IN THE UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

PERSONALIZED USER MODEL, L.L.P., Plaintiff, v. GOOGLE INC., Defendant.	)	C.A. No. 09-525-LPS **JURY TRIAL DEMANDED**
GOOGLE, INC. Counterclaimant, v. PERSONALIZED USER MODEL, LLP and YOCHAI KONIG Counterdefendants.	)	**PUBLIC VERSION**

GOOGLE INC.'S MEMORANDUM IN SUPPORT OF ITS MOTION FOR SUMMARY JUDGMENT ON NON-INFRINGEMENT

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NOTE ON CITATIONS

Unless otherwise noted, all Exhibits (denoted by "Ex.") are Exhibits to the Declaration of Andrea Pallios Roberts, filed concurrently herewith.

1. Attached as Exhibit A is U.S. Patent No. 6,981,040 (the "'040 patent").

2. Attached as Exhibit B is U.S. Patent No. 7,685,276 (the "'276 patent").

3. Attached as Exhibit C are cited experts of the Expert Witness Report of Michael Pazzani.

4. Attached as Exhibit D are cited excerpts of the deposition of Michael Pazzani.

5. Attached as Exhibit E are cited excerpts of the deposition of Jaime Carbonell.

6. Attached as Exhibit F are cited excerpts of the Supplemental Expert Witness Report of Michael Pazzani.

7. Attached as Exhibit G are exemplary [redacted] produced to PUM in the litigation.

8. Attached as Exhibit H are cited excerpts of PUM's Appeal Brief filed with the Patent Trial and Appeal Board in the Reexamination of U.S. Patent No. 7,685,276, and dated November 19, 2012

9. Attached as Exhibit I is U.S. Patent No. 7,320,031 (the "'031 patent").

10. The Court's January 25, 2012 Claim Construction Order is referred to herein as "the Order" or "D.I. 348."

11. The Court's January 25, 2012 Claim Construction Opinion is referred to herein as "the Opinion" or "D.I. 347."

12. The Declaration of Bryan Horling, filed concurrently herewith, is referred to herein as "Horling."

13. The Declaration of Karthik Gopalratnam, filed concurrently herewith, is referred to herein as "Gopalratnam."

14. The Declaration of Shankar Ponnekanti, filed concurrently herewith, is referred to herein as "Ponnekanti."

15. The Declaration of Andre Rohe, filed concurrently herewith, is referred to herein as "Rohe."

16. The Declaration of Max Ventilla, filed concurrently herewith, is referred to herein as "Ventilla."

Nature and Stage of the Case and Summary of Argument

All discovery is complete. Based on the undisputed facts, Google now moves for summary judgment of non-infringement of the asserted claims of the '040, '276, and '031 patents on three bases. First, the accused products do not meet the "document" limitations of the asserted claims. The Court construed the term "document" as "an electronic file including text or any type of media." "Words and phrases – in other words, 'text' – are not documents." [redacted]

[redacted]

Second, the asserted claims require estimating parameters of a learning machine and estimating a probability that a document is of interest to user. PUM's allegations fail for two reasons: (1) contrary to what it argued at claim construction, PUM points to nothing that constitutes "approximating or roughly calculating" any parameters or probabilities and, instead, by its own expert's admissions, what PUM points to as satisfying such limitations are actual calculations; and (2) even assuming the accused products make estimations, PUM provides no evidence that the accused functionalities estimate either "parameters" or the "probability" that a document is of interest to the user, as required by all asserted claims, and as those terms were construed by the Court.

Third, PUM does not have evidence the accused products infringe the, previously dropped, '031 patent. The Court should grant summary judgment of non-infringement.

Statement Of Undisputed Facts

PUM asserts claims 1, 11, 22, and 34 of the '040 patent, and claims 1, 3, 5, 6, 7, 21, and 22 of the '276 patent. The text of these claims is set forth in Appendix A. PUM dropped all claims of the '031 patent after the Court ordered it to reduce the number of claims asserted.

PUM accuses several products or functionalities of infringing the asserted claims: Google Search; Google Search Ads; Google Content Ads[1]; Google News, and (for the '040 patent only) Google's use of [redacted] in YouTube video recommendations and in Google Plus. (Ex. C, ¶16; Ex. F, ¶7.)

Google Search. A user accessing www.google.com may input a search query to locate relevant search results. (Horling, ¶2.) In response to the query, Google identifies a set of search results. The process for obtaining and ranking an initial set of results is not accused in this case.

[redacted]

[1] PUM's contentions as to YouTube Ads mirror those for Content Ads. (Ex. C, ¶119.)

[redacted]

Search Ads. Through its Search Ads service, Google sometimes serves ads along with search results on Google.com. (Gopalratnam, ¶2.) [redacted]

Content Ads. PUM also accuses Content Ads, through which ads may appear on third party websites [redacted]

[redacted]

Google News. [redacted]

[redacted]. PUM accuses Google's use of [redacted] in connection with YouTube video recommendations and the social media service Google Plus' "What's Hot" functionality.

[redacted]

Legal Standard

Where the non-moving party bears the burden of proof on an element at trial, the moving party need only show the absence of evidence supporting the non-moving party's case. *Kempski*

v. Toll Bros., Inc., 582 F. Supp. 2d 636, 640 (D. Del. 2008) ("'the burden on the moving party may be discharged by 'showing'—that is, pointing out to the district court—that there is an absence of evidence supporting the nonmoving party's case'") (quoting *Celotex*, 477 U.S. 317); *Naghiu v. Inter-Continental Hotels Group, Inc.*, 165 F.R.D. 413, 418 (D. Del. 1996) (the moving party's burden "can be accomplished by simply pointing out to the Court that there is an absence of evidence to support the nonmoving party's case").

Argument

I. THE ACCUSED GOOGLE PRODUCTS DO NOT MEET THE "DOCUMENT" LIMITATIONS OF THE ASSERTED CLAIMS.

A. Google Search Does Not Analyze or Identify Properties of a "Document."

Each asserted claim requires "analyzing" or "identify[ing] properties of" a "document," which the Court construed as "an electronic file including text or any type of media." (D.I. 348, ¶9). Each asserted claim also requires storing "a set of documents associated with the user." Specifically, the asserted claims of the '040 patent require "updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user." (emphasis added). And all asserted claims require a "learning machine," which the Court construed as "mathematical function and/or model used to make a prediction, that attempts to improve its predictive ability over time by altering the values/weights given to its variables, depending on a variety of knowledge sources, including monitored user interactions with data and a set of documents associated with the user." (D.I. 348, ¶6 (emphasis added).)

As to Search, PUM points to the [redacted] (Ex. C, ¶¶ 64, 70, 79; Horling, ¶¶14-16.) But both of PUM's experts agree

that [redacted] is not a document. (Ex. D, 147:4 [redacted]; Ex. E, 17:18-25 ([redacted]").) [redacted]. (Horling, ¶¶9, 11, 14-18.) [redacted]

PUM argues the "document" limitations are met under the doctrine of equivalents, asserting [redacted] is not substantially different than the web page itself. (*See e.g.*, Ex. C, ¶144.) Equivalence to a claim limitation depends on "whether the substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element." *Warner-Jenkinson v. Hilton Davis Chem. Co.*, 520 U.S. 17, 40 (1997).

A [redacted] does not match "the function, way, and result of the claimed element." *Id.* Neither contains media and thus cannot be analyzed for its content as required by the claims; [redacted]. Both of PUM's experts acknowledge these key differences. (Ex. E, 17:18-25 ([redacted]"); Ex. D, 147:4-7 ("[redacted]"). PUM's argument is akin to saying a street address is equivalent to the building it represents. PUM also ignores the significant differences in memory required to [redacted]. In sum, a [redacted] being equivalent to a "document" would render meaningless the Court's construction that a "document" is an "electronic file including" media, and would eliminate the requirement in the claims that documents be stored. *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1160 (Fed. Cir. 1998)

("If a theory of equivalence would vitiate a claim limitation, however, then there can be no infringement under the doctrine of equivalents as a matter of law.")

B. Ads Do Not Meet the "Document" Limitations.

For Search Ads and Content Ads, PUM contends that the "document" limitations are met by the ads. (Ex. C, ¶¶ 305, 360.) But an ad is not an "electronic file." It is a subset of the words on a web page. As PUM's expert admitted, a word on a web page is not a document. (Ex. D, 136:14-17 ("a single word within a web page is not necessarily a document".) PUM's theory is based on its rejected proposed construction of "document" as "text or any type of media." (D.I. 347, 30-31.) [redacted] (Gopalratnam, ¶3.)

PUM also provides no evidence that Search Ads and Content Ads store the ads associated with a user, as required by the "monitored user interactions with data" and "learning machine" limitations. [redacted] (Gopalratnam, ¶14; Ex. C, ¶291.)

PUM's doctrine of equivalents theory for ads fails for the same reason as its Search allegations. Treating ads—[redacted]—as the equivalent of files would render meaningless the Court's construction of "document" [redacted]. *Tronzo*, 156 F.3d at 1160 (Fed. Cir. 1998).

C. Google News Does Not Store a Set of Documents Associated with the User.

PUM contends that News stores a "set of documents associated with the user" [redacted]. (Ex. C, ¶413; Rohe, ¶3.) [redacted].

D. Google's [redacted] Functionality Does Not Analyze or Identify Properties of a "Document."

As to "[redacted]," PUM contends that the "document" limitations are met by user posts in Google Plus, and videos in YouTube. (Ex. F, ¶42.) A Google Plus post, is not a "document."

Like an ad, a post is a snippet of text, not an "electronic file." PUM has no evidence to the contrary. As for YouTube video recommendations, PUM presented no evidence that Google analyzes the content of a video to identify properties of the video, as required by all claims. And here too, PUM has no evidence [redacted] stores the alleged "documents." As PUM fails to show the accused products meet the "document" limitations, Google is entitled to summary judgment.

II. THE ACCUSED PRODUCTS DO NOT "ESTIMATE PROBABILITIES."

The asserted claims require "estimating a probability" of user interest in a document. Google argued to construe "estimating" as "calculating." The Court, however, adopted PUM's proposal that "estimating" mean "approximating or roughly calculating." (D.I. 348, ¶10; D.I. 347, 33.) The Court made clear that calculating is not estimating, saying: "'estimating' was generally understood by one of ordinary skill in the art at the relevant time as measurement that is not entirely precise." (D.I. 347, 33)(emphasis added). An example of an estimation is the probability that it will rain tomorrow; a 60% chance of rain is "not entirely precise" because one does not know the actual chance of rain. This is opposed to the calculation of the actual probability of the results of a coin flip, which are 50% heads and 50% tails.

But PUM's expert points to what he refers to as calculations. [redacted]

PUM cites no evidence the accused probabilities are derived by "approximating or roughly calculating," or are "measurement(s) that [are] not entirely precise." (D.I. 347, 33.)

Even if PUM pointed to "estimations," PUM does not show that the accused calculations

in Search, Search Ads, Content Ads, Google Plus, or YouTube estimate a "probability" that a document of interest to the user. The Court construed "probability" as a "numerical degree of belief or likelihood." (D.I. 348, ¶11.) As Carbonell agreed, in Bayesian statistics, such a "probability" is in a scaled range, such as of no interest in a document (0), or certainty of interest (1).[2] (Ex. E, 20:9-15, 23:15-20, 75:22-76:18; *see also* Ex. H ("Because ∞ by definition has no finite upper limit, it is not and cannot be regarded as a 'degree of belief or likelihood.'")

Search Ads; Content Ads; YouTube. [redacted] (Ex. D, 175:17-176:6, 199:21-201:25) As Dr. Carbonell admitted, however, logistic regression coefficients, however, are not probabilities. (Ex. E, 43:22-45:4.) [redacted] (Ex. D, 226:10-227:13, 227:22-228:4.) But like the [redacted] are not probabilities. For YouTube video recommendations, PUM again improperly asserts that [redacted] are the "probabilities." (Ex. D, 246:7-25.)

Search. The numbers PUM identifies as probabilities for Search are also not a probability. PUM points to [redacted]" functions as probabilities. [redacted]

[2] Carbonell did equivocate on the definition of probability, but noted "it's hard to think about probability other than 0-to-1 interval." (Ex. E, 20:9-15, 25:5-7.)

[redacted] Moreover, as PUM's expert admits, to be a probability, a number must at least exist on an absolute scale to be a "degree of belief or likelihood." PUM does not point to any evidence of such a scale for the alleged probabilities.

[redacted]

Because PUM lacks evidence that the accused functionalities "estimate probabilities," the Court should grant summary judgment.

III. THE ACCUSED FUNCTIONALITIES DO NOT "ESTIMATE PARAMETERS."

PUM also cannot show that the accused functionalities estimate "parameters of a learning machine, wherein the parameters define a User Model specific to the user" or estimate "parameters of a user-specific learning machine." as required by all asserted claims. The Court construed "estimating parameters of a learning machine" as "estimating values or weights of the variables of a learning machine," and construed "learning machine" as "a mathematical function and/or model used to make a prediction, that attempts to improve its predictive ability over time by altering the values/weights given to its variables, depending on a variety of knowledge sources, including monitored user interactions with data and a set of documents associated with the user." (D.I. 348, 1.) (emphasis added). As is clear from the claim language and the Court's

construction of learning machine, the parameters have to be part of the learning machine and used by the learning machine to estimate a probability. PUM's expert admitted that the learning machine must actually have the parameters (i.e. the values of the variables) that are defined by the User Model to estimate a probability using these parameters. (Ex. E, 298:14-299:3.)

As discussed above, PUM does not point to any evidence that the accused functionalities make "estimations." Nor does PUM point to any values or weights that are stored by the learning machine. For Search Ads, Content Ads, and Portrait, PUM also does not have evidence that any of the purported parameters are actually stored in what PUM asserts are the User Model or user-specific learning machine, or actually used to estimate probabilities. The same is true of the purported parameters for the [redacted] used by Search.

Because PUM does not have evidence that the accused functionalities both estimate probabilities and estimate parameters, the Court should grant summary judgment.

IV. PUM HAS NO EVIDENCE OF INFRINGEMENT OF THE '031 PATENT.

After being ordered on September 8, 2010 to reduce the number of claims asserted, PUM dropped all asserted claims of the '031 patent. PUM's operative infringement contentions served in April 2012 provide no theory of infringement of the '031 patent. Its expert report on infringement provides no opinion of infringement of the '031 patent. As PUM does not have evidence to meet its burden as to the '031 patent, and already dropped it from the case, the Court should grant summary judgment of non-infringement.[3]

Conclusion

For the foregoing reasons, Google should be granted summary judgment of non-infringement of each of the asserted claims.

[3] The parties have been unable to reach a stipulation of dismissal of the '031 patent claims.

Respectfully submitted,

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Appendix A

For the Court's convenience, the asserted claims and claim 32 of the '040 and '276 patents are listed below.

U.S. Patent No. 6,981,040

1. A computer-implemented method for providing automatic, personalized information services to a user u, the method comprising:

a) transparently monitoring user interactions with data while the user is engaged in normal use of a computer;

b) updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user;

c) estimating parameters of a learning machine, wherein the parameters define a User Model specific to the user and wherein the parameters are estimated in part from the user-specific data files;

d) analyzing a document d to identify properties of the document;

e) estimating a probability P(uld) that an unseen document d is of interest to the user u, wherein the probability P(uld) is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model; and

f) using the estimated probability to provide automatic, personalized information services to the user.

11. The method of claim 1 further comprising estimating a posterior probability P(uld,q) that the document d is of interest to the user u, given a query q submitted by the user.

32. A program storage device accessible by a central computer, tangibly embodying a program of instructions executable by the central computer to perform method steps for providing automatic, personalized information services to a user u, the method steps comprising:

a) transparently monitoring user interactions with data while the user is engaged in normal use of a client computer in communication with the central computer;

b) updating user-specific data files, wherein the user-specific data files comprise the monitored user interactions with the data and a set of documents associated with the user;

c) estimating parameters of a learning machine, wherein the parameters define a User Model specific to the user and wherein the parameters are estimated in part from the user-specific data files;

d) analyzing a document d to identify properties of the document;

e) estimating a probability P(uld) that an unseen document d is of interest to the user u, wherein the probability P(uld) is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model; and

f) using the estimated probability to provide automatic, personalized information services to the user.

34. The program storage devise of claim 32 wherein analyzing the document d provides for the analysis of documents having multiple distinct media types.

U.S. Patent No. 7,685,276

1. A computer-implemented method for providing personalized information services to a user, the method comprising:

transparently monitoring user interactions with data while the user is engaged in normal use of a browser program running on the computer;

analyzing the monitored data to determine documents of interest to the user;

estimating parameters of a user-specific learning machine based at least in part on the documents of interest to the user;

receiving a search query from the user;

retrieving a plurality of documents based on the search query;

for each retrieved document of said plurality of retrieved documents: identifying properties of the retrieved document, and applying the identified properties of the retrieved document to the user-specific learning machine to estimate a probability that the retrieved document is of interest to the user; and

using the estimated probabilities for the respective plurality of retrieved documents to present at least a portion of the retrieved documents to the user.

3. The method of claim 1, wherein transparently monitoring user interactions with data comprises monitoring user interactions with data during multiple different modes of user interaction with network data.

5. The method of claim 1, further comprising analyzing the monitored data to determine documents not of interest to the user, and wherein estimating parameters of a user-specific learning machine further comprises estimating parameters of a user-specific learning machine based at least in part on the documents not of interest to the user.

6. The method of claim 1, wherein monitoring user interactions with data for a document comprises monitoring at least one type of data selected from the group consisting of information

about the document, whether the user viewed the document, information about the user's interaction with the document, context information, the user's degree of interest in the document, time spent by the user viewing the document, whether the user followed at least one link contained in the document, and a number of links in the document followed by the user.

7. The method of claim 1, wherein said plurality of retrieved documents correspond to a respective plurality of products.

21. The method of claim 1, wherein using the estimated probabilities for the respective plurality of retrieved documents to present at least a portion of the retrieved documents to the user comprises presenting to the user at least said portion of the retrieved documents based on the estimated probability that the retrieved document is of interest to the user and the relevance of the retrieved document to the search query.

22. The method of claim 1, wherein identifying properties of the retrieved document comprises identifying properties selected from the properties consisting of a topic associated with the retrieved document, at least one product feature extracted from the retrieved document, an author of the retrieved document, an age of the retrieved document, a list of documents linked to the retrieved document, a number of users who have accessed the retrieved document, and a number of users who have saved the retrieved document in a favorite document list.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on December 13, 2012, the attached document was electronically filed with the Clerk of the Court using CM/ECF which will send notification to the registered attorney(s) of record that the document has been filed and is available for viewing and downloading.

I further certify that on December 13, 2012, the attached document was Electronically Mailed to the following person(s):

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