planning on purchasing children’s books as Christmas gifts who browses through a retailer’s website but holds off on buying. *Id.*, [0056]-[0057]. A PIC score is calculated for her based on this interest in the product category. *Id.* Later, when Susan is walking through a local mall finishing her shopping, she purchases a children’s book. *Id.* Her purchase reduces or blocks her PIC score for the book, but increases her PIC score for additional products related to the book. *Id.*

63. Grannan is analogous art to the ’402 patent and was not considered during prosecution of the ’402 patent.

B. U.S. Patent No. 7,809,740 (“Chung”) (EX1005)

64. Chung was filed on March 29, 2006, issued on October 5, 2010, and lists Yahoo! Inc. as its assignee. EX1005. I have been informed by counsel for Petitioner that Chung is prior art to the '402 patent under the patent statute, 35 U.S.C. §§ 102(a), 102(b), and 102(e).

65. Chung discloses a behavioral targeting system that determines user profiles from online activity. *Id.* at Abstract. The behavioral targeting system generates a user profile score for a target objective, such as brand advertising or direct response advertising. *Id.* Chung teaches generating profile scores, by category, to predict user propensity for subject matter in the category for the target objective. For example, the profile score may be used to model the strength of the user's interest in purchasing a product or service within a category. *Id.*, 4:66-5:4. The scores are then sent to a mapping module, where they are “mapped” in order to estimate the likelihood of user actions, such as “click propensity . . . click-through-rate, and conversion propensity.” *Id.*, at 20:44-56.

66. Chung discloses that user events, such as user search queries, are input into the system and used to determine user scores. *Id.*, 6:39-41, 6:62-7:2, Abstract, FIG. 4. Chung teaches serving ads to users based in part on user profile scores. *Id.*, 1:36-63, 3:52-57, 10:23-11:22, 11:57-67, 14:39-52, 20:46-63, FIG. 8.

67. Chung is analogous art to the '402 patent and was not considered during prosecution of the '402 patent.

C. *Segmenting Customer Transactions Using a Pattern-Based Clustering Approach*, Yinghui Yang and Balaji Padmanabhan (“Yang”) (EX1006)

68. Yang is a paper published no later than November 25, 2003 and again in a book no later than October 25, 2006 and I have been informed by counsel for Petitioner that Yang is prior art to the '402 patent under the patent statute, 35 U.S.C. §§ 102(a) and 102(b). *See* EX1011, ¶¶42-55. I have reviewed the Declaration of Sylvia Hall-Ellis, Ph.D., and my understanding from her declaration is that Yang was publicly available including to persons of ordinary skill in the art interested in its subject matter by these same dates. *Id.*, ¶¶ 19, 21, 42-45.

69. It is my opinion that persons of ordinary skill in the art interested in the subject matter of these materials, would have been able to locate the Yang article before the earliest priority date of the '402 patent, at least based on my knowledge of the capabilities of such persons and for the reasons provided by the Hall-Ellis Declaration.

70. Yang discloses pattern-based clustering was not a new concept as of 2003 and that “there may be natural clusters in data, characterized by a set of typical behavioral patterns.” EX1006, 13, 18. Yang discusses a clustering algorithm and experiments in clustering user-centric web transactions. *Id.*, 15-18.

Yang teaches that by using the features of an online session, such as time-related features (*e.g.*, average time per page, average time per category of site, most visited site category), quantity-related features (*e.g.*, number of pages, number of sites, number of categories), and/or order-related features (*e.g.*, first site, second site, first category, second category), the transactions of a single user can be clustered. *Id.*, 16-18. Yang is in the field of targeted advertising and discusses clustering in the context of “customer level data” and “online recommendations.” EX1006, 12.

71. Yang is analogous art to the '402 patent and was not considered during prosecution of the '402 patent.

D. U.S. Patent Application Publication 2012/0109956 (“Ramaiyer”) (EX1009)

72. Ramaiyer was filed on 10/29/2010 and published on 05/03/2012. EX1009, front cover. I have been informed by counsel for Petitioner that Ramaiyer is prior art to the '402 patent under the patent statute, 35 U.S.C. § 102(e).

73. Ramaiyer teaches a profile prediction system that uses a clustering algorithm to identify one of multiple user profiles for a single device such as a home computer, based on user behavior such as “clicking” and “browsing.” EX1009, Abstract, [0031]-[0037], FIGS. 5, 6; [0029]-[0030], FIG. 4. A user’s activity is then used to identify the user, and the user may then receive targeted advertisements. *Id.*, Abstract, [0034], [0036]-[0037], FIGS. 5, 6.

74. Ramaiyer is analogous art to the '402 patent. Though it was cited by the examiner during prosecution, it was not considered in combination with Grannan and Chung.

VII. GROUND I: GRANNAN, CHUNG, AND YANG

A. Claim 1

75. Claim 1 includes several terms that map directly to the prior art. Those terms and their prior art disclosures are collected in the below table for ease of reference.

1. [1pre] A method, comprising:

76. To the extent the preamble is limiting, it is my opinion that Grannan and Chung each disclose it. Grannan discloses “a method for selecting targeted advertising.” EX1007, Title, Abstract, [0020], FIG. 1. Chung discloses “[a] method for determining user profiles from online activity.” EX1005, cls. 1-6, Abstract, 1:35-63.

2. [1a] determining a first quality level associated with a user profile,

77. In my opinion, Grannan discloses *determining a first quality level* (product interest correlation (“PIC”) score) that is *associated with a user profile* (subscriber’s profile). For example, Grannan discloses that, “[a] total [PIC] score is calculated by factoring in demonstrated levels of interest in a particular product category via a variety of usage patterns for a subscriber.” EX1007, [0090]. “[I]f a

subscriber has a [PIC] score higher than a [PIC] score threshold set by an advertiser for a product category, the illustrative embodiment AKMS system and method can select and send an advertisement in the product category” *Id.*, [0062]. “[A] [PIC] score may range from 1 to 100. An advertiser may set a [PIC] score threshold of 20 for sending a text advertisement to a subscriber’s cell phone, a [PIC] score threshold of 50 for sending a video advertisement to the subscriber’s cell phone and set a [PIC] score threshold of 90 for sending a video advertisement to the subscriber’s IPTV receiver.” EX1007, [0063]-[0066].

78. Grannan also teaches that PIC scores are *associated with a user profile* as they are kept in a “[PIC] scoring matrix” for each subscriber that contains PIC scores for various product categories and is “updated dynamically for each subscriber in real time” by Grannan’s Intelligent Correlation and Scoring System (ICSS) 212. *Id.*, Abstract, [0083]-[0084], FIG. 2:

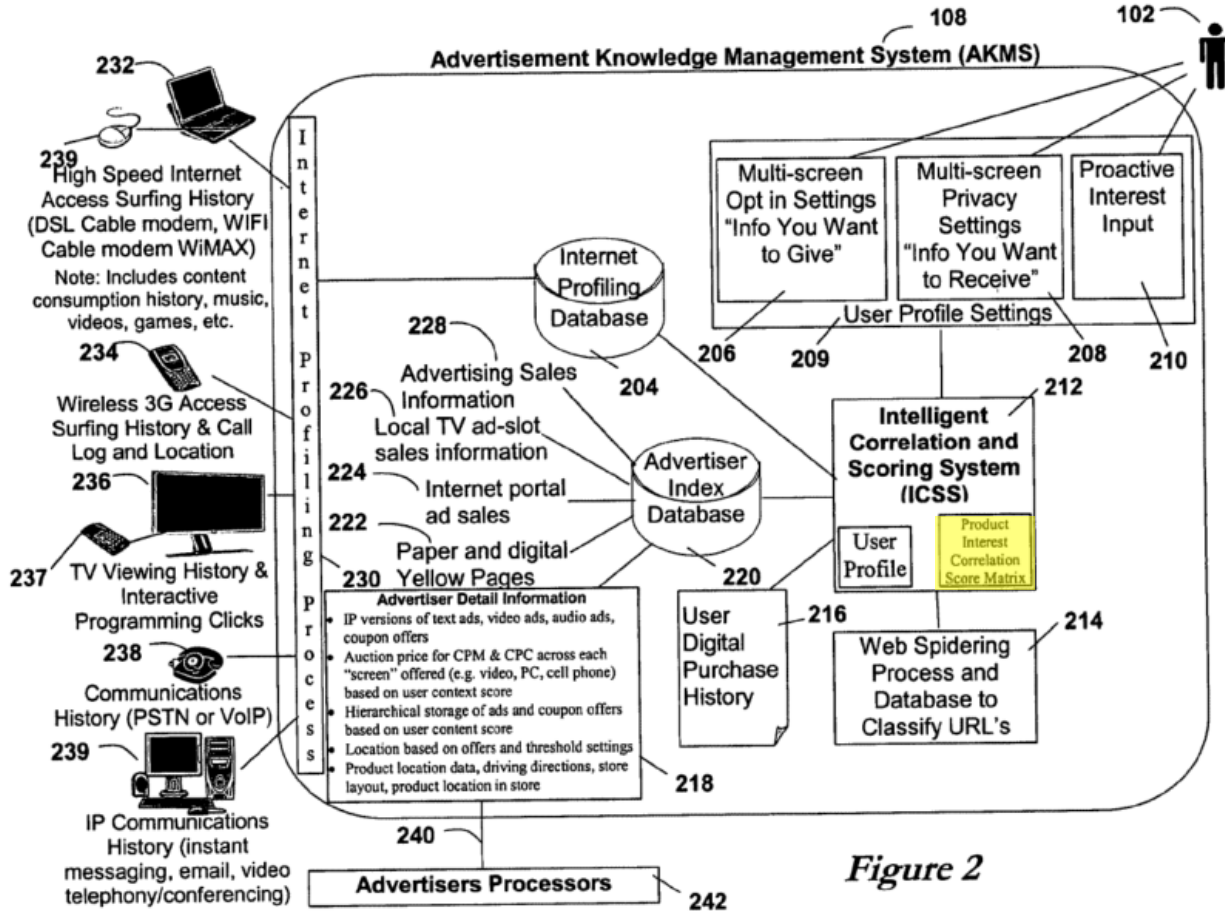


Figure 2

Id., [0073]-[0077], [0083]-[0090], [0105], [0112], FIG. 7. In my opinion, Grannan associates information by subscriber in the same manner that the '402 patent associates information by user profile. *E.g.*, compare *id.*, FIG. 8, [0034], [0113] (storing information by subscriber) with EX1001, FIG. 2, 3:26-44.6:27-42 (storing information by user profile).

79. To the extent Grannan does not expressly disclose this limitation, it is my opinion that Chung discloses it. Chung discloses *determining a first quality level* (mapped score) *associated with a user profile*. Chung teaches that user profile scores are "mapped" to create "mapped scores" in order to estimate the likelihood

of the user taking certain actions, such as “click propensity . . . click-through-rate, and conversion propensity.” EX1005, at 20:44-56. “[T]he behavioral targeting system generates a user profile score for a target objective. For example, the target objective may include brand advertising and direct response advertising.” EX1005, 1:59-62, 20:9-27, cls 1, 7, 13 (generating user profile scores). “[T]he behavioral targeting system . . . generates profile scores, by category, to predict user propensity for subject matter in the category for the target objective. For example, the interest score may be used to model the strength of the user’s interest in purchasing a product or service within a category.” *Id.*, 4:66-5:4.¹ Chung teaches that “the user interest score is input to a mapping module 460” to generate the “mapped score.” *Id.*, 5:49-50, FIGS. 3, 4. Mapped scores are “behavior-oriented scores that reflect user tendencies for a particular action.” *Id.*, 20:49-51. The mapping module “maps raw user scores to one or more output metrics.” *Id.*, 5:50-51. Chung teaches the user interest score is “converted” to a “mapped score” using a mapping equation. *Id.*, 21:18-57.

80. As discussed below in [1b], to the extent that Grannan does not disclose a *first quality level* a POSITA would have found it obvious to modify Grannan by substituting Chung’s “mapped score” for Grannan’s “PIC score,” and

¹ Chung uses “interest score” and “profile score” interchangeably.

such a combination would have required a simple software change well within the skillset of a POSTA, and would have yielded predictable results.

3. **[1b] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,**

81. In my opinion, Grannan discloses this limitation. Grannan teaches that the *first quality level* (PIC score) is *based at least in part on an estimate of a likelihood of an event*, for example, the Grannan subscriber's likelihood of purchasing a car. When the Grannan subscriber exhibits behavior of someone more likely to purchase a product, Grannan accounts for that estimated likelihood by increasing the PIC score.

82. For example, Grannan uses a "web spidering (spidering) system" that matches "subscriber accessed URIs" with "a subscriber's inferred intent." EX1007, [0073]-[0076]. The spidering system can ascertain not only that a subscriber visited a car manufacturer's website to look at cars, but that the subscriber looked at the product page for a particular model in detail and requested mailing of a product brochure. *Id.* Therefore, the "subscriber's inferred intent (in this case purchasing a Toyota Camry) derived by the web spidering system increases the subscriber's [PIC] score for a product category for Toyota Camry." *Id.* As such,

the PIC score is based on the subscriber's likelihood of purchasing the Toyota Camry, in this example.

83. Grannan provides examples of how the PIC score is used as an estimate of the likelihood of other purchase events: "Susan is planning to purchase children's books as a Christmas present for her nephews. She goes online to a retailer's web site and browses through a number of titles but decides to hold off on a purchase. . . . [T]his URI visitation information regarding the retailer's web site is mined and stored. After the Internet session and visiting the URI, the illustrative system and method performs spidering and categorization of 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. A [PIC] score *is calculated* for her based on this interest [in] the product category."² *Id.*, [0056].

84. Grannan also discloses, or at least renders obvious, that the *first quality level* (PIC score) is *determined based at least in part on a first search associated with the user profile*. Grannan discloses that a subscriber's "browsing to a new web site" is among the events used to update the AKMS which can assist in developing PIC scores for the subscriber. *Id.*, [0098], FIG. 5, [0060]. Grannan

² All emphasis, color, and annotations are added to original citations throughout, unless otherwise indicated.

teaches that “Internet access surfing history” is among the “monitored event data” used to calculate a PIC score. *Id.*, [0065], FIG. 2. Grannan states, “[PIC] scoring aggregates weighting and scoring for web surfing history, behaviors and context across multiple devices including more detailed knowledge of what transactions/interests were actually conveyed by subscriber web surfing behavior.” *Id.*, [0076], [0080], [0083]-[0090].

85. To 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. This 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.

86. Such a modification of Grannan would have been simple for a POSITA to implement because a user’s web search engine queries were a very similar type of data to user browsing information and would therefore have been simple to track and use in the same way in Grannan. For example, users typically initiated a browsing event with an interest-based search engine query followed by browsing the query results. The more the query was repeated or the more the query results were analyzed, by browsing the query results, the more likely the user’s

interest. It was also a well-known technique to a POSITA at the time to use a user's web search engine queries to indicate a user's purchase likelihood. For example, online advertising campaigns commonly captured a user's web search engine queries because they indicated a user's interest and the purchase likelihood of a particular interest-related product. In my opinion, this modification would have been use of a well-known technique to improve Grannan in a similar way, and doing so was well within the skill level of a POSITA.

87. Grannan also discloses that the *first quality level* (PIC score) is *determined based at least in part on a first purchase associated with the user profile*. Grannan discloses that the final PIC score for each subscriber is tallied by evaluating several factors including "previous purchases." *Id.*, [0090], [0105], FIG. 5. In the Susan example, Grannan discloses that, "[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." *Id.*, [0057]. "The targeted advertisement Susan received on her cell phone was ***based on her historic ... 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 ... shopping behavior.***" *Id.* A POSITA would have recognized from this disclosure (or found it obvious) that the "historic ... shopping behavior" is referring to past purchases that

Susan made in the children's books category. Additionally, 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. One 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.

88. Chung also discloses a *first quality level* (mapped score) *based at least in part on an estimate of a likelihood of an event* (likelihood of an action in response to an advertisement). Chung teaches that user profile scores are “mapped” based on an estimate of the likelihood of user actions, such as “click propensity . . . click-through-rate, and conversion propensity.” EX1005, at 20:44-56. “[M]apped scores are behavior-oriented scores that reflect ***user tendencies for a particular action***. Mapped scores are useful for target optimization purposes as they provide ***predictive information regarding a user's action relative to categories of interest***.” *Id.*, 20:49-53. “In general, the click-through-rate (CTR) of a user for a category reflects the probability that the user will select (“click on”) content (*e.g.*, advertisement, link, etc.) associated with the category. In general, the conversion rate for a user in a category ***reflects the probability that the user will buy/purchase a product*** or service associated with the category.” *Id.*, 20:57-63, 4:66-5:57.

89. Chung discloses that the *first quality level* (mapped score) is determined based in part on a *first search associated with the user profile* (user search query). User 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: “events include advertisement clicks, *search queries*, search clicks, sponsored listing clicks, page views, and advertisement views. However, events, as used herein, may include any type of online navigational interaction or *search related events*.” EX1005, 6:39-41, 6:62-7:2, Abstract, FIG. 4.

90. Chung teaches “input events, referred to herein as ‘events,’ are input to an event categorization module 410.” *Id.*, 5:6-8. The events are then classified and input to dimension processing 450 and to model & rules 440. *Id.*, 5:21-22. Then, “dimension processing 450 generates a user score, using the parameters for the category.” *Id.*, 5:37-41, 4:66-5:57.

91. Additionally, a POSITA would have found it obvious to modify Grannan by substituting Chung’s mapped score for Grannan’s PIC score. A POSITA would have recognized that these two scores are both directed to determining the likelihood of the user purchasing a product. *See* EX1007, [0056], [0073]-[0076], [0083]; EX1005, 20:44-63, 4:66-5:57. A POSITA therefore would have had a reasonable expectation of success in making the substitution. And as Chung’s “mapped score” is based on user search queries, a POSITA would have

recognized that using web search queries would further improve Grannan's PIC score as search queries provide an additional data point in gauging the user's likelihood in making a certain purchase. As such, this would have been nothing more than the use of a known technique to improve the Grannan system in the same way that it improves the Chung system in a predictable way. And in my opinion, the modification would have required a simple change to the software algorithm that calculates the PIC score, a change that was well within the skillset of a POSITA at the time.

4. [1c] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering

92. Grannan discloses that *determining of the first quality level* (PIC score) is *based at least in part on a unique identifier* (unique user profile data, demographics, and past behavior/settings). 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. "The [PIC] score for such categories is then weighted appropriately for the subscriber to reflect this interest. The user profile setting includes but is not limited to user profile data and user profile settings 206, 208 and 210. User profile data includes but is not limited to ***ages, family size, ethnicity, language spoken, address, subscriber user identifiers for family members, etc.*** User profile settings may also include but are not limited to

multiple screens or device opt-in settings for selecting access devices through which a subscriber 102 is willing to allow advertising to be received 208. User profile settings may also include privacy (opt-in) settings defining specifically what categories of advertising may be received, and in what format 208. User profiles may also include proactive product interest input 210 provided by a subscriber.” EX1007, [0044], [0073], [0080], FIG. 2:

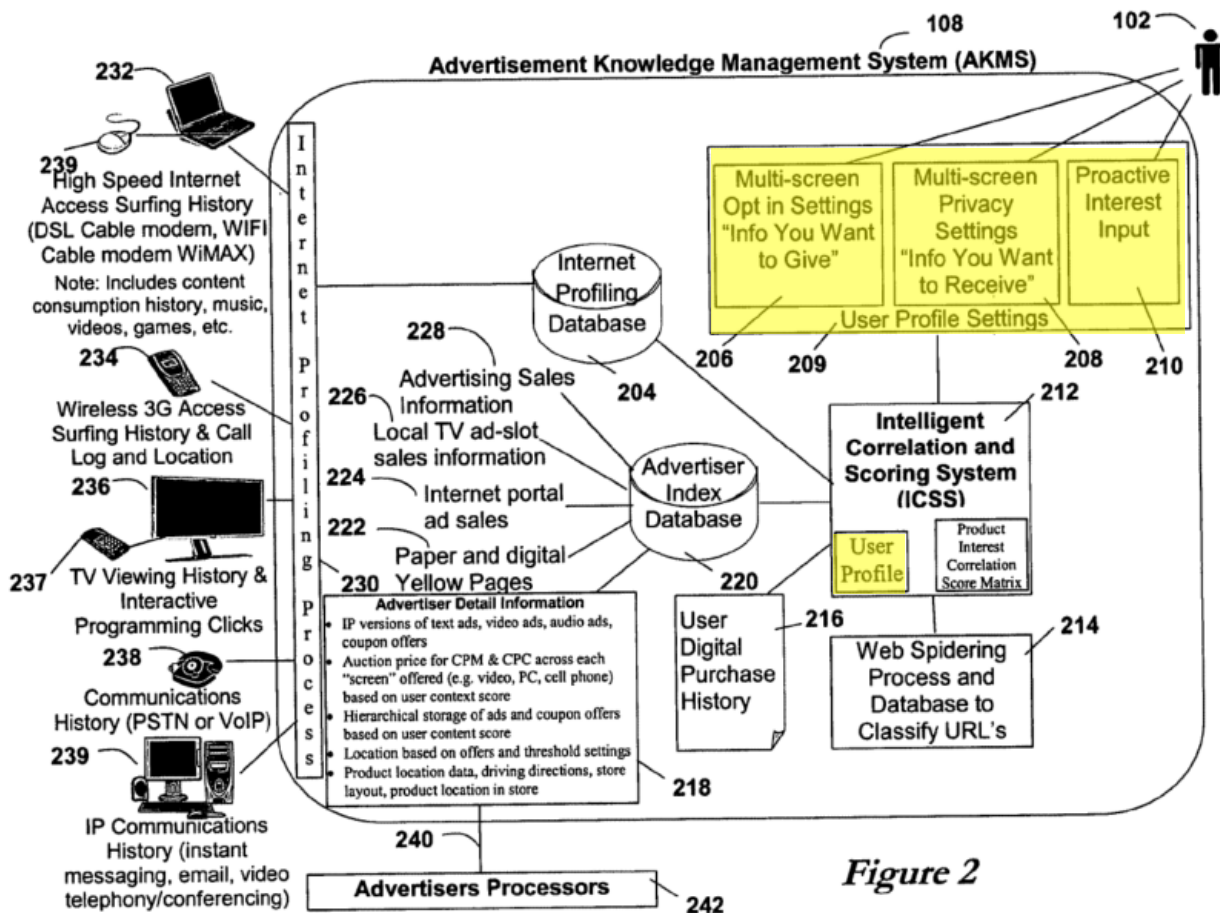


Figure 2

Id., [0107]-[0111], FIG. 7.

93. Grannan further discloses, “assessing real time contextual information about the subscriber and weighting the [PIC] score based on real time contextual

information” and “weighting the [PIC] scores based on previous event data for the subscriber in the product categories.” *Id.*, [0025]. “[PIC] scoring aggregates weighting and scoring for ... behaviors and context [for subscribers].” *Id.*, [0076]. For example, the subscriber’s unique location and Internet connectivity may be used in weighting PIC scores: “The more receptive subscriber is given a greater weight in their [PIC] score.” *Id.*, [0079].

94. 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*.

95. It would also have been obvious to a POSITA *to determin[e] ... the first quality level ... based at least in part on a unique identifier and clustering ...* At the time, many households used desktop computers and TVs that were shared between multiple members of the same family where all members of the household shared the same user ID or subscriber ID for online services. EX1007, [0091], FIG. 4 (disclosing need to ascertain the subscriber identity among a family of subscribers using an IPTV set top box); EX1009, Abstract, [0001], [0009], [0027], [0031], FIG. 5 (disclosing need to identify a specific user of a home computer).

96. As both Grannan and Chung are centered on determining a PIC score or mapped user profile score associated with unique users in order to best target advertisements to such users in a personalized way, a POSITA at the time

encountering the problem of identifying unique individuals in such shared computer situations would have found it obvious to modify the Grannan-Chung combination to improve it with a clustering technique, such as that disclosed in Yang, to identify individual user profiles from a client computer that was being used by multiple users.

97. In my opinion, the technique of differentiating between multiple users of the same computer, based on identifying clusters of user behavior (*i.e.*, clustering) was a known technique at the time of the '402 patent's earliest priority date. For example, Yang teaches "[t]he idea of pattern-based clustering is not new," and "there may be natural clusters in data, characterized by a set of typical behavioral patterns." EX1006, 13, 18. Yang discloses differentiating an individual user from a set of users using clustering: "[I]n order to test the efficacy of pattern-based clustering it is natural to combine transactions with a known category – Web transactions from different users (without maintaining the user ID) - and examine how the method does in separating transactions that ***belong to the individual users*** as compared to traditional clustering techniques." *Id.*, 16.

98. Yang teaches that by using the features of an online session, such as time-related features (*e.g.*, average time per page, average time per category of site, most visited site category), quantity-related features (*e.g.*, number of pages, number of sites, number of categories), and/or order-related features (*e.g.*, first site,

second site, first category, second category), the features can be clustered so as “around 70% of the clusters we get 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*).” *Id.*, 16-18.

99. Therefore, 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). Grannan already teaches determining a PIC score based in part on a unique identifier, as discussed above. Such modification would have required a mere software change, adding Yang’s clustering algorithm to Grannan’s software in order to further determine a unique user from a computer (or from a subscriber ID) that was tied to a whole household, and it would have been readily programmed into the Grannan system using the Yang disclosure.

100. Additionally, because Chung, Grannan, and Yang are directed toward improving targeted advertising systems and/or leveraging customer data in advertising, a POSITA would have been reasonably motivated to combine elements of these inventions to arrive at this limitation, and there would have been a reasonable expectation of success. EX1006, 12.

101. In my opinion, because the combination of the clustering technique from Yang, with the Grannan-Chung combination, involves applying a known technique (clustering) to improve the Grannan system in the same way and in a predictable manner, a POSITA would have found it obvious to combine these prior art references to achieve this function and arrive at this limitation.

5. **[1d] determining, for a user associated with the user profile, an indication of interest in a first category, wherein 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**

102. Grannan discloses or renders obvious *determining, for a user associated with the user profile, an indication of interest in a first category* (contribution score). As discussed in 1[b], a user's quality level (PIC score) is updated in the AKMS using "contribution score[s]" that reflect the user's interest in certain products and product categories. EX1007, [0083]. Contribution scores are calculated based on URI links that a user may browse (*id.*), "[h]istoric information regarding frequency and timing of previous accesses in [a URI] category," (*id.*, [0100]) or based on "products known to be complementary to [a] purchase ..." *Id.*, [0105].

103. For each subscriber, the Grannan system includes a "PIC scoring matrix" with "product categories and [PIC] scores for the product categories." *Id.*, [0083]. The "[PIC] scoring matrix is updated dynamically for each subscriber in

real time,” and “contains data indicating a [PIC] score for a number of products and categories.” *Id.*, [0083], [0084]. These updates can be by way of calculating a PIC *contribution score* based on user patterns and “*the ‘contribution’ score* can be added to the subscriber’s current PIC score,” for a particular category *to update the PIC score*. *Id.*, [0083]. The 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*.” *Id.*, [0090].

104. In the Susan example, as discussed above, a POSITA would have understood from the Grannan disclosure that Susan is sent a targeted ad based on a PIC score calculated from her previous purchases. *Id.*, [0057] (“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.”). A POSITA would have recognized from this disclosure that the “historic surfing/shopping behavior” refers to multiple purchases and web surfing that Susan had made in the children’s books category. Additionally, 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*. As such, the *indication of interest* (contribution

score) that led to the targeted ad, was based on *a second search associated with [Susan's] user profile* (second historic surfing/searches, different than the first one discussed in limitation [1b] above) and *a second purchase associated with [Susan's] user profile* (a second historic purchase behavior, different than the first one discussed in limitation [1b] above).

105. As discussed above in 1[b], to the extent that the “second search” is not expressly disclosed by Susan’s historic web “surfing” behavior, a POSITA would have found it obvious to calculate the contribution score based on Susan’s web search engine queries, as it would have required nothing more than the use of a known computation technique to improve the Grannan contribution score in the same way.

106. To the extent Grannan does not expressly disclose this limitation, Chung discloses it. Chung discloses an *indication of interest in a first category* (“user interest score” / “interest score” / “user profile score”). The Chung system, “generates profile scores, by category, to predict user propensity for subject matter in the category of the target objective. For example, the *interest score may be used to model the strength of the user’s interest in purchasing a product or service within a category.*” EX1005, 4:66-5:4.

107. Chung teaches that the “interest score” (also referred to in Chung as a “user profile score,” *see, e.g., id.*, 4:66-5:4) is *determined based at least in part*

on . . . *a second search associated with the user profile* because Chung updates interest scores / user profile scores based on multiple user events, including search events. *See* [1b]; *id.*, 2:48-49 (“user input comprises one or more ‘events’”); 6:38-41 (“events include advertisement clicks, *search queries*, *search clicks*, sponsored listing clicks, page views, and advertisement views.”).

108. Additionally, a POSITA would have found it obvious to calculate the “interest score” based in part on *a second purchase associated with the user profile*, because a POSITA would have known that past purchases, like search queries, indicate user interest in certain categories of items. As such, past purchase data would have improved the “interest score” and so this would simply have been the use of a known technique to improve on the Chung interest score.

109. To the extent that Grannan does not expressly disclose this claim limitation, a POSITA would have had good reason to modify Grannan with Chung’s disclosure. Grannan expressly teaches calculating an *indication of interest* (contribution score) for a user using information gathered from the user’s browsing history. A POSITA would have recognized that information from other user events such as search queries and search results would also be important in calculating a “contribution score” because when a user searches for product information, they are more often than not interested in that product, sometimes for purchasing. A POSITA therefore would have had a reasonable expectation of success in making

the combination. For example, a POSITA would have been motivated to combine these search techniques to make the resulting targeted advertising system more efficient and cost-effective. For this reason, a POSITA would have modified Grannan with Chung's disclosure of an "interest score" that is calculated using search query frequency and query content as an input.

110. Such a modification would have required software to change the algorithm by which the Grannan contribution score is calculated to account for user searches, and this would have been nothing more than the use of a known technique to improve a similar system in the same way, and well within the skillset of a POSITA.

6. [1e] storing, in a record associated with the user, the indication of interest in the first category

111. Grannan discloses or renders obvious this limitation. As discussed above, Grannan teaches *an indication of interest* (contribution score) that is calculated at least based on a spidering process and the user's browsing activity. EX1007, [0083]. Grannan at least inherently discloses storing this contribution score "in a record associated with the user" or renders it obvious because a POSITA would have recognized that the contribution score would have to be stored in a record so that it can be added to the PIC score as disclosed. *See id.* This record necessarily is associated with the user as it reflects the user's contribution score from the browsing activity. Grannan suggests as much in that it expressly

discloses that similar data associated with the user/subscriber is stored in memory, including PIC score data, product category data, subscriber identifier data, subscriber profile data, and product category interest. EX1007, FIG. 8, [0113].

112. Chung also discloses this limitation because Chung discloses that its “interest score” is stored in a memory record associated with the user: “the *user data store* comprises both the long-term and short-term *user interest scores*.” EX1005, 20:3-5; FIG. 12.

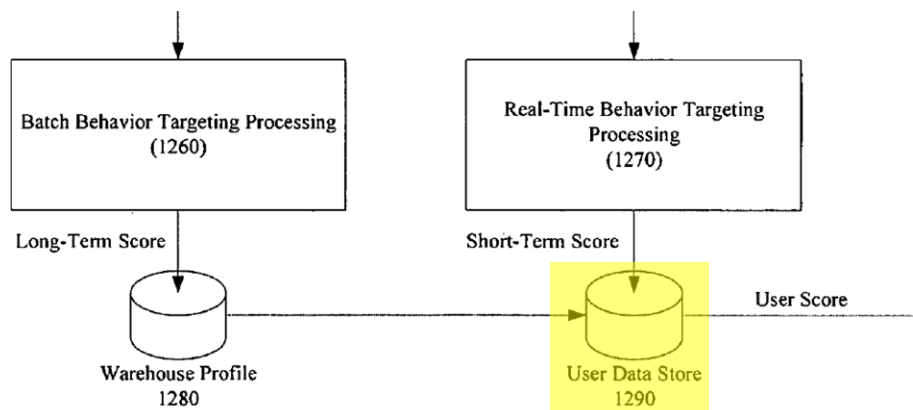


FIG. 12

113. It would have been obvious to modify Grannan’s “contribution score” to store it in a record associated with the user, as disclosed by Chung, because a POSITA would have recognized that the system needs to keep a record of the user’s “indication of interest” so as to use it in calculations such as modifying the PIC score, and in determining additional user interests as discussed below in element [1g]. Such a modification would have been within the skillset of the

POSITA and a POSITA would have had a reasonable expectation of success in making the modification as it would have been nothing more than the modification of Grannan using a well-known database technique of storing data associated with a particular item or person, such as storing user interest scores in a record associated with the user.

7. **[1f] subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;**

114. Grannan discloses or renders obvious this limitation. Grannan discloses its system being used to *determine[], for the user, that a need relative to the first category has been met* in the example of Susan. Grannan discloses that *subsequent to determining the indication of interest in the first category* (after the “contribution score” based on Susan’s historical surfing/purchase behavior was calculated, as discussed in 1[d]), Susan is walking by a “local book store [with] a discount sale on children’s books ... Susan impulsively walks into the store and makes a purchase.” EX1007, [0057].

115. Through the merchant reporting the purchase or through a digital wallet transaction, the Grannan system “will reflect this in [Susan’s] [PIC] score in this product category.” *Id.* Moreover, “the purchase of the product and recording of that purchase transaction within the [Grannan system] now reduces or blocks her

[PIC] score for that book ...” *Id.* As such, Grannan discloses that its system determines that Susan’s *need relative to the first category* (or need for children’s books) *has been met* by the purchase, therefore reducing or blocking her PIC score for that book. *See also id.*, [0105] (“For example, if the [digitally purchased] item . . . may impact future purchase opportunity in a specific category (e.g. customer finally buys the Toyota® Camry®) the product interest correlation score for that category within the [user]’s matrix is reduced, if not zeroed out or blocked in its entirety for a period.”) (determining if digital purchases are “deal-killer events”).

116. A POSITA would have found it obvious that Susan’s purchase on which this determination was made is a *third purchase associated with [her] user profile*. Grannan discloses that the AKMS has tracked Susan’s “historic . . . shopping behavior” and that embodiments of the AKMS mine the user’s “purchase history” to target ads. EX1007, [0057], [0060]. Grannan also discloses, “[s]ubscriber digital purchase history information keeps track of on-line purchases and purchases at retail outlets ...” *Id.*, [0078]. Moreover the disclosed AKMS contemplates tracking many purchases made by the same user: “The AKMS . . . can use stock keeping unit (SKU) number of product(s) purchased and map the SKU numbers to specific product interest categories.” *Id.*, [0105]. As such, it would have been obvious that Susan (and similar situated users in the AKMS) would have

purchased many other items in the past (comprising her “historic ... shopping” purchases as discussed above in limitations [1b] and [1d]), and that the book purchase discussed in this section would have been at least a *third purchase associated with [her] user profile*.

8. **[1g] based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category, wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;**

117. Grannan discloses *based at least in part on the determination that the need relative to the first category has been met (see [1f], i.e., the determination that zeroes out or blocks the user’s PIC score in its entirety), determining an indication of interest in a second category* (pre-defined contribution scores indicating interest in a second related category of products).

118. Continuing along with the disclosed example from Susan, Grannan teaches: “the purchase of the product and recording of that purchase transaction ... now reduces or blocks her product interest correlation score for that book—**but it likely increases Susan’s product interest correlation score for additional products related to the same book**. The AKMS is able to interpret such new product interests in order to provide future targeted advertising opportunities to Susan for related products in related product categories.” EX1007, [0057].

119. Grannan teaches that following the zeroing out or blocking of the score, the system “assesses whether there are complementary products ... related to the digital purchase. *Products known to be complementary to the purchase* have product interest scores increased by a *pre-defined ‘contribution’ to the score.*” *Id.*, [0105], FIG. 5. This pre-defined “contribution score” used to increase the PIC scores of complementary products is an *indication of interest in a second category (i.e., category of products complementary to the products in the first category).*

120. In my opinion, Grannan discloses *wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest* because the *first indication of interest* (contribution score signaling interest in children’s books) and the *second indication of interest* (pre-defined contribution score signaling interest in complementary products) are determined sequentially (*i.e., the second being determined after the first*), and they are related in that the second indication of interest is associated with product categories that are complementary to children’s books. *Id.*, [0057] (“The AKMS is able to interpret such new product interests in order to provide future targeted advertising opportunities to Susan *for related products in related product categories.*”).

9. [1h] in response to determining that the need relative to the first category has been met, determining a second quality

level associated with the user, wherein the second quality level is determined with respect to the first category;

121. In my opinion, Grannan discloses *in response to determining that the need relative to the first category has been met (see [1f]), determining a second quality level associated with the user, wherein the second quality level is determined with respect to the first category (i.e., reducing, blocking out, or zeroing out a PIC score for the first category where the need was met).*

122. Grannan discloses for Susan that, “the purchase of the product and recording of that purchase transaction within the AKMS now ***reduces or blocks her [PIC] score for that book . . .***” EX1007, [0057]. As another example, Grannan teaches that the AKMS determines if a purchase “represents a ‘deal-killer event’ **544** for certain product categories. For example, if the item is not perceived to be a quickly perishable item and may impact future purchase opportunity in a specific category (e.g. customer finally buys the Toyota® Camry®) ***the [PIC] score for that category within the subscriber’s matrix is reduced, if not zeroed out or blocked in its entirety for a period.***” *Id.*, [0105], FIG. 5.

123. These reduced or zeroed out PIC scores meet the “second quality level associated with the user” limitation as they are new PIC scores, *i.e.*, new quality levels associated with the subscriber. Furthermore, they are *determined with respect to the first category* as they are based on the first quality level that was determined with respect to the first category, *i.e.*, the original PIC score that was

reduced. Also they are determined *in response to the need for the first category being met, i.e.*, children's books in the Susan example, and the purchase of a car in the Toyota Camry example. *Id.*, [0056]-[0057], [0105].

10. [1i] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior

124. Grannan discloses that the *first quality level* (PIC score) is *based at least in part on a conversion assessment associated with the user profile* (a subscriber's "inferred intent," for example, purchasing a car): "[PIC] scoring aggregates weighting and scoring for web surfing history, behaviors and context across multiple devices including more detailed knowledge of what transactions/interests were actually conveyed by subscriber web surfing and behavior . . . For example, the spidering system can anonymously ascertain that not only did a subscriber visit a car manufacturer's web site to look at cars; the subscriber actually looked at the product page for a particular model in detail and requested mailing of a product brochure. The subscriber's *inferred intent* (in this case purchasing a Toyota Camry) derived by the web spidering system increases the subscriber's [PIC] score for a product category for Toyota Camry." *Id.*, [0073]-[0076].

125. In this way, when a user exhibits behavior of someone with an “inferred intent” to purchase a product, Grannan increases the PIC score (first quality level) to reflect the inferred intent. A POSITA would have understood that Grannan’s “inferred intent” to purchase a product is a *conversion assessment* because the inferred intent is a measure of how likely the subscriber will purchase the particular product, like the Camry. *See* [1b]; EX1007, [0056], [0083], [0024], [0070], FIG. 7.

126. In my opinion, a POSITA would have understood that in the example of Susan, this “inferred intent” (conversion assessment) was used to determine her contribution score and PIC score as described above in limitation [1b], because her web surfing behavior and URI link browsing was tracked and used to determine her original PIC score relating to the children’s books, much like the Toyota Camry example discussed above.

127. Grannan discloses *wherein the conversion assessment is based at least in part on historical click behavior*: The subscriber’s “inferred intent” is based at least in part on historical click behavior, including Internet sessions and web pages visited by a user (EX1007, [0056]) and a user’s “web surfing URIs visited, telephone numbers called, IM and other activities” (*id.*, [0073]). Grannan teaches “[f]or example, the spidering system can anonymously ascertain that not only did a subscriber visit a car manufacturer’s web site to look at cars; ***the subscriber***

actually looked at the product page for a particular model in detail and requested mailing of a product brochure. The subscriber's inferred intent (in this case purchasing a Toyota Camry) derived by the web spidering system increases the subscriber's product interest correlation score for a product category for Toyota Camry." *Id.*, [0076]. A POSITA would have understood that such user behavior (for at least Susan and the Toyota Camry examples) would have been determined from data such as historical mouse click behavior, as Susan and the Toyota Camry subscriber, would have needed to click on the aforementioned links and websites in order to access them through a browser.

128. To the extent not expressly disclosed by Grannan, it would have been obvious to a POSITA to modify Grannan's PIC score to base the PIC score (*first quality level*) in part on a *conversion assessment associated with the user profile*, such as taught by Chung. Chung discloses a *first quality level* (mapped user profile score) that is based on a "conversion propensity." EX1005, 20:54-21:2. According to Chung, "the conversion rate for a user in a category reflects the probability that the user will buy/purchase a product or service associated with the category." *Id.*, 20:61-63. Therefore, a mapped score can be based at least in part on a *conversion assessment* associated with the user profile of the user as taught by Chung: "[R]aw scores are converted or mapped to more useful scores, referred to herein as mapped scores, for target optimization purposes. In some embodiments, mapped scores are

behavior-orientated scores that reflect user tendencies for a particular action.

Mapped scores are useful for target optimization purposes as they provide *predictive information regarding a user's action relative to categories of interest.*" *Id.*, 20:44-23:10, [1b].

129. It would have been obvious to a POSITA to modify Grannan's PIC score (*first quality level*) in view of Chung's use of conversion assessment and historical click behavior. In the viewpoint of a POSITA, such a modification would have been the modification of Grannan based on a known technique. Chung discloses tracking historical click behavior: "events include *advertisement clicks*, search queries, *search clicks*, *sponsored listing clicks*," *id.*, 6:38-7:43. Chung also teaches that other examples of mapped scores are "click propensity" and "click-through-rate." *Id.*, 20:54-21:2. It would have been obvious to a POSITA to base the conversion assessment at least in part on such historical click behavior because it was known that such click behavior was a strong indicator of the likelihood of a user making a purchase. A POSITA would have had a reasonable expectation of success in implementing such historical click behavior because doing so was conventional (as were conversion assessments as discussed above) and doing so required only ordinary skill in the art.

130. A POSITA would have found modifying Grannan to include Chung's conversion assessment and historical click behavior obvious to try and a predictable variation of the prior art with a reasonable expectation of success.

131. Additionally, a POSITA would have understood that the generation of PIC scores in Grannan was already based on a conversion assessment of a user because Grannan teaches the feeding of a wealth of user information into the Intelligent Correlation and Scoring System (ICSS) in order to generate PIC scores that advertisers can use to show advertisements to users that are likely to convert relative to the advertisement. *See, e.g.,* EX1007, [0059] (increase in PIC score in product category "rap music" leads to targeted ad and purchase of ring tone), FIG. 2. Therefore, in my opinion, adding the conversion assessment / historical click behavior disclosure of Chung to Grannan would have been an obvious improvement to Grannan using a known technique that was well within the skillset of a POSITA.

132. A POSITA would have been motivated to modify Grannan by adding a conventional conversion assessment in order to improve the targeted advertising function disclosed by the invention. EX1007, Abstract, [0056]-[0062]. To implement such a method, a POSITA would merely modify Grannan to add a conversion assessment as taught by Chung to its determination of a PIC score. Such a modified method would have had a reasonable expectation of success

because conversion assessments were conventional and doing so required only ordinary skill in the art, as it would have been accomplished with a software change well within the knowledge of a POSITA. Because the combination of prior art provides an improved solution to a well-known problem in the field, such as implementing more efficient and cost-effective targeted advertising systems, a POSITA would have been motivated to combine the prior art to achieve the resulting benefits. For example, in this instance, Grannan addresses a part of the solution, the PIC score, while Chung addresses another part of the solution, a conversion assessment. As a result, a POSITA would have been motivated to combine these references to arrive at this limitation with a reasonable expectation of success.

11. [1j] displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level.

133. Grannan discloses this claim element. Grannan teaches *displaying an advertisement to the user based at least in part on at least one of the first or second quality level* (the PIC score, or the zeroed/reduced PIC score). For example, Grannan teaches that advertisers can set PIC score thresholds for sending advertisements: “a [PIC] score may range from 1 to 100. An advertiser may set a [PIC] score threshold of 20 for sending a text advertisement to a subscriber’s cell phone, a [PIC] score threshold of 50 for sending a video advertisement to the

subscriber's cell phone and set a [PIC] score threshold of 90 for sending a video advertisement to the subscriber's IPTV receiver." EX1007, [0063].

134. Grannan teaches "the AKMS accesses the advertisements database 220 to select a targeted advertisement to send to the subscriber. The AKMS 108 automatically calculates a [PIC] score 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." *Id.*, [0062], FIG. 2:

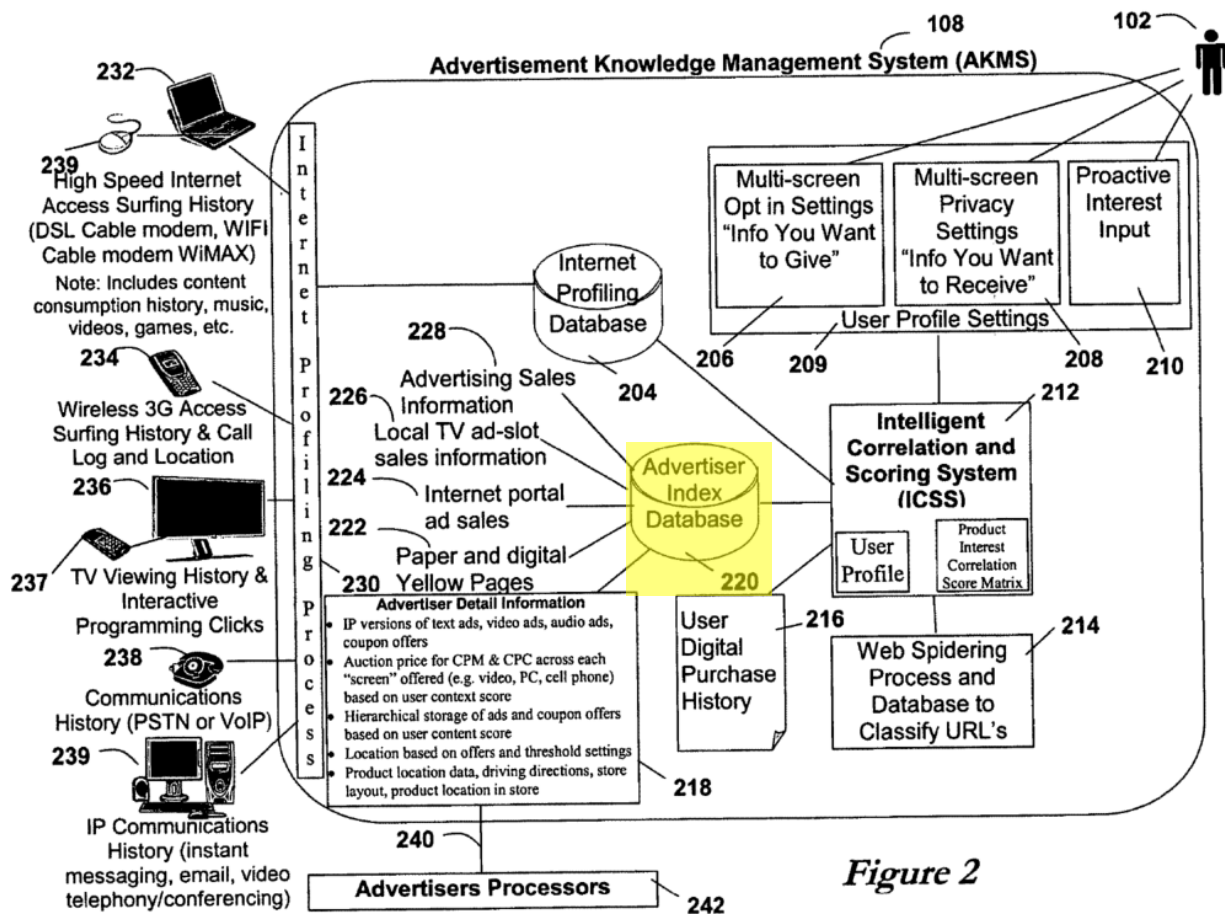


Figure 2

“The criteria for determining advertisement placement or selection and delivery to a subscriber can include but are not limited to . . . *[PIC] score data*.” *Id.*, [0074]-[0075], [0059], [0081], FIG. 4, [0095]. Grannan discloses the ads are displayed to the user. *Id.*, [0056]-[0059].

135. Based on these disclosures, a POSITA would recognize (and it would have been obvious to a POSITA) that the AKMS displays targeted ads to users such as Susan based on their PIC scores, and in the case of Susan, based on her reduced PIC score that calculated after she purchased the children’s book.

B. Claim 2

1. [2] The method of claim 1, wherein the second quality level is determined with respect to the second category.

136. Grannan discloses or renders obvious in response to determining that the need relative to the first category has been met (*see* [1f]), determining a *second quality level* (the reduced, blocked out, or zeroed out a PIC score) *with respect to the second category* (a category for a related or complementary product):

“Moreover, the purchase of the product and recording of that purchase transaction within the AKMS now reduces or blocks her [PIC] score for that book—but it likely *increases Susan’s [PIC] score for additional products related to the same book*. The AKMS is able to interpret such new product interests in order to provide future targeted advertising opportunities to Susan for *related products in related product categories*.” EX1007, [0057].

137. As another example, Grannan teaches that following the zeroing out or blocking of the score, the AKMS “assesses whether there are complementary products **546** related to the digital purchase. *Products known to be complementary to the purchase have product interest scores increased by a pre-defined ‘contribution’ to the score.*” *Id.*, [0105], FIG. 5.

138. A POSITA would have understood that that the reduced, blocked out, or zeroed out PIC score also is *determined with respect to the second category (i.e., a related product category)*, as the purpose of reducing Susan’s PIC score is to decrease the amount of ads that are targeted towards her for the product she already bought, and to increase the amount of ads targeted to her in related complementary product categories (the *second category*). If the PIC score was not reduced, then in the practice where there are finite number of advertisers directing a finite amount of ads at any one consumer, the original (non-reduced) PIC score for children’s books, would compete against the PIC score calculated for Susan in the complementary related product category, causing less ads to be directed to her in the complementary related product categories. In other words, in my opinion, the reduced PIC score for the children’s book category is also determined with respect to the *second category* (products complementary to/related to children’s books) because it is intended to allow Susan to see more advertisements relating to the *second category* (products related to children’s books).

C. Claim 3

- 1. [3] The method of claim 1, wherein at least one of the first quality level or the second quality level is based at least in part on an assessment of a purchase likelihood associated with the user profile.**

139. As discussed in [1i], Grannan discloses that a *conversion assessment* is used in calculating both the first and second *quality level*. While there may be different types of *conversion assessments*, as discussed in [1i] the specific type of *conversion assessment* that Grannan uses in calculating the first and second *quality level* (PIC score and reduced PIC score) is an *assessment of a purchase likelihood associated with the user profile*. As such, Grannan discloses *wherein at least one of the first quality level or the second quality level* (PIC score / reduced PIC score) *is based at least in part on an assessment of a purchase likelihood associated with the user profile* (subscriber's "inferred intent" for example, purchasing a Toyota Camry). See [1i]; EX1007, [0073]-[0076]. When a user exhibits behavior of someone more likely to purchase a product, Grannan accounts for that estimated likelihood by increasing the [PIC] score. *Id.*, [0056], [0083], [0070], FIG. 7.

140. Chung also discloses *wherein at least one of the first quality level or the second quality level* (mapped scores) *is based at least in part on an assessment of a purchase likelihood associated with the user profile, i.e., a mapped user profile score based on conversion propensity*. Chung teaches "mapped scores are behavior-oriented scores that reflect *user tendencies for a particular action*."

Mapped scores are useful for target optimization purposes as they provide *predictive information regarding a user's action relative to categories of interest.*" EX1005, 20:49-53. "Some examples of mapped scores are click propensity, expressed as a percentage, click-through-rate, and *conversion propensity*, also expressed as a rate." *Id.*, 20:54-56. "In general, the conversion rate for a user in a category reflects *the probability that the user will buy/purchase a product or service associated with the category.*" *Id.*, 20:57-63, 4:66-5:57. As discussed with respect to claim 1 and "conversion assessment," a POSITA would have found it obvious to modify Grannan with Chung. Additionally, because these prior art references are closely aligned and in a related field of targeted advertising, the combination may provide a synergistic effect, such as an improvement beyond the capabilities of each individual reference. A POSITA would have been motivated to combine them with a reasonable expectation of success.

D. Claim 4

1. [4] The method of claim 3, wherein the purchase likelihood is determined relative to the advertisement.

141. Grannan discloses *wherein the purchase likelihood* (subscriber's "inferred intent") *is determined relative to the advertisement* (relative to the product category of the advertisement). Grannan teaches that the user's "inferred intent" is determined for a product category. EX1007, FIG. 7, [0024], [0045],

[0052], [0056], [0070], [0112]. The “inferred intent” is also used to calculate PIC scores. *Id.*, [0076].

142. At the same time, Grannan teaches that users are served advertisements in product categories: “An advertiser index database 704 is reviewed to *select an advertisement in the respective product categories.*” EX1007, [0112]. Grannan teaches “[a]uction-based advertising across multiple screens or access devices based on a correlation or comparison of the advertisement product category with the [PIC] score for the product/service for a particular subscriber.” *Id.*, [0077], FIG. 7, [0020], [0059], [0062]. Grannan also discloses, “Advertisements ... are selected with highest correlation scores matching the subscriber’s [PIC] score. The correlation score for the advertisement is based on a comparison of the product category for the advertisement and the [PIC] score for the subscriber. Finally, the final advertisement to present is selected ... based on correlations cores and/or highest bid price by advertisers.” *Id.*, [0112]; FIG. 7:

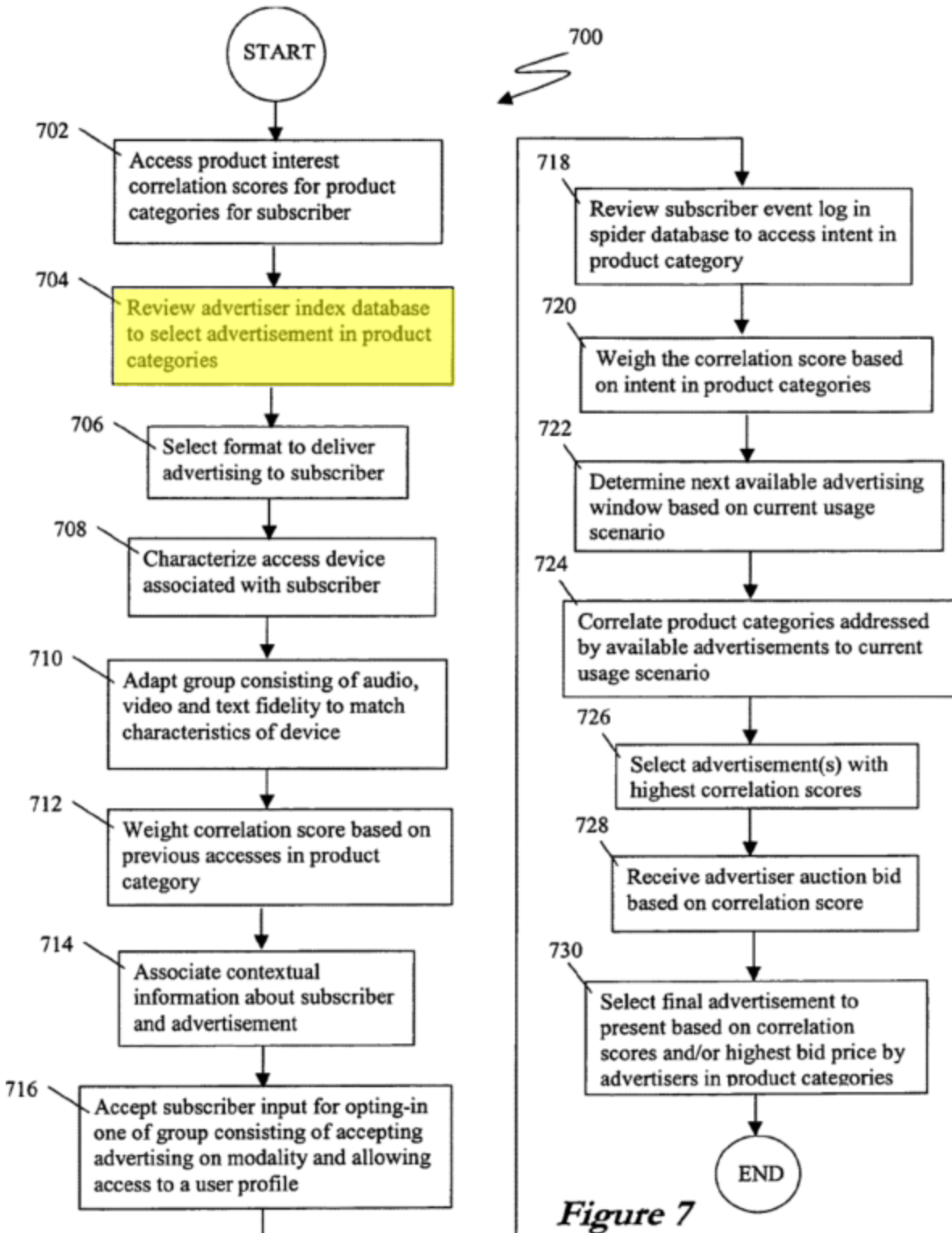


Figure 7

143. Therefore, in my opinion, Grannan teaches the user's *purchase likelihood* (inferred intent) is determined relative to the advertisement served to the user, because the user's *purchase likelihood* (inferred intent) is used to determine the PIC score, and the advertisement shown to the user is based on a correlation to the PIC score. A POSITA in reviewing the system disclosed in Grannan would have understood this to be the case so as to effectively pair the user's *purchase likelihood* (inferred intent) with effective targeted advertising in the right product category.

144. Chung also discloses this claim limitation by teaching that the *purchase likelihood* (conversion propensity) is *determined relative to the advertisement* (relative to the category of the advertisement). Chung teaches that its system serves targeted advertisements to users "based on the user's interest in the category or topic of the advertisement." EX1005, 10:23-26, 11:57-67 ("The long-term user behavioral profile has application for use to serve advertisements conducive to a user's long-term interest. . . . For this example, the user's long-term direct response score in the automobile category is high, and therefore an advertising application may serve the user advertisements for the sale of automobiles."). The *purchase likelihood* (conversion propensity) in Chung is determined for a category: "In general, the conversion rate for a user *in a category*

reflects the probability that the user will buy/purchase a product or service associated *with the category*.” *Id.*, 20:60-63.

145. A POSITA would therefore have understood at the time that the *purchase likelihood* (conversion propensity category) would be the same category of the advertisement ultimately served to the user in order to accomplish Chung’s goal of providing user’s advertisements in their interest categories. A POSITA would have understood that the conversion propensity is only of any use if this is the case. Therefore, Chung discloses the purchase likelihood is determined relative to the advertisement. As discussed in limitation [1i], it would have been obvious to a POSITA to improve Grannan’s system using Chung’s disclosures of using conversion propensity to determine advertisements.

E. Claim 5

1. **[5] The method of claim 1, wherein at least one of the first quality level or the second quality level is determined at least in part by using machine learning.**

146. In my opinion, the Grannan-Chung combination renders this limitation obvious. For example, Chung discloses that a “machine learning algorithm” can be used to “minimize error in predictions” when using models to generate profile scores. EX1005, 18:1-19:45. Chung therefore discloses that use of machine learning algorithms were known in the art to improve targeted advertising systems.

147. It would have been obvious to a POSITA to modify Grannan in view of Chung to determine *at least one of the first quality level or the second quality level . . . in part by using machine learning*. In the viewpoint of a POSITA, such a modification would have been obvious to try and a predictable variation of the prior art with a reasonable expectation of success. This is because Chung already expressly discloses the use of a machine learning algorithm in its invention to better predict what actions users will take and weigh user profile scores as such, as discussed above.

148. It would have been obvious to a POSITA to determine at least one of the *first quality level* or the *second quality level* in part by using machine learning because machine learning helped make more accurate predictions based on underlying data, and Grannan and Chung both use predictions of user behavior in determining product interest correlation scores and mapped user profile scores, respectively. *See* [1b], [1i]. A POSITA would have understood that better predictions would make scores more meaningful and accurate, so the use of machine learning to improve scores would be obvious.

149. To implement such a method, a POSITA would modify Grannan to apply machine learning to determining PIC scores such as incorporating well-known and basic machine learning algorithms to minimize errors in generating mapped scores which predict a user's action relative to categories of interest. In my

opinion, a POSITA would have been familiar with simple machine learning algorithms for targeted advertising, and would have been able to readily program such algorithms for advertising at the time.

150. This would have been obvious to a POSITA given Chung's focus on generating useful mapped scores that reflect user tendencies for a particular action for target optimization purposes. EX1005, 20:8-23:10. Indeed, Chung discloses "[m]apped scores are useful for target optimization purposes as they provide ***predictive information*** regarding a user's action relative to categories of interest." *Id.*, 20:51-53. Minimizing errors in such prediction by using a machine learning algorithm would therefore have been obvious to try for a POSITA. A POSITA would have had a reasonable expectation of success in implementing such machine learning because doing so was conventional and doing so required only ordinary skill in the art.

151. Additionally, this modification would have been nothing more than the application of a known technique (simple machine learning algorithms) to improve the Grannan system in a similar way, and within the skillset of a POSITA.

F. Claim 6

- 1. [6] The method of claim 1, wherein at least one of the first quality level or the second quality level is determined with respect to the advertisement.**

152. Grannan discloses that the *first quality level* (PIC score) is based at least in part on a conversion assessment associated with the user profile, *i.e.*, a user's (subscriber's) "inferred intent," for example, purchasing a car. *See* [1i] (score increased when user more likely to purchase specific car). The conversion assessment shares the same product category as the advertisement that is eventually served to the user, such as for a specific car like a Toyota Camry: "The subscriber's inferred intent (in this case purchasing a Toyota Camry) derived by the web spidering system increases the subscriber's [PIC] score for a product category for Toyota Camry." EX1007, [0073]-[0076], FIG. 3, [0087]-[0089].

153. Grannan teaches that the PIC scores are applied to an advertisement database to select an advertisement in the product category to send to the user. *See* [1j]; EX1007, [0020], [0029], [0041], [0058], [0082], [0065], [0112], FIG. 7. Therefore, Grannan teaches *wherein at least one of the first quality level or the second quality level is determined with respect to the advertisement. See also claim 4 discussion above.*

G. Claim 7

- 1. [7] The method of claim 1, wherein 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.**

154. Grannan discloses using *discounts* and *surcharges* based on first or second *quality level* (reducing or increasing price of advertising based on PIC score). *See discussion above in claim 1.*

155. Grannan discloses advertiser auction bidding where the price of an advertisement is based in part on a [PIC] score (*quality level*). EX1007, FIG. 7, [0028], [0033], [0063], [0066], [0074]-[0075], [0077], [0081]-[0082], [0113]. For example, Grannan discloses text advertisements are lower cost than TV advertisements, *id.*, [0077], and that advertisers can set [PIC] score thresholds for when text advertisements versus TV advertisements are sent to users. *Id.*, [0063] (“[A] [PIC] score may range from 1 to 100. An advertiser may set a [PIC] score threshold of 20 for sending a text advertisement to a subscriber’s cell phone, a [PIC] score threshold of 50 for sending a video advertisement to the subscriber’s cell phone and set a [PIC] score threshold of 90 for sending a video advertisement to the subscriber’s IPTV receiver.”).

156. In this way, Grannan discloses that the PIC scores (first or second *quality level*) are used to determine whether a higher-priced or lower-priced

advertisement is sent to the user, *i.e.*, a surcharge or discount on the price of the advertisement depending on the PIC score.

H. Claim 8

1. [8] The method of claim 1, wherein the event comprises a conversion.

157. Grannan teaches *wherein the event comprises a conversion*. Grannan discloses wherein the *first quality level* (the PIC score) is based at least in part on an estimate of a likelihood of a conversion, *i.e.*, a conversion assessment or the subscriber's "inferred intent," for example, purchasing a car. *See discussion above in 1[b] on likelihood of an event*. Moreover, Chung teaches determining the *quality level* based on conversion propensity. *See [1b]*. A POSITA would have understood conversion propensity to be an estimate of a likelihood of a conversion, and therefore that the Chung mapped user profile score is based at least in part on such estimation. *See [1b]*.

I. Claim 9

1. [9] The method of claim 1, wherein the event comprises a purchase.

158. Grannan teaches *wherein the event comprises a purchase*, since a purchase of a target product is one type of conversion. *See discussion in [1b] above, and claim 8*.

J. Claim 10.

1. [10pre] A system, comprising:

159. To the extent the preamble is limiting, Grannan discloses it. Grannan discloses “a system and method for selecting targeted advertising.” EX1007, [0007]-[0008], [0044], [0064], [0116]-[0120], FIGS. 1, 2, 10. Chung also discloses the preamble. Chung discloses “[a] behavioral targeting system determines user profiles from online activity.” EX1005, Title, Abstract, 1:36-63, FIGS. 1, 3-5, 12, 15, cls. 7-12.

2. [10a] a processor configured to:

160. Grannan discloses a single processor that performs all elements of the disclosed AKMS targeted advertising system; as such the combination of Grannan, Chung, and Yang, as discussed in claim 1, performs elements [10b]-[10k] below. The Advertisement Knowledge Management System, the heart of the Grannan invention, contains a processor 130. EX1007, [0061] (“The AKMS includes *a processor 130* coupled to memory **132** and database **134** in memory.”), FIG. 1, [0116]-[0120], FIG. 10.

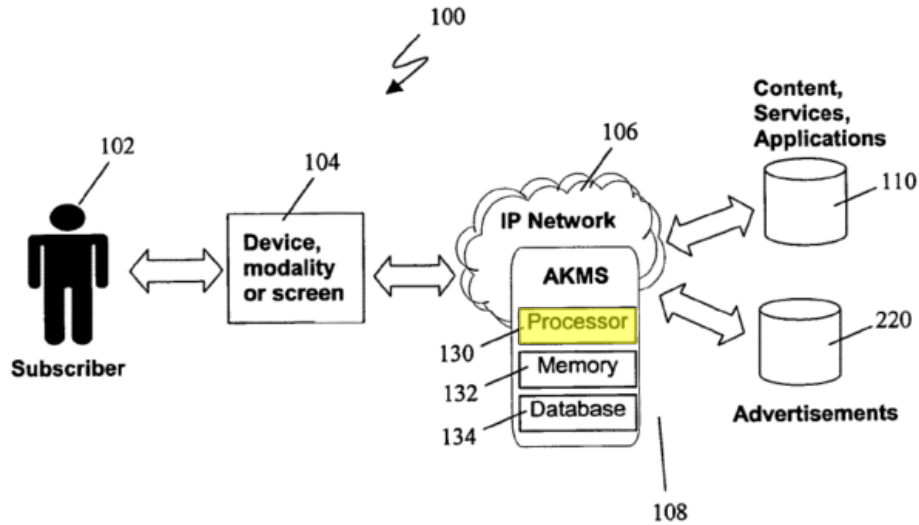


Figure 1

161. The AKMS performs elements [10b]-[10k], including after modifying the Grannan algorithms using Chung and Yang. *See* claim 1, FIGS. 1, 2. Therefore, the AKMS processor 130 as modified is configured to perform elements [10b]-[10k], as discussed above with respect to claim 1.

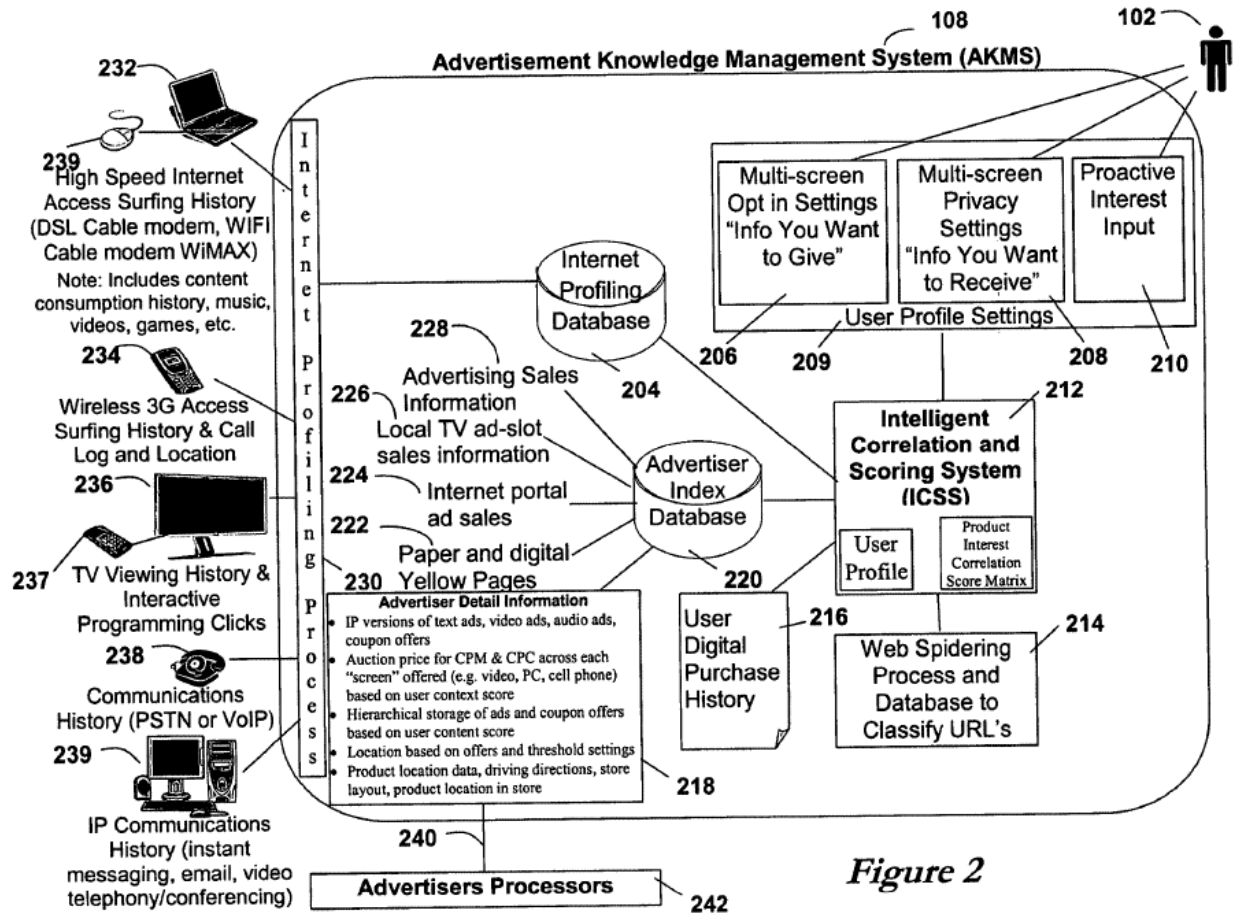


Figure 2

162. To the extent Grannan does not expressly disclose processor 130 is configured to perform elements [10b]-[10k], including after modifying Grannan with Chung and Yang, it would have been obvious to a POSITA because Grannan teaches a “centralized” invention in the AKMS that performs all of the core elements of the invention, and the modifications from Chung and Yang would be to Grannan’s AKMS. *Id.*, [0080] (“The illustrative embodiment AKMS 108 aggregates data from multiple sources to provide a centralized storage for Intelligent Correlation and Scoring System (ICSS) regarding determining the appropriate advertisements to target a subscriber at a specific time.”).

3. [10b] determine a first quality level associated with a user profile,

163. I incorporate herein my discussion and analysis above with respect to claim limitation [1a].

4. [10c] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,

164. I incorporate herein my discussion and analysis above with respect to claim limitation [1b].

5. [10d] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering;

165. I incorporate herein my discussion and analysis above with respect to claim limitation [1c].

6. [10e] determine, for a user associated with the user profile, an indication of interest in a first category, wherein 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;

166. I incorporate herein my discussion and analysis above with respect to claim limitation [1d].

7. **[10f] store, in a record associated with the user, the indication of interest in the first category;**

167. I incorporate herein my discussion and analysis above with respect to claim limitation [1e].

8. **[10g] subsequent to determining the indication of interest in the first category, determine, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the user profile or (2) a third purchase associated with the user profile;**

168. I incorporate herein my discussion and analysis above with respect to claim limitation [1f].

9. **[10h] based at least in part on the determination that the need relative to the first category has been met, determine an indication of interest in a second category, wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;**

169. I incorporate herein my discussion and analysis above with respect to claim limitation [1g].

10. **[10i] in response to determining that the need relative to the first category has been met, determine a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;**

170. I incorporate herein my discussion and analysis above with respect to claim limitation [1h].

11. **[10j] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the**

conversion assessment is based at least in part on historical click behavior; and

171. I incorporate herein my discussion and analysis above with respect to claim limitation [1i].

12. [10k] display an advertisement to the user based at least in part on at least one of the first quality level or the second quality level; and

172. I incorporate herein my discussion and analysis above with respect to claim limitation [1j].

13. [10l] a memory coupled to the processor and configured to provide the processor with instructions.

173. Grannan discloses that, “[t]he AKMS includes *a processor 130 coupled to memory 132* and database **134** in memory. A computer readable medium containing instructions that can be executed by the processor is embedded in the memory.” EX1007, [0061], FIG. 1, [0116]-[0120], FIG. 10. A POSITA would have understood that the memory necessarily provides the processor with instructions, as it was well known at the time that the coded instructions would be stored in the memory 132, and then provided to the processor from memory 132 (whether directly or indirectly) for execution of the code. *See id.* [0117] (“The instructions 1024 may also reside, completely or at least partially, within the main memory 1004, the static memory 1006, and/or within the processor 1002 during execution thereof by the computer system 1000.”).

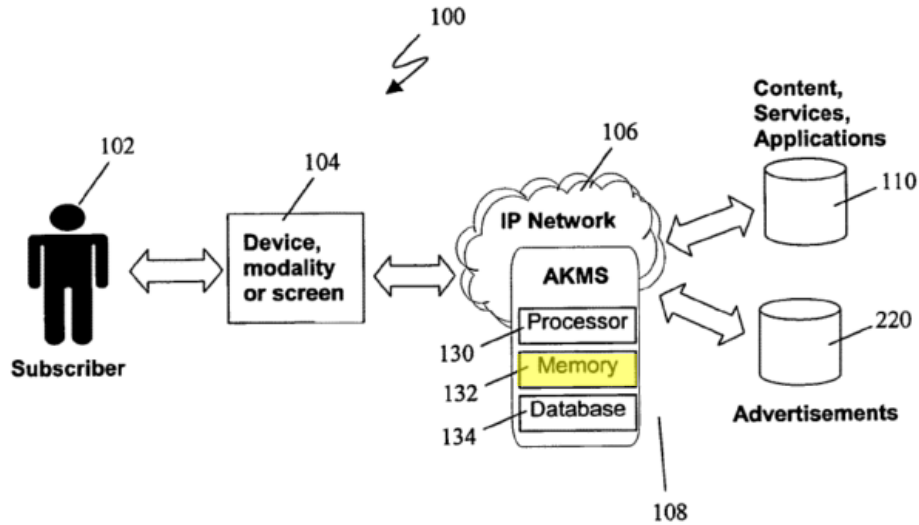


Figure 1

K. Claim 11

1. [11] The system recited in claim 10, wherein the second quality level is determined with respect to the second category.

174. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 2.

L. Claim 12

1. [12] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is based at least in part on an assessment of a purchase likelihood associated with the user profile.

175. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 3.

M. Claim 13

1. **[13] The system recited in claim 12, wherein the purchase likelihood is determined relative to the advertisement.**

176. I incorporate herein my discussion and analysis above with respect to claim 12 and claim 4.

N. Claim 14

1. **[14] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is determined at least in part by using machine learning.**

177. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 5.

O. Claim 15

1. **[15] The system recited in claim 10, wherein at least one of the first quality level or the second quality level is determined with respect to the advertisement.**

178. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 6.

P. Claim 16

1. **[16] The system recited in claim 10, wherein 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.**

179. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 7.

Q. Claim 17

1. **[17] The system recited in claim 10, wherein the event comprises a conversion.**

180. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 8.

R. Claim 18

1. **[18] The system recited in claim 10, wherein the event comprises a purchase.**

181. I incorporate herein my discussion and analysis above with respect to claim 10 and claim 9.

S. Claim 19

1. **[19pre] A computer program product embodied in a non-transitory computer readable storage medium and comprising computer instructions for:**

182. To the extent the preamble is limiting, Grannan discloses it: “The AKMS includes a processor 130 coupled to memory 132 and database 134 in memory. A *computer readable medium containing instructions* that can be executed by the processor is embedded in the memory.” EX1007, [0114], [0115], [0117], FIG. 9. A POSITA would have recognized that Grannan’s AKMS necessarily is embodied in the form of a computer program (*computer instructions*) that is stored in memory (*non-transitory computer readable storage medium*).

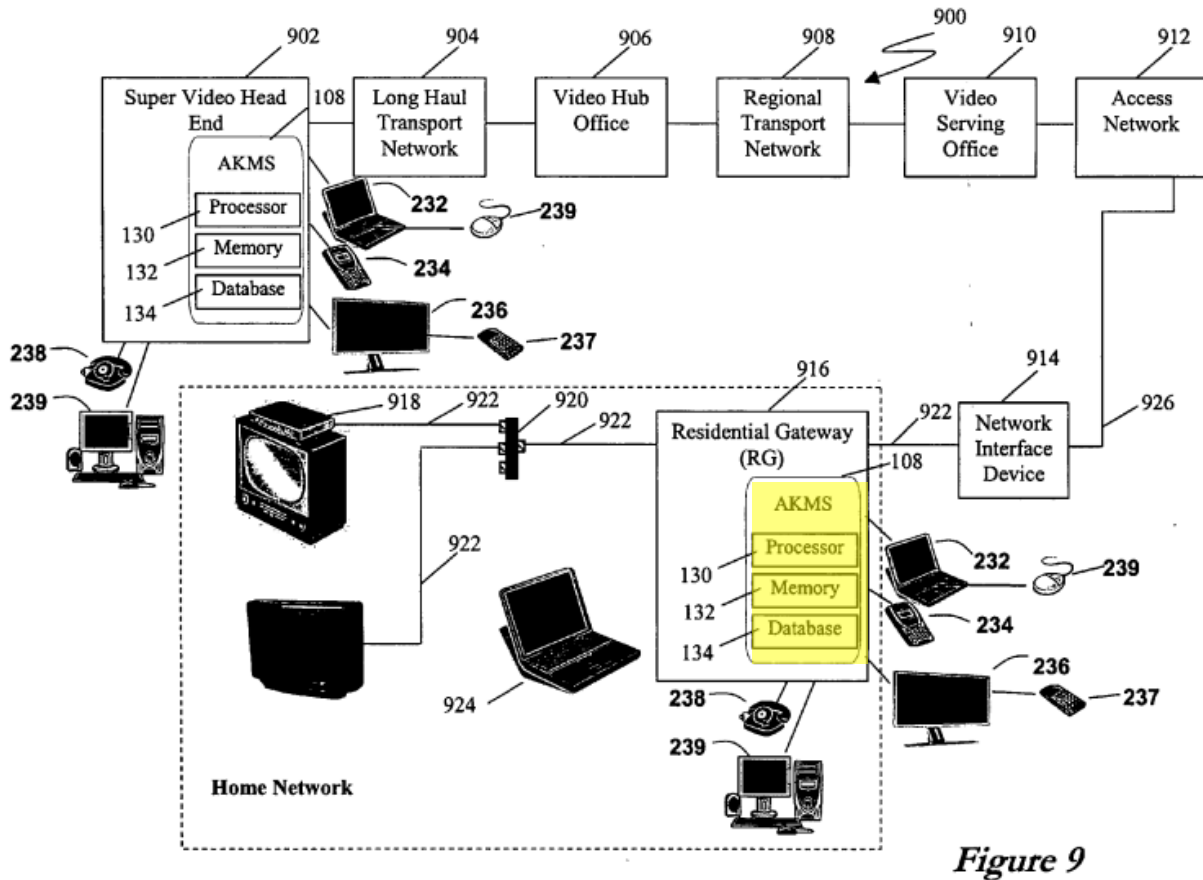


Figure 9

183. Chung also discloses this claim element: “For the software implementation, the behavioral targeting system is software that includes a plurality of computer executable instructions ... [T]he behavioral targeting system software may reside as encoded information on a computer readable medium ...” EX1005, 24:5-14.

2. [19a] determining a first quality level associated with a user profile,

184. I incorporate herein my discussion and analysis above with respect to claim limitation [1a].

3. **[19b] wherein the first quality level is based at least in part on an estimate of a likelihood of an event, wherein 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,**

185. I incorporate herein my discussion and analysis above with respect to claim limitation [1b].

4. **[19c] and wherein the determining of the first quality level is based at least in part on a unique identifier and clustering;**

186. I incorporate herein my discussion and analysis above with respect to claim limitation [1c].

5. **[19d] determining, for a user associated with the user profile, an indication of interest in a first category, wherein 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;**

187. I incorporate herein my discussion and analysis above with respect to claim limitation [1d].

6. **[19e] storing, in a record associated with the user, the indication of interest in the first category;**

188. I incorporate herein my discussion and analysis above with respect to claim limitation [1e].

7. **[19f] subsequent to determining the indication of interest in the first category, determining, for the user, that a need relative to the first category has been met based at least in part on at least one of: (1) a third search associated with the**

user profile or (2) a third purchase associated with the user profile;

189. I incorporate herein my discussion and analysis above with respect to claim limitation [1f].

- 8. [19g] based at least in part on the determination that the need relative to the first category has been met, determining an indication of interest in a second category wherein the indication of interest in the first category and the indication of interest in the second category comprise a sequence of related indications of interest;**

190. I incorporate herein my discussion and analysis above with respect to claim limitation [1g].

- 9. [19h] in response to determining that the need relative to the first category has been met, determining a second quality level associated with the user, wherein the second quality level is determined with respect to the first category;**

191. I incorporate herein my discussion and analysis above with respect to claim limitation [1h].

- 10. [19i] wherein at least one of the first quality level or the second quality level is based at least in part on a conversion assessment associated with the user profile, and wherein the conversion assessment is based at least in part on historical click behavior; and**

192. I incorporate herein my discussion and analysis above with respect to claim limitation [1i].

11. [19j] displaying an advertisement to the user based at least in part on at least one of the first quality level or the second quality level.

193. I incorporate herein my discussion and analysis above with respect to claim limitation [1j].

VIII. GROUND II: GRANNAN, CHUNG, AND RAMAIYER

A. Claims 1-19 in General

194. 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.

195. As such, I incorporate into Ground II all of my analysis with respect to Ground I, except for my analysis with respect to limitations 1[c], 10[d], and 19[c], as discussed specifically below.

B. Limitations 1[c], 10[d], and 19[c].

196. As discussed in Ground I with respect to limitations 1[c], 10[d], and 19[c], and incorporated herein by reference, Grannan discloses *wherein the determining of the first quality level is based at least in part on a unique identifier*. A POSITA would have found it obvious to combine Grannan with Ramaiyer to disclose *wherein the determining of the first quality level is based at least in part on a unique identifier and clustering*.

197. As discussed in Ground I, and as disclosed in Grannan, it was well known at the time that it was common for multiple users in a household to share a

single computer, and a need existed to distinguish between user activity between such users for the purposes of identifying which user accounted for the activity. EX1007, [0091]. Ramaiyer discloses a “profile prediction system [to] identify one of multiple user profiles for a single computer.” EX1009, Abstract. Ramaiyer teaches that, “a home computer may have multiple users that may not be targeted unless the user on the home computer can be identified ... [and] the system’s user identification may be based on a clustering model that considers various browsing characteristic to *identify different clusters that each correspond to a particular user or user profile.*” *Id.*

198. 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. EX1009, Abstract, [0025], [0029]-[0035], FIGS. 2, 4, 5. User behavior includes “clicking” and “browsing.” *Id.*, [0029]-[0030], FIG. 4. Ramaiyer’s clustering algorithm is used to group user sessions into clusters such that each cluster is associated with a different user. *Id.*, [0032]. The cluster data is then used for identifying a user or user profile based on the user’s behavior. *Id.*, [0034], [0036]-[0037], FIGS. 5, 6.

199. Additionally, Ramaiyer teaches that its “profile prediction model may be a Bayesian model that provides a probability that a user belongs to a particular cluster” and that the “model provides a probability that the user belongs to a particular cluster based on the monitored behavior.” *Id.*, [0036]-[0037].

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. Grannan already teaches determining a PIC score based in part on a unique identifier, as discussed in Ground I. Such modification would have required a mere software change, adding Ramaiyer's clustering algorithm to Grannan in order to further determine a unique user from a user ID that was tied to a whole household, and it would have been readily programmed into the Grannan system using the Ramaiyer disclosure. Additionally, because Chung, Grannan, and Ramaiyer are directed toward improving targeted advertising systems, and are also squarely in a related targeted advertising field, a POSITA would have been reasonably motivated to combine elements of these inventions to arrive at this limitation. EX1009, Abstract, [0001], [0009], [0011]-[0015], [0030], FIG. 1.

201. Because the *first quality level* (PIC score) is based on a unique user profile, and that unique user profile is determined by clustering, the Grannan-Chung combination with Ramaiyer renders obvious *determining of the first quality level is based at least in part on a unique identifier and clustering*.

202. Alternatively, based on these disclosures, and Grannan's disclosure that the PIC score is determined using the weighing of many different user profile

data (*id.*, [0025], [0073]-[0076], [0079]-[0080], [0083]-[0090]) a POSITA would have found it obvious to weigh the Grannan PIC score against the probability that the user profile determined by the Ramaiyer's Bayesian model clustering technique is a target user profile. In this additional way, the *first quality level* is determined *based ... on a unique identifier and clustering*.

IX. SECONDARY CONSIDERATIONS

203. At this time, I am not aware of any objective evidence (or “secondary considerations”) that would suggest the Challenged Claims are not obvious. For example, I am not aware of any evidence relating the purported invention to any commercial success, evidence of a long-felt need that was solved by the purported invention, evidence that others have copied the purported invention, failure of others facing the same state of the art to develop a satisfactory solution, professional approval or skepticism, or evidence that the purported invention achieved a surprising result. It is my opinion that all Challenged Claims would have been obvious to one of skill in the art.

204. I understand that if Patent Owner argues that objective evidence supports a finding of nonobviousness, I may be asked to review such evidence and formulate an opinion in response to Patent Owner's arguments. I reserve my right to do so.

X. RIGHT TO SUPPLEMENT

205. I reserve the right to supplement my opinions in the future to respond to any arguments that the Patent Owner raises. This declaration represents only those opinions that I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information that becomes available to me on my continuing analysis of the materials already provided.

XI. CONCLUSION

206. The foregoing represents my opinion to date but as discussed above I reserve the right to supplement my opinion if, among other things, further evidence or information becomes available.

207. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge 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 of me, I will appear for cross examination within the United States during the time allotted for cross examination.

208. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

APPENDIX A

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -

webtalkwithbob@gmail.com

Technology Experience



Mr. Sherwood is a consultant and expert witness to the legal community on matters relating to computing devices, software applications and Internet advertising.

Mr. Sherwood has testified, and is qualified by education, training, experience or occupation, as an expert, on the following matters: IP address server analysis and extraction, search engine ranking methods, HTML and XML code analysis, robot analysis, subscription based user and affiliate systems, subscription based systems for social networking, CPM advertising, venture capital portfolio analysis, click thru rates, key word selection techniques, co-branding, merchant selection and analysis for mobile and

desktop devices, database development and population, Google Local or Places, SEM campaigns, exclusivity content sharing agreements, mobile device applications, click thru conversion rates, affiliate agreements, revenue sharing and tracking analytics, application software with any text to speech or speech to text software, unauthorized use of names, false advertising, unfair competition, business valuation, intellectual property, term sheets and patent value, trade secret misappropriation, breach of employment contracts, Internet advertising, lead generation, affiliate tracking, Website development and deployment, software developer kit license interpretation, software development best practices, software deployment methods, runtime analysis, derivative product issues, intellectual property valuation based on patents, Website analysis, valuation of custom designed software, custom and practice issues associated with intellectual property licensing fees, source code and object code license agreements, investment letters of intent, secondary considerations for establishing patent validity, software best practices for enterprise software development, methods of measuring license use, measurement data, verification of software use, functionality and conformance with contract development specifications, derivative product rights, best practices with respect to derivative products, conformance to license agreement specifications for software development, use and distribution.

Experience

Consultant to business and expert witness to the legal community on matters relating to computing devices, business startups, licenses, software development and Internet advertising.

Employment History

2016 to Now: President of Identimap, Inc.

The company develops human resource management software.

Robert J. Sherwood

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July 1996 to March 2015: SmartText Corporation, President.

The company developed and licensed specialized software applications under the title LegalPoint. The company has no current licenses.

October 1991 to July 1997: The Center for Business Innovation (CBI), President.

CBI was a minority shareholder in 53 emerging growth companies including computer, communications and software businesses. President of a CBI subsidiary, Capital for Entrepreneurs, Inc. a venture capital fund financed by the Ewing Marion Kauffman Foundation.

September 1994 to 2000: Professor University of Kansas and University of Missouri.

Taught multi-campus courses in Entrepreneurship & Strategic Management of Technology.

December 1986 to October 1989: RasterOps, Inc. Vice President.

Company was engaged in the development, manufacture and sales of software for personal computer display devices.

January 1983 to December 1986:

Personal sabbatical and as a sole proprietor provided consulting services to technology firms.

February 1975 to December 1982: EDC, Inc. President.

Co-Founder of a Kleiner & Perkins venture capital backed company engaged in combining computer software technology with environmental improvement devices.

February 1967 to May 1974: Envirotech, Inc. Director Europe.

A start-up company that grew to \$500 million in sales and 5,000 employees in 6 years. Managed patent portfolio and computer engineering design modeling.

February 1966 to February 1967: Dorr Oliver, Inc.

A product development position.

Education and Awards

University of Kansas BS Civil Engineering 1960-1964

University of Kansas MS Environmental Engineering 1964-1966

California State College Hayward MBA 1968-1972

Honorary Doctorate DeVry University 1995

Entrepreneur of the Year Award- sponsored by NASDAQ, Ernst & Young, Kauffman Foundation and INC magazine

Graduate Fellowship Research Award Grant

University of Connecticut Business School graduate courses

Robert J. Sherwood

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webtalkwithbob@gmail.com

Berlitz French Immersion School Graduate
Babson College 10th Symposium for Entrepreneurship Educators
Center for Creative Leadership Graduate University of North Carolina
Web Developers Boot Camp-Java Scripting and HTML
Association of Information Technology Professionals

Special Appointment

I was selected by Dr. Ken Canfield, during his campaign for Kansas Governor, to join his campaign executive team. My role involved crafting a comprehensive technology master plan for Kansas, which encompassed the strategic amalgamation of crucial components from the private sector, public sector, and academic institutions. Notably, this plan leveraged the strengths of the four prestigious universities within Kansas. Its primary objectives were to stimulate job creation and establish incentives aimed at retaining scientists, technology graduates, and engineers in the state following their collegiate education.

Despite Dr. Canfield's eventual defeat by Kathleen Sebelius, my expertise in the field did not go unnoticed. Governor Sebelius subsequently enlisted my services to lead a specialized team of four individuals. Our mission was to conduct a thorough assessment of the policies governing technology commercialization, intellectual property ownership, patents, and licensing within all four of Kansas's universities. Our findings and insights were then meticulously compiled into a comprehensive report, which included specific recommendations for enhancing the seamless transition of technology from these academic institutions into the private sector. The culmination of our efforts involved presenting these recommendations to a joint session of the Kansas Congress.

Engagements**Canton Fields, P.A.**

Engaged to provide consulting services in a litigation matter for Lux Vending LLC.
d/b/a Bitcoin Depot.

Goldstein & McClintock LLLP

Engaged to provide consulting services for the defendant in the matter of Adaptive Avenue Associates, Inc. v. OpticsPlanet, Inc.

Goodwin Procter LLC

Engaged to provide expert services to X1 Discovery, Inc. with respect to patent enforcement actions at the U.S. International Trade Commission, U.S. District Court for the Central District of California, and U.S. District Court for the Western District of Texas.

Global IP Law Group, LLC

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Engaged to provide expert services to Rich Media Club, LLC in connection with litigation in an Inter Partes Review.

Park Lawless & Tremonti LLP

Engaged to provide expert services for Case 2:21-cv-2056-MWF-(JEM) In the United States District Court Central District of California Western Division – Springs Street.

Lewis Brisbois Bisgaard & Smith LLP

Engaged as a consultant to perform trial preparation work for Counsel in the The Epoch Times Association class action litigation.

Levi & Korsinsky, LLP

Engaged as a consultant to provide expert services on a technology litigation matter.

Winston & Strawn LLP

Engaged to provide expert services for Case No. 2:21-CV-0290-JRG In The United States District Court For The Eastern District Of Texas Marshall Division

Russ, August & Kabat

Engaged to provide expert services in connection with patent litigation involving the patent portfolio of AlmondNet LLC.

Husch Blackwell LLP

Engaged on behalf of Defendants in the matter of Samantha Cherry v. CoxHealth, In the Circuit Court of Greene County, Missouri Case No.: 2031-CC01024.

Davis, Zipperman, Kirschenbaum & Lotito, LLP and Vivid, IP

Engaged on behalf of the Plaintiff in the matter of SwissWatchExpo, Inc., a Georgia corporation, Plaintiff, Counterclaim Defendant v. Buyer's Best Bet, Inc. d/b/a eBestMedia, a Georgia corporation, Defendant, Counterclaim Plaintiff, and Lenny Estrin, Defendant v. Eugene Tutunikov, Counterclaim Plaintiff, United States District Court for Northern District of Georgia, Atlanta Division, Case No. 1:20-cv-03930-SCJ.

The Rosen Law Firm, P.A.

Engaged on behalf of Plaintiffs in the matter of Zillow Group, Inc. Securities Litigation in the United States District Court for the Western District of Washington at Seattle, No. 2:-cv-01387-JCC.

Devlin Law Firm, LLC

Engaged on behalf of Plaintiff on litigation matters pertaining to patents owned or asserted by Caddo Systems, Inc. and 511 Technologies, Inc. in the matter of Caddo Systems,

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Inc., et al v. Microchip Tech, Inc., 6:20-cv-00245-ADA, Caddo Systems, Inc., et al v. NXP USA, Inc. 6:20-cv-0244-ADA.

Holland & Knight LLP

Engaged on behalf of Defendant Web.com Group, Inc. in the matter of Express Mobile, Inc. v. Web.com Group, Inc. 3:20-cv-00839. (M.D. Fla., filed Oct. 11, 2010)

Smith, Gambrell & Russell, LLP

Engaged on behalf of Plaintiff Jared Barnett in connection with Plaintiff Jared Barnett v Defendant(s) Seth Berkowitz et al., Supreme Court of The State of New York County of New York, Index No. 654313/2018. Prepare a rebuttal report and testify at deposition.

Gibson Dunn & Crutcher LLP

Engaged on behalf of AOL Inc., Oath Inc., and Verizon Media Inc. (collectively, "AOL" or "Defendants") in connection with *Evox Productions LLC v. AOL Inc.*, No. 2:20-cv-02907-JWH-JEM (C.D. Cal.). Provided expert report and testified at deposition.

Kendall Brill & Kelly, LLP

Engaged on behalf of Plaintiff Villa Real Estate et al v. Pacific Sotheby's Int'l Realty et al, Case No. 02-08-21G – 5727. Provided an expert report and testified at a Disciplinary Hearing on behalf of Plaintiff Villa Real Estate.

Cozen O'Connor

Engaged on behalf of Plaintiff and Defendant Advanced Engineering Solutions Company, LLC versus Personal Corner, LLC. United States District Court Central District Of California. Case No.: 2:20-CV-5955-JFW-PLA.

Husch Blackwell

Engaged on behalf of BrandTotal LTD versus Facebook, Inc. United States District Court Northern District Of California. Case No. 3:20-CV-07182-JCS

Liebler, Gonzalez & Portuondo

Engaged on behalf of Defendant to prepare an affirmative expert report, rebuttal report and testify at trial. Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division Case No. 0:19-CV-62134-RAR/Strauss.

Reinhart Boemer Van Deuren, S.C.

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Engaged on behalf of Defendant Rise Interactive Media and Analytics, LLC to provide expert services in litigation between Sears Hometown and Outlet Stores, Inc. versus Rise Interactive Media and Analytics, LLC. Circuit Court Cook County Illinois.

Wang IP Law Group, P.C.

Engaged on behalf of Plaintiff to provide expert services and testify at trial. Dr. Peng Holding, Inc. v. Pei-Jun Kuo Case No. BC703529 February 2020.

Blegen & Garvey

Engaged on behalf of Defendant, Jeffrey Batio. to provide a rebuttal report. Testified at trial May 2019. United States District Court For The Northern District Of Illinois United States V. Jeffrey Batio 16 Cr 425

Scott D. Owens, P.A. and The Law Offices of Jibrael S. Hindi

Engaged on behalf of Plaintiff to provide expert services in conjunction with the matter of a class action litigation brought by Plaintiff-Bilal Saleh against Defendant-Crunch, LLC and Crunch Franchising, LLC and Deliu, LLC collectively ("Defendant") regarding violation of the Telephone Consumer Protection Act, 47 U.S.C § 227, et seq. ("TCPA").

Kaplan Fox & Kilsheimer LLP

Engaged on behalf of Plaintiffs on a class action matter.

Burns and Levinson LLP

Engaged on behalf of Defendant Internet Brands, Inc., VetNetwork, LLC v. Internet Brands, Inc., 15-00044 (D.N.H)

Mayer Brown LLP

Engaged as consultant to Google, Inc. on a Covered Business Method Patent Declaration.

Williams & Connolly LLP

Rockstar Consortium US LP and Netstar Technologies LLC v. Google, Inc. A patent infringement matter regarding U.S. Patent Nos. 6,098,065; 7,236,969; 7,469,245; 7,672,970; 7,895,178; 7,895,183; 7,933,883 relating to search engines. Engaged on behalf of Google, Inc.

Cooley Godward Kronish LLP

Christina Egner and Rickey Glasco v. Sony Electronics, Inc. A class action lawsuit brought against Sony in the United States District Court Southern District of California, Case No. AJB 09cv2109 AJB (MDD). Engaged on behalf of Sony to prepare an expert report on

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computer laptop failure rates.

Kilpatrick Townsend & Stockton

Branch Banking and Trust Company - EMG Technologies, LLC - Invalidity Analysis and Covered Business Method Review No. 2. The patent at issue is U.S. Patent No. 7,441,196 relating to e-commerce, using the World Wide Web to display advertisements and accepting user inputs to navigate commercial Websites. The subject matter includes well-known components such as hyperlinks, mark-up languages, navigation interfaces, and selectable inputs. Provided expert declaration on behalf of Branch Banking and Trust Company in support of CBM.

Fitch, Even, Tabin & Flannery LLP

A patent infringement action for plaintiff's United States Patent No. 7,054,830 entitled "System and Method for Incentive Programs and Award Fulfillment" Kroy IP Holdings, LLC v. Safeway, Inc., Case No. 2:12-cv-00800 (E.D. Tex.), and Kroy IP Holdings, LLC v. The Kroger Co., Case No. 2:13-cv-00141 (E.D. Tex.). Provided two infringement reports, declarations, deposition and a validity report on behalf of plaintiff Kroy IP Holdings, LLC.

Kilpatrick Townsend & Stockton

Branch Banking and Trust Company - EMG Technologies, LLC - Invalidity Analysis and Covered Business Method Review. The patent at issue is U.S. Patent No. 7,441,196 relating to e-commerce, using the World Wide Web to display advertisements and accepting user inputs to navigate commercial Websites. The subject matter includes well-known components such as hyperlinks, mark-up languages, navigation interfaces, and selectable inputs. Provided expert declaration on behalf of Branch Banking and Trust Company in support of CBM.

Arent Fox

Tre Milano, LLC vs. Amazon.com, Inc., Case No.: BC 460511, Superior Court of the State of California County of Los Angeles, Central District. Engaged by Amazon to opine on issues surrounding the impact of customer reviews on retail and on-line sales of a consumer product.

Girard Gibbs LLP & Kaplan Fox & Kilsheimer LLP

Engaged as a consultant on behalf of Plaintiffs on a class action matter. Yahoo!, Inc. is the defendant. Examined terms of service, wiretapping issues, user profiling related patents, targeted advertising methods, user interest mathematical modeling techniques and email delivery technologies.

Cooley LLP

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B.E.Technology, LLC v. Facebook, Inc U.S. Patent No. 6,628,314 Computer Interface Method and Apparatus with Targeted Advertising. Engaged to provide declaration in support of Facebook, Inc. Petition for IPR, invalidity report and non-infringement report.

Sterne, Kessler, Goldstein and Fox P.L.L.C.

A Google Petition for a Covered Business Method proceeding before the United States Patent and Trademark Office involving U.S. Patent No. 7,441,196 owned by EMG Technologies. Engaged to provide a declaration and deposition in support of Google's Petition.

Foley & Lardner LLP

Robocast, Inc. v. Apple, Inc. (1:11-cv-00235; USDC DE); Robocast, Inc. v. Microsoft, Corporation (1:10-cv-01055; USDC - DE). Engaged by Robocast to provide expert report on advertising methods and measurement analytics, deposition and trial testimony.

Keker & Van Nest, LLP

Suffolk Technologies, Inc. v. AOL Inc. and Google, Inc. U.S. Patent No. 6,081,835, An Internet Server and a Method of Controlling an Internet Server, issued June 27, 2000. Case No. 1:12-CV-625-TSE-IDD, in the United States District Court for the Eastern District of Virginia Alexandria Division. Engaged to provide infringement rebuttal report, deposition and trial on behalf of Google.

Wilson Sonsini Goodrich & Rosati, P.C.

General Electric Company vs. Kontera Technologies, Inc. Case No. 1:12-cv-00525-LPS. U.S. Patent No. 6,902,074 and U.S. Patent No. 6,581,065, Dynamic Insertion and Updating of Hypertext Links for Internet Servers. Engaged to provide declaration in support of Kontera Technologies, Inc. Petition for IPR, invalidity report and non-infringement report.

Heller Ehrman White & McAuliffe

Overture Services, Inc. (Yahoo!) v. FindWhat.com. Case No. SACV 03-00685 (CJC) (EX). The lawsuit charged FindWhat.com with infringement of Yahoo! U.S. Patent No. 6,269,361, System and Method for Influencing a Position on a Search Result List Generated by a Computer Network Search Engine (the '361 Patent). The '361 Patent covers various advertising methods relating to bid-for-placement product and pay-per-click performance technologies. Engaged by Yahoo!, Inc. to provide expert report on Secondary Considerations, deposition and trial testimony.

Vinson & Elkins, McDermott Will & Emery, Fulbright and Jaworski

Orion IP, LLC v. Staples et al. (Harley Davidson, Toyota, and Home Depot) Civil Action No. 2:04-CV-297 (LED). Orion IP asserted U.S. Patent No. 5,367,627 Computer

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Assisted Parts Sales Method and U.S. Patent No. 5,615,342, Electronic Proposal Preparation System.

Engaged to examine intellectual property valuation based on two patents, alternative cost issues surrounding the implementation of non-infringing substitute computer-based methods for the '342 and '627 patent, estimating non-infringing substitutes, estimate hypothetical negotiation licensee fees, examine patent invalidity based on prior art, Website analysis, valuation of custom designed software and custom and practice issues associated with intellectual property licensing fees. Engaged by Defendants to provide expert report and deposition.

Shughart Thomson & Kilroy

Emergis Technologies, Inc., f/k/a BCE Emergis Technologies, Inc. v. Kansas City Power & Light Co., in the United States District Court for the Western District of Missouri Kansas City Division, Civil Action No. 06-0201-CV-W-REL.

Emergis filed suit against KCP&L alleging infringement of a patent, entitled "Electronic Invoicing and Payment System" U.S. Patent No. 6,044,362 ("the '362 Patent") and seeking unspecified monetary damages and injunctive relief. This patent relates to automated electronic bill presentment and payment systems, particularly those involving Internet billing and collection. Engaged to estimate a non-infringing substitute, establish a license fee based on hypothetical negotiation, examine license agreement for conformance to specifications and software distribution rights. Engaged by defendant. Prepared expert report.

Allen Dell, P.A.

Accusoft Corporation f/k/a Pegasus Imaging Corporation v. John P. Reinhart, Jeffrey D. Amrein, Allscripts-Misys Healthcare Solutions, Inc. f/k/a Allscripts Healthcare Solutions, Inc. and AllscriptsMisys, LLC f/k/a Misys Healthcare Systems, LLC and successor by merger to Allscripts, LLC. In the Circuit Court of the Thirteenth Judicial Circuit in and for Hillsborough County, Florida Complex Business Litigation Division, Case No. 10-CA-018238 Division L. Engaged to provide expert report, deposition and trial on behalf of Pegasus Imaging Corporation.

Farella Braun + Martel LLP

Brandgenuity LLC Plaintiff v. Zynga Inc., f/k/a Zynga Game Network, Inc. In the Superior Court of the State of California in and for the County of San Francisco, Case No. CGC-12-520738 Engaged on behalf of Zynga. Plaintiff claims they supplied services to Zynga, for which Zynga refused to pay Plaintiff a \$18 million commission for a licensing agreement for the use of Zynga brand names, such as Farmville. Provided analysis and examination on custom and practices in the brand licensing industry including agency fee schedules, royalty rates, license agreements, integration clauses and agency agreements. Engaged to provide expert report, deposition and trial.

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Law Office of Mick Lerner, PA and Stinson, Mag & Fizzell

4th Trimester v. Reed Publishing, et al. Determine the value of a technology business. Expert report, deposition and testify at Arbitration for defendant.

Thelen Reid & Priest LLP

DJ&J Software Corporation dba Egghead Software and Elecom Corporation v. Casahl Technology, Inc. Examine sales of software from a reseller, but for developer's refusal to supply current versions, ability of distributor to manage software through normal sales channels, value of software and quantity that would have been sold, but for software developer's actions. Expert report and deposition for plaintiff.

Ascano & Campo LLP

Silicon Valley IPO Network et al. v. Kevin Von Poppen et al. Determine business value of video compression software had venture capital firm invested in startup and provided initial funding. Expert report for plaintiff.

Morrison & Hecker LLP

Universal Business Computing Company, Inc. and Ken Garen v. Global Enterprise Solutions, Inc. and Brian Unger. Determine value of founders equity share in the business had the founders had an agreement in writing for equity ownership, determine share price and actual total share ownership under premature departure of one of the cofounders. Expert report, deposition and testify at Arbitration for defendant.

Steeffel Levitt & Weiss

Examine license agreement and software for conformance to contract specifications for functionality and use. Expert report and deposition.

Grey Cary Friedenrich

Examine license agreement for computer hardware and software for conformance to contract specifications for functionality and use. Consultant for plaintiff.

Cooley Godward LLP

Examine license agreement and software for conformance to contract specifications for functionality and use. Consultant.

Michael Best & Friedrich

Examine Websites for duplication of code and ownership of various software Website commerce and affiliate development components. Expert report for defendant.

Cotton & Gundzik LLP

Digital Insight v. HNC Software. Examine co-branding, OEM relationship, software customization, licensing of Website and business loss due to inappropriate distribution of

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Website software. Examine license agreement for conformance to specifications and software distribution rights. Expert report for plaintiff.

Crosby Heafey Roach & Smith

Raytheon Company vs. Webgear, Inc. & Ted Cooper, Case No. V-020232-9 Superior Court of California County of Alameda. Examine license agreement for conformance to specifications, verification of computer hardware and software documentation instructions, verification of software and wireless computer product use and determine value of software. Expert report for plaintiff.

Mannatt Phelps & Phillips LLC

Verity, Inc. v. Broadvision, Inc. Case No. C01-20501 RMW (PVT) ADR United States District Court for the Northern District of California San Jose Division. Examine license agreement and software for conformance to specifications, analyze customer software purchase levels for various levels of product upgrades, determine the number of customers that would have upgraded, but for the licensee's inappropriate software distribution. Expert report, deposition and testified at Arbitration for plaintiff.

Schlagel Damore & Gordon

Determine value of enterprise software to licensor where licensee had developed a derivative product, examine business history, development and reproduction costs. Expert report and deposition for plaintiff. Examine license agreement for conformance to specifications and software distribution rights.

Crosby Heafey Roach & Smith

Examine license agreement for conformance to specifications and software distribution rights. Expert report for defendant.

America On-Line Corporate Counsel

Investigate the methods that might be used to establish comparative market values for email addresses and to indicate possible economic benchmarks. Civil suit regarding stolen email addresses and damages resulting from spamming. Consultant to AOL.

Boies, Schiller & Flexner LLP

The SCO Group Inc. vs. International Business Machines Corporation United States District Court, District of Utah, Case No. 03-CV-0294. Examine license agreements for derivative product rights, best practices with respect to derivative products, conformance to license agreement specifications for software development, use and distribution. Expert report for plaintiff.

Law Offices of Jeffery P. Widman

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SunLan Corporation vs. Zenith Infotech, Inc. Case No. 04CC02648 Superior Court of California, County of Orange. Examine issues relating to sale of goods, distributor revenue sharing and pricing with respect to industry practices for computer hardware and software, OEM licensing and distribution agreements. Examine license agreement for conformance to specifications and software copy distribution rights. Expert report and deposition for defendant.

Chan Law Group

Perfumebay.Com, Inc. vs. EBAY, Inc., Case No.: CV04-1358 WDK (SSx) United States District Court for the Central District of California. Examine issue surrounding the use of trade names in a domain name including search return listings. Expert report for plaintiff.

Latham & Watkins LLP

Itech Group, Inc. v. National Semiconductor Corporation. Case No. CV 810872 Superior Court of the State of California County of Santa Clara. Examine source code and object code license agreements and investment letters of intent surrounding a software licensing dispute. Expert report, deposition and testified at jury trial for defendant.

Latham & Watkins LLP

GR Match LLC v. Market Range LLC, et al. AAA Case Number 75-181-Y-00067-06. Examine issues relating to Website tracking methodologies for sponsored ads, natural search returns, advertising, customer life time value and affiliate tracking. Expert report and deposition for plaintiff.

Capobianco and Bram, LLP

Dovebid, Inc. v. eBay Inc., United States District Court for the Central District of California. Consultant for plaintiff.

Orrick, Herrington & Sutcliffe LLP

Viewsonic Corporation vs. AmTran Technology Co., Ltd. United States District Court, Central District of California Case No. CV 05-5864 GAF (RZx). Expert report for defendant.

Mayer, Brown, Rowe & Maw LLP

Positive Ions, Inc. v. ION Media Networks, Inc. United States District Court Central District of California Case No. CV 06-4296 ABC (FFMx). Expert reports for defendant and counter claimant.

Needham, Davis, Kepner & Young, LLP

Ecompare v. Priceline.com. Engaged as a consultant for plaintiff in trade secret matter.

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Farella Braun + Martel LLP

Securities and Exchange Commission v. Mark Leslie, United States District Court Northern District of California San Jose Division, Civil Action No. C 07-3444 JF. Engaged as expert witness for defendant. Expert report and deposition.

Allen Dell, P.A.

Pegasus Imaging Corporation v. Northrop Grumman Corporation et al., In the United States District Court, Middle District of Florida, Tampa Division Case No. 8:07-cv-01937. Engaged by Plaintiff. Examine license agreement for conformance to specifications and software copy distribution rights. Provided Expert report, deposition, trial assistance. The matter concerned a software developer kit license interpretation, software development best practices, software deployment methods, runtime analysis, and derivative product issues.

Nelson& Weinkauff

Trancos, Inc. dba Coregmedia vs. Brian Harley, Tallac Ventures, Inc., dba Tallacmedia.com and dba Leadshot, Superior Court of California, County of San Mateo-Case No. CIV-492361. Engaged by Plaintiff. Provided expert analysis and deposition assistance. The matter concerned trade secret misappropriation, breach of employment contract, Internet advertising, lead generation, affiliate tracking, and Website development and deployment.

Nixon Peabody LLP

Serena Software, Inc. v. Con-Way Inc. Case No. CIV 491585. Engaged by Defendant. Expert report. Examine license agreement for conformance to specifications and software copy distribution rights. Plaintiff contends that defendant breached a license agreement. Further that because of this breach, Plaintiff also contends that Defendant should be compelled to pay additional license fees for the total capacity of all the CPUs in the network.

The Law Office of Ilona Antonyan, APC.

Avalon RF, Inc. vs. WIFI, Pacifitek Systems, Inc. et al. Case No. 868507 Superior Court of the State of California for the County of San Diego.

Evolution Software, Inc.

Evolution vs. SunTrust Bank, Case No. 01-2409-JWL, United States District Court for the District of Kansas. Provided an expert report on the valuation of Data Base Management Software programs used in the Premium Finance Industry.

Dempsey & Johnson P.C.

Connie Chein M.D. v. Michele Hakakha et al., Case No. SC112820, Superior Court for the State of California for the County of Los Angeles. Complaint for unauthorized use of Plaintiff's name, false advertising, unfair competition. Engaged as consultant to examine

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Google Places, mobile device merchant selection, Website development techniques, traffic redirect from competitive Websites.

Equal Employment Opportunity Commission

EEOC v. Dolgencorp, LLC, Case No. 1:11-CV-0755-SEB-DKL, in the United States District Court for the Southern District of Indiana Indianapolis Division. Engaged by EEOC to determine the compatibility of Defendant's hardware, operating systems and application software with any text to speech or speech to text software including providing an expert report, deposition and trial testimony.

Shaub & Williams LLP

Pricegrabber.com, Inc. v. Unister GMBH, United States District Court Central District of California Case No. CV 10-09580 SJO(MANx). Engaged by Unister to provide expert report, deposition and trial testimony. Dispute involves items such as CPM for advertising, merchant analysis, click thru rates, key word selection techniques, co-branding, SEM campaigns, exclusivity content agreements, click thru conversion rates, affiliate agreements with Amazon, Overture and ShopZilla, Google AdWords, revenue sharing and tracking analytics.

Howrey Simon Arnold & White LLP

Business Management Systems Corporation v. Cable & Wireless USA, Inc. Civil Action No. 00-B-1069 United States District Court. Examine software best practices of enterprise software developer and methods of measuring license requirements, measurement data, and verification of software use, functionality and conformance with contract purchase development specifications. Examine license agreement for conformance to specifications and software distribution rights. Expert report, deposition and testified at trial for defendant.

Arnold & Porter LLP and Norris Keplinger & Logan LLP

CSU, Inc. v. Xerox, Inc. In 1994, CSU filed suit against Xerox, alleging that Xerox violated the Sherman Antitrust Act by monopolizing the market for high-speed copiers. The central issue was whether a unilateral refusal to license or sell intellectual property protected by patent or copyright is immune from a claim of monopolization and attempted monopolization under Section 2 of the Sherman Antitrust Act. Xerox counter claimed for patent and copyright infringement.

Engaged to analyze the CSU \$20 million business and determine if CSU would have grown to \$100 million, but for Xerox's refusal to sell CSU a patented product. Examined all documents such as financials, bank loans, management, business plans, capital formation documents and board decisions. Expert report, trial preparation and deposition on behalf of Xerox, Inc.

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Testimony

The following is a list of my expert witness engagements in the last six years for which I have testified at trial or by deposition:

2019. May 2019 Engaged on behalf of Defendant. Testified at trial. United States District Court For The Northern District of Illinois United States V. Jeffrey Batio 16 Cr 425.

2020. September 10 Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division Case No. 0:19-CV-62134-RAR/Strauss.
Deposition on behalf of Defendant Primus Intellectual Solutions, LLC.

2020. October 13 Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division, Case No. 0:19-CV-62134-RAR/Strauss.
Deposition on behalf of Defendant Primus Intellectual Solutions, LLC.

2021, April 23 Villa Real Estate et al v. Pacific Sotheby's Int'l Realty et al, Case No. 02-08-21G – 5727. Testified at a Disciplinary Hearing on behalf of Plaintiff Villa Real Estate.

2021, June 10 Deposition on behalf of AOL Inc., Oath Inc., and Verizon Media Inc. (collectively, “AOL” or “Defendants”) in connection with *Evox Productions LLC v. AOL Inc.*, Case No. 2:20-cv-02907-JWH-JEM (C.D. Cal.).

2022, January 26 Deposition on behalf of Jared Barnett (Plaintiff) in connection with Jared Barnett against Seth Berkowitz et al., Supreme Court of The State of New York, County of New York, Index No. 654313/2018.

2022, February 9 Deposition on behalf of Caddo Systems, Inc. and 511 Technologies, Inc. (Plaintiff) v. Microchip Technology, Incorporated, United State District Court for the Western District of Texas, Waco Division, Case No. 6:20-cv-245-ADA.

2022, February 14 Deposition on behalf of Caddo Systems, Inc. and 511 Technologies, Inc. (Plaintiff) v. Microchip Technology, Incorporated, United State District Court for the Western District of Texas, Waco Division, Case No. 6:20-cv-245-ADA.

2022, February 15 Testified at trial on behalf of CoxHealth, Steve Edwards, CEO of CoxHealth (Defendant) v. Samantha Cherry, Minor Child C.L. (Plaintiff), in the Circuit Court of Greene County, State of Missouri, Case No. 2031-CC01024.

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2022, February 17 Deposition on behalf of BrandTotal Ltd., an Israeli corporation, and Unimania, Inc., a Delaware corporation (Defendants) v. Facebook, Inc., a Delaware corporation (Plaintiff), in the United States District Court, Northern District of California, Oakland/San Francisco Division, Case No. 3:20-CV-07182.

2022, June 7 and 8 Testified at trial on behalf of Caddo Systems, Inc. and 511 Technologies, Inc. (Plaintiff) v. Microchip Technology, Incorporated, United State District Court for the Western District of Texas, Waco Division, Case No. 6:20-cv-245-ADA.

2023, May 18 Deposition on declaration, dated May 3, 2023, of Robert Sherwood in support of patent owner, AlmondNet, Inc. and Intent IQ, LLC, response to Petitioner Meta Platforms, Inc. IPR2022-01064 Patent 9,830,615 B2.

2023, August 18 Deposition on declaration dated June 2, 2023, of Robert Sherwood in support of patent owner, AlmondNet, Inc., response to Petitioner Samsung Electronics CO. LTD IPR2022-01259, Patent 8,200,822.

2023, September 26 Deposition on declaration dated July 14, 2023, of Robert Sherwood in support of patent owner, AlmondNet, Inc., response to Petitioner Meta Platforms, Inc. IPR 2022-01436, Patent 8,244,582.

2024, February 6 Deposition on declaration dated December 6, 2023, of Robert Sherwood in support of patent owner, Rich Media Club LLC , response to Petitioner Duration Media LLC, IPR IPR2023-0095, Patent 11,443,329.

2024, July 31 Deposition on behalf of X1 Discovery, Inc. with respect to patent enforcement actions at the United States International Trade Commission Washington, D.C. Inv. No. 337-TA-1389

Publications

None in last 10 years.