IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

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

GOOGLE'S OPPOSITION TO PUM'S RULE 50(A) MOTION FOR JUDGMENT AS A MATTER OF LAW

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A motion for judgment as a matter of law ("JMOL") under Rule 50(a) or (b) may only be granted if no reasonable jury could find for the non-movant. Fed. R. Civ. P. 50. In conducting this analysis, the Court must "view[] the evidence in the light most favorable to the non-movant" and give the non-movant "the advantage of every fair and reasonable inference." *ZF Meritor, LLC v. Eaton Corp.*, 696 F.3d 254, 268 (3d Cir. 2012). JMOL motions are granted only "sparingly," as "[a] court must not weigh evidence, engage in credibility determinations, or substitute its version of the facts for the jury's." *Pitts v. Del.*, 646 F.3d 151, 155 (3d. Cir. 2011). For the reasons made orally at trial and as set forth below, PUM's motion should be denied.

Further, where (as here) a jury has returned a verdict against a Rule 50(a) movant, the pending Rule 50(a) motion should be denied as moot. *See, e.g., Donald M. Durkin Contracting, v. City of Newark,* No. 04-163, 2007 WL 2710451, *1 (D. Del. Sept. 17, 2007). It is Rule 50(b) which authorizes parties to seek reversal of adverse jury verdicts. *Johnson v. New York, N.H. & H.R. Co.*, 344 U.S. 48, 51 (1952); Wright & Miller, 9B Fed. Prac. & Proc. Civ. § 2533 (3d ed.).

I. PUM IS NOT ENTITLED TO JMOL ON BREACH-OF-CONTRACT.

A. Google Presented Sufficient Evidence For A Reasonable Jury to Find That Konig Conceived The Inventions During His SRI Employment.

There was copious evidence showing that Konig conceived the inventions during his SRI employment. For example, two of PUM's interrogatory responses stated that the inventions were conceived by July 1999. (DTX238, 3; DTX150, 5.) Co-inventor Twersky testified that he "strongly believed" the July 1999 conception date from these interrogatory responses was correct. (Trial Tr. 1127:1-20.) Thus, PUM's argument that there was no evidence for a patent-law conception date during Konig's SRI employment (D.I. 670, 8-9) is demonstrably false.

Furthermore, the jury could properly infer that these two interrogatory responses represented PUM's best honest belief as to the conception date, given that they were the most

recent interrogatory responses that PUM served before it was faced with the contract claim and thus became motivated to assert a conception date falling outside Konig's SRI employment. (DTX 411, 1.) The jury could likewise discredit PUM's later interrogatory response changing the conception date to September 1999. (DTX0165, 5-6.) Judging the credibility of PUM's changing positions on the conception date was the exclusive province of the jury. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986).

There was much other evidence supporting the position that patent-law conception occurred during Konig's SRI employment. For example, Konig sent Twersky an "initial patent document" on August 30, 1999, just three weeks after his SRI employment ended (DTX157), and Konig and Twersky were boasting to friends about an "ongoing patent application process" by September 1, 1999, less than a month after Konig left SRI. (PTX513.) The July 1999 Personal Web PowerPoint (DTX151) and the May 1999 Personal Web White Paper (DTX161) provide still more evidence that the inventions were conceived by July 1999 or earlier. These documents disclose numerous key features of the inventions, such as transparent monitoring, building a user model to estimate the probability of user interest in documents, updating this model through user actions, employing Bayesian statistics and Hidden Markov models to make these calculations, and using this process for personalized search and personalized news. (DTX151, PUM42226, 42228, 42234; DTX161, PUM91914.) While PUM argues that these two documents cannot evince patent-law conception because there was supposedly "no evidence" that one skilled in the art could make the invention based on the disclosures in these documents (D.I. 670, 9), PUM's interrogatory responses cite the July 1999 PowerPoint to support the very same July 1999 patent-law conception date (DTX238, DTX150), and the May 1999 White Paper addresses "Utopy's solution" to the personal search problem. (DTX161, PUM91913-15.)

It was actually PUM who provided almost no evidence to dispute this conception date. Rather, PUM asked the jury to disregard all the historical evidence in favor of Konig's bare testimony on the conception date. (Trial Tr. 1121:9-17.) But PUM could not even keep its story straight. In opening statement, for example, PUM's counsel told the jury about a supposed "Eureka moment" that Konig had when "he finally figured out how to do it." (Trial Tr. 358:6-9.) Yet Konig testified that there was no such Eureka moment. (*Id.*, 1030:15-21.) Weighing Konig's credibility in light of this and the documentary evidence was within the province of the jury.[1]

B. There Was Sufficient Evidence To Show that the Inventions Resulted from Konig's Work for SRI and Related to SRI's Business and Research.

To prevail on its Section 2870 defense, PUM had to show both that the inventions did not result from Konig's work at SRI and that the inventions did not relate to SRI's business or research, with "relate to" defined "broadly." Cal. Labor Code § 2870; *Cadence Design Sys., Inc. v. Bhandari*, No. 07-823, 2007 WL 3343085, *5 (N.D. Cal. Nov. 8, 2007). Yet copious evidence shows that the inventions resulted from Konig's work at SRI and relate to SRI's research. On the "resulting from" prong, one Utopy document stated that the personalized user model technology was "based on over 10 years of research at Berkeley and SRI" (DTX196, PUM82702), and other Utopy documents stated that this technology was drawn from "speech recognition" and "speaker verification research" (DTX161, PUM91912; DTX151, PUM4222), the specific subject of Konig's SRI work. (Trial Tr. 446:11-447:9; 1018:17-20.)

PUM's citation to statements in *Burrage v. United States,* discussing what Congress meant the phrase "results from" to mean in the Federal Controlled Substances Act, is irrelevant.

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[1] PUM's repeated citation to Google's statements at the summary judgment hearing, stating that Google only needed to show layman's conception to prevail on its contract claim (D.I. 670, 4, 8), is irrelevant. Google's MSJ argument that there were no issues of fact when applying a layman's definition of "conceived" has no bearing on whether there was sufficient evidence at trial to support the jury's verdict on the patent-law conception issue.

(D.I. 670, 12 (citing *Burrage v. United States*, 134 S.Ct. 881, 889 (2014)). The Court already instructed the jury on how Section 2870 should be interpreted, and PUM never argued during jury instructions that the jury's analysis of Section 2870 should be informed by *Burrage*.

On the "related to" prong of Section 2870, SRI scientist Horacio Franco testified that SRI's STAR lab has long built machine learning models of individual persons in its speaker verification research. (Trial Tr. 1154:8-1155:5.) Given that a core aspect of the Asserted Patents is building machine learning models of individual persons, a reasonable jury could easily conclude that the STAR lab's research was "related to" the Asserted Patents. SRI's director of business development, Douglas Bercow, also stated that SRI has long done Internet search research addressing the same problem as the Asserted Patents – the information overload problem caused by a large and expanding Internet. (*Compare* Trial Tr. 1677:8-1679:4 *with* Trial Tr. 349:10-351:1; 448:22-449:7; 649:9-13; PTX0001, 1:21-26.) For this reason as well, a reasonable jury could easily conclude that the Asserted Patents are "related to" SRI's research.

C. Google Presented Sufficient Evidence that the Statute of Limitations Was Tolled Under The Discovery Rule.

There was copious evidence for the jury to conclude that the statute of limitations was tolled under the discovery rule, which requires that the limitations period be tolled where the wrongful act and injury is "inherently unknowable." *Wal-Mart Stores v. AIG Life Ins. Co.*, 860 A.2d 312, 319 (Del. 2004). The core fact that gives rise to the breach-of-contract claim is that the inventions were conceived before August 6, 1999 – *i.e.*, during Konig's SRI employment – and thus covered by his Employment Agreement. A reasonable jury could easily conclude that the conception date was "inherently unknowable" until this lawsuit.

For example, Konig admitted that he did not disclose anything about his nascent inventions to SRI while he was working there. (Trial Tr. 1056:12-22; 1075:15-1076:4; 1076:24-

1077:4.) Moreover, the documentary evidence that evinces the pre-August 6 conception date is all evidence that was unavailable to SRI (and Google) before discovery began in this lawsuit. The pre-August 6 conception date is evinced by two PUM interrogatory responses stating that the inventions were conceived by July 1999, but these responses were not created until October and December 2010. (DTX238, 3; DTX150, 5.) The conception date is also evinced by deposition testimony from Mr. Twersky, which did not exist before this lawsuit, stating that he "strongly believes" the July 1999 conception date is correct. (Trial Tr. 1127:1-20.) The conception date is also evinced by the May 1999 and July 1999 "Personal Web" documents, which are labeled "Confidential" and bear a "Highly Confidential Outside Counsel Only" Bates stamp on their face. (DTX151, DTX161.) Konig further testified that he did not disclose these documents to SRI. (Trial Tr. 1063:17-23.)

PUM does not dispute that the pre-August 6 conception date was inherently unknowable to SRI or Google before this lawsuit. It argues that "SRI's alleged injury was not the *conception* of the patented inventions, but rather the purportedly wrongful assignment of the patent to Utopy." (D.I. 670, 3) (emphasis in original). Again, however, the fact that makes this assignment wrongful is that the inventions were conceived before August 6, 1999 and therefore fall within Konig's Employment Agreement. Without any way of knowing this conception date, SRI had no way of knowing that the assignment to Utopy was wrongful.

Citing the public issuance of the '040 Patent in 2005 and an SRI scientist's beta-test of a Utopy product in 2001, PUM argues that SRI had constructive knowledge of the inventions and that this put SRI on inquiry notice to investigate whether it had a claim. (D.I. 670, 3.) But inquiry notice only starts the limitation period running "upon the discovery of facts constituting the basis of the cause of action or the existence of facts sufficient to put a person of ordinary

intelligence and prudence on inquiry which, if pursued, would lead to the discovery of such facts." *Wal-Mart*, 860 A.2d at 319 (emphasis added). Here, the indispensible fact "constituting the basis of the cause of action" is that the inventions were conceived before August 6, 1999. The issuance of the '040 patent says nothing about the pre-August 6 conception date, since the patent (on its face) traces priority to a provisional application filed almost five months later on December 28, 1999. (PTX0001 at 1.) The SRI scientist's (Dr. Sonmez's) 2001 beta-test also provides no evidence of the pre-August 6 conception date, as Konig never discussed the conception date with Dr. Sonmez at all. (Trial Tr. 1113:8-1114:1.) Tellingly, PUM never explains how any inquiry that SRI could have conducted would have yielded the pre-August 6 conception date that gives rise to the breach-of-contract claim. The jury could easily conclude that no such inquiry would have uncovered the confidential Utopy documents, the not-yet-existing interrogatory responses, the not-yet-existing Twersky testimony, or any other evidence showing the pre-August 6 conception date. Thus, the jury was well within its rights to conclude that SRI could not have discovered the basis for its cause of action, and that the statute of limitations was therefore tolled.

D. The Statute of Limitations Was Also Tolled Under Section 8117.

Alternatively, the statute of limitations was tolled until Konig became subject to service of process in Delaware. Before this lawsuit commenced, Konig had never set foot in Delaware. (Trial Tr. 505:16-18.) And there is no evidence that he would have been subject to service of process for a breach-of-contract claim in Delaware before this lawsuit. This means the statute of limitations must be tolled under 10 Del. C. § 8117 until Konig became subject to service of process in Delaware. "It is settled law that the purpose and effect of Section 8117 is to toll the statute of limitations as to defendants who, at the time the cause of action accrues, are outside the state and are not otherwise subject to service of process in the state. In those circumstances, the

statute of limitations is tolled until the defendant becomes amenable to service of process." *Saudi Basic Indus. Corp. v. Mobil Yanbu Petrochem. Co., Inc.*, 866 A.2d 1, 18 (Del. 2005).

E. Google Presented Sufficient Evidence That It Acquired SRI's Rights.

PUM argues that "[t]here is no record evidence to support Google's claim that the Purchase Agreement [between Google and SRI] conveyed a right to bring a breach of contract claim against Dr. Konig." (D.I. 670, 5.) But the Purchase Agreement, entered into evidence and before the jury, states that SRI assigned to Google "all . . . causes of action . . . under, or on account of, any of the Patents . . ." (DTX412, § 4.2). SRI also assigned to Google "any perfected or unperfected claims of ownership that Seller may have in the Patents." (*Id.*, § 4.1). Thus, SRI assigned to Google any unperfected ownership rights as well as all causes of actions "under, or on account of, any of the Patents." The breach-of-contract claim is clearly a cause of action "under or on account of the Patents," since winning this claim was necessary for Google to perfect its ownership of the Patents. Specifically, winning the contract claim allows for a constructive trust remedy to transfer Konig's share of patent title from its wrongful holder (PUM) to its rightful holder (Google), thereby perfecting Google's co-ownership of the Patents.

PUM's position that the assignment of "all" causes of action did not include the breach-of-contract claim defies the language of the Agreement, the context of the Agreement, and common sense. Again, SRI assigned Google any unperfected ownership of the Patents (§ 4.1) together with "all" causes of action under or on account of the Patents (§ 4.2). These clauses must be read together, "each clause helping to interpret the other." Cal. Civ. Code § 1641. It makes no sense to say that SRI assigned unperfected ownership of the Patents to Google, but that SRI's simultaneous assignment of "all" causes of action did not include the breach-of-contract claim that is necessary to convert Google's unperfected ownership into perfected ownership.

PUM argues that the Agreement implicitly excluded a breach-of-contract cause of action from the "all causes of action" assignment language because the Agreement specifically references infringement causes of action that SRI assigned to Google. (D.I. 670, 6.) But the fact that the Agreement contemplates Google suing for infringement helps show that SRI did assign the breach-of-contract cause of action, not that SRI excluded such cause of action. This is because only the holder of perfected legal title has standing to sue for infringement. *Arachnid, Inc. v. Merit Indus., Inc.*, 939 F.2d 1574, 1579 (Fed. Cir. 1991). By granting Google the right to sue for infringement, SRI clearly contemplated that Google would also have the right to perfect its ownership – the very thing that Google seeks to do through the breach-of-contract claim.

Furthermore, in Section 6.1 of the Agreement, the parties explicitly reference this lawsuit and acknowledge that Google may need to bring further litigation within this lawsuit "in order to perfect an interest in the Patents." (DTX412, § 6.1.) Again, this is exactly what Google is doing by bringing the breach-of-contract claim. SRI's actions also show that it intended to assign a breach-of-contract claim. *Crestview Cemetery Ass'n v. Dieden*, 54 Cal.2d 744, 752 (1960). For example, SRI provided the chief scientist of its STAR lab to support Google's contract claim (and oppose Konig's Section 2870 defense) by testifying about SRI's work building machine learning models for individual speakers. (Trial Tr. 1154:8-1155:5; 1984:19-1985:7).

PUM successfully argued that the question of whether SRI assigned its contract claim to Google is a question of fact, and the jury resolved that question in Google's favor. Viewing the evidence most favorably to Google and drawing all inferences in Google's favor, the jury's conclusion is easily supportable for all the reasons explained above.

II. PUM IS NOT ENTITLED TO JMOL OF INFRINGEMENT.

PUM did not prove by a preponderance of the evidence that Google infringed the asserted claims. There was ample evidence for the jury to conclude, as it did, that PUM failed to prove

infringement. PUM's Rule 50(a) motion, including PUM's paragraph-long string-cite (D.I. 670 at 13-14), does not show otherwise. This is supported by the testimony of Google's non-infringement expert, Dr. Fox (which was supported by his analysis and review of Google documents, source code, and deposition testimony), and Google's engineers, and in some cases PUM's infringement expert, Dr. Pazzani's, admissions. The jury was entitled, as it did, to accept Dr. Fox's reasoned and supported testimony over Dr. Pazzani's, which was often contradicted by the evidence, the claims, the constructions, and by his own admissions that he was wrong. (Trial Tr. 961:17-962:1 (Dr. Pazzani acknowledging that he was wrong in stating that Search Ads are stored in [redacted]); 966:1-4 (Dr. Pazzani admitting that [redacted]); 950:21-951:15 (Dr. Pazzani admitting that a Wikipedia page [redacted], saying "No, you really got me. I made a mistake yesterday.")) That sufficient evidence supported the jury's verdict of infringement is further supported for the reasons set forth below, and those stated in Google's Rule 50(a) motion. (D.I. 657.)

A. The Accused Google Products Do Not Meet the "Document" Limitations.

None of the accused user-specific data files store any actual documents. (*E.g.*, Trial Tr., 948:5-22; 951:1-22; 952:15-954:18; 957:16-21; 962:12-24; 1350:17-19.) Instead, Dr. Pazzani asserted that because [redacted] records the document ***identifiers*** corresponding to the documents with which the user has interacted, it meets the limitations that require storing, retrieving, or updating ***documents***. (*E.g.*, Trial Tr. 664:3-6; 1003:23-1004:15.) This is contrary to the plain wording of the claims. And, PUM's repeated attempts to characterize the claim as requiring "associations" between documents and users lacked merit. The claims require "a set of ***documents*** associated with the user," not "a set of ***associations*** between documents and users."

The claims of both asserted patents also require that documents be analyzed and their properties identified before being applied to the learning machine. (*See, e.g.*, Dkt. 348, 1-2; *see*

also '040 Claim 1[d, e]; '276 Claim 1[f].) For the [redacted], PUM concedes that Search does ***not*** analyze documents. PUM points to [redacted], and asserts that examining a document's ***URL*** is sufficient to analyze the ***document.*** (Trial Tr. 748:17-749:6.) But Dr. Pazzani agreed, URLs and docIDs are ***not*** documents; thus analyzing a URL is not sufficient to analyze the underlying document. (Trial Tr. 953:11-15.) And claim 1[g] of the '276 patent requires "present[ing] at least a portion of the retrieved documents to the user." The accused documents (web pages) are neither provided nor made available by Google, as required by the Court's construction of "presenting." (D.I. 348, 2.)

PUM also failed to provide evidence that Search Ads and Content Ads store or update the ads in the accused "user specific data files." Dr. Pazzani pointed to ad ***identifiers*** [redacted]. (E.g., Trial Tr. 963:4-15.) Storing or updating an identifier does not meet the limitation requiring storing or updating documents. Accordingly, PUM's theories as to the accused ads systems fail.

Even if storing or updating an ad identifier were equivalent to storing or updating the ad itself, Search Ads and Content Ads do not infringe because Google does not store ads in "electronic files." PUM contends that the "document" limitations are met by ads served by Search Ads, Content Ads, and YouTube (*e.g.*, Trial Tr. 761:2-6), but Dr. Pazzani only pointed to the *text* of the ad as the "document." (Trial Tr. 761:2-6.) This is the same claim interpretation the Court ***rejected*** in finding that a document must be an electronic file. (D.I. 347, 30-31.) The accused ads are stored in *databases*. (Trial Tr. 764:14-15.) Database entries are not electronic files. Furthermore, the ads are part of a search results page or a content provider page, both of which are "documents." Allowing *portions* of a document to be a "document" would vitiate the Court's ruling that a document is not "text or any type of media." Moreover, ads are not stored in a single file as coherent units, as required for an "electronic file." (Trial Tr. 758:20-759:23.)

[redacted]. (Trial Tr. 758:20-760:4, 1319:20-1320:8, 1333:22-1334:6; 1435:13-1437:2 (Dr. Fox explaining that database entries are not an "electronic file").) Thus, they are not "documents" under the Court's construction.

PUM's attempt to argue that fractured database entries are *equivalent* to a single electronic file also fails. Treating ads as the equivalent of files renders meaningless the Court's construction of "document" and eliminates the requirement that documents be stored. *Tronzo*, 156 F.3d at 1160 (Fed. Cir. 1998). PUM's doctrine of equivalents theory centers on its incorrect assertion that Google treats documents and ads similarly. (Trial Tr. 961:17-962:1.) PUM's theory also ignores the testimony regarding the efficiencies associated with how Google stores ads in sections. (Trial Tr. 1320:9-19, 1334:4-6, 1436:16-1437:2.)

Moreover, Search Ads does not determine "documents of interest to the user," as required by claim 1 of the '276 patent. It determines domains that should be ***ignored*** by the user, i.e., documents that are ***not*** "of interest to the user." (Trial. Tr. 802:12-16; 1414:25-1415:19.) Claim 5 of the '276 patent requires determining which documents are ***not*** of interest to the user and estimating parameters based on documents ***not*** of interest to the user. Indeed, the Court construed "documents not of interest to the user" as "documents [i.e., electronic files (including text or any type of media)] for which the user has a negative response ***or has ignored.***" (D.I. 348, 2) (emphasis added). By arguing that ***ignored*** "documents" meet the "documents of interest to the user" element, PUM improperly conflates these two claims. Accordingly, [redacted] does not meet the limitation of determining which documents ***are*** of interest to the user.

Finally, PUM points to Content Ads' use of [redacted] to show infringement. (Trial Tr. 890:16-891:8.) But this does not constitute "receiving a search

query *from the user,*" as required by the '276 patent. In fact, Dr. Pazzani testified that users do *not* send their queries to the Content Ads system; they send those queries to search engines. (*Id.*)

B. The Accused Products Do Not Meet the Learning Machine and User Model Limitations of the Claims.

PUM failed to show that the accused products have a learning machine which "attempts to improve its predictive ability ***over time,***" as required by the claims. For example, [redacted] (Trial Tr. 533:9-18; 545:24-546:13; 997:8-999:9; 1359:10-13; 1358:13-16; 1426:6-23; 1428:7-16; 1440:21-1442:19.) [redacted] (Trial Tr. 579:11-580:11; 1336:25-1337:2; 1420:3-17; 1442:20-1443:13.) [redacted] (Trial Tr. 740:3-17; 1312:3-5; 1414:23-1416:2; 1443:22-1444:13.) A program *designed* to lose information does not "attempt[] to improve its predictive ability over time." (Trial Tr. 1440:21-1444:13.)

Further, the Court's construction of "learning machine" requires a mathematical function and/or model that (1) "makes a prediction," (2) "attempts to improve its predictive ability over time," and (3) "depend[] on a variety of knowledge sources, including monitored user interactions with data and a set of documents associated with the user." PUM could not find any component of the accused systems that meets all of the required limitations of a "learning machine," so it cherry-picked different components to meet the required limitations. PUM pointed to ***one*** component as being user-specific, a ***second*** component as "learning," and a ***portion*** of a ***third*** component as making a prediction. Indeed, Dr. Pazzani admitted that he combined three ***separate*** components or parts of components of the accused system to find the required "user-specific learning machine" or "learning machine having the parameters defined by

the User Model." (Trial Tr. 982:11-13; 882:9-21; 885:7-16; *see also* 1444:16-1445:8.) For Search, Dr. Pazzani pointed to three distinct parts and asserted that they ***together*** met this claim element for the '040 patent. (Trial Tr. 780:17- 782:7; Ex. 1, 67; *see also* Trial Tr. 882:9-21; Ex. 1, 250; 1445:9-1446:13.) Dr. Pazzani cobbled together separate parts of the Search Ads and Content Ads systems and claimed that they were a "mathematical function or model." (Trial Tr. 801:13-25; 807:17-808:7; *see also* Trial Tr. 885: 7-16; Ex. 1, 254; 1446:14-1449:1.) As Dr. Fox explained, "these are little different pieces picked out of the system that don't really fit together and don't satisfy the description of a learning machine specific to the user." (Trial Tr. 1447:3-5.) PUM's approach flouts the Court's ruling that the "learning machine" that makes predictions is the *same* learning machine whose parameters are estimated using user-specific data. (D.I. 347).

Also, the Court construed "learning machine" as relying on "monitored user interactions with data and a set of documents associated with the user." (D.I. 348, 1-2.) The '040 patent further requires that the parameters of the learning machine "define a User Model specific to the user," while the '276 patent similarly requires a "user specific learning machine." It is undisputed that the [redacted] model in Search Ads and Content Ads is <u>not</u> user specific; [redacted]. (Trial Tr. 595:14-595:22; 567:5-567:20; 547:9-548:14; 1179:3-8; 1179:16-22; 1316:16-1317:8; 1412:21-1414:22.) For Search, PUM points to the [redacted] as making the prediction required by the claims. But there is no evidence that the [redacted] learns ***at all***. (Trial Tr. 1360:17-21; 1386:2-6.) Similarly, the [redacted] PUM points to for its Search and Content Ads allegations are trained off [redacted], not user information at all. (Trial Tr. 521:3-522:20; 1332:2-19; 1351:13-1352:13; 1313:20-24; 1321:13-17.)

C. <u>The Accused Functionalities Do Not "Estimate Parameters."</u>

The asserted claims of both asserted patents require "estimating parameters of a learning machine," which the Court construed as "estimating values or weights of the variables of a

learning machine." This learning machine must "attempt[] to improve its predictive ability over time by altering ***the values/weights given to its variables.***" (D.I. 348, 1.) (emphasis added). These parameters must be part of the learning machine and used to generate user-specific results. (Trial Tr. 967:14-968:11.) In attempting to show that the [redacted] used in Search meet this limitation, Dr. Pazzani pointed to [redacted]" (Trial Tr. 778:12-18; 1354:20-22; 1423:23-1425:6; PTX-025, 33.) This [redacted] does ***not*** contain any values or weights. (Trial Tr. 1451:15-24 (Dr. Fox: "[redacted]. They're either there or they're not. There's no weight or value attached to that, so I don't see how that can be a parameter.").)

Moreover, the claims require that the "parameters" be "estimated." "[E]stimating" means "approximating or roughly calculating," and an estimate itself is "a measurement that is not entirely precise." (D.I. 347, 33; D.I. 606, 3.) But the numbers that PUM accuses of being "parameters" are "extremely precise calculations". (Trial Tr. 778:7-11; 773:24-774:16; PTX-034.) Similarly, for Search Ads and Content Ads, PUM did not present evidence that any of the purported parameters are estimated. Instead, the accused [redacted] is *precisely* computed [redacted], and the accused "[redacted]" is *precisely* computed [redacted]. (Trial Tr. 803:8-18; 808:8-15.) As none of the accused parameters are estimates as required by the claims, PUM has not shown that this element is met.

D. <u>PUM Failed to Identify Any "Probability."</u>

PUM does not point to any actual probabilities as meeting the required claim language of either of the asserted patents. At most, PUM points to a *portion* of the computation of a probability. But these portions of the computation are not themselves probabilities.

Nowhere does PUM specifically identify what is the alleged probability in Search Ads or Content Ads. At most, PUM points to a ***hypothetical*** probability that ***could*** be computed using only the cookie-specific information PUM identifies, i.e., [redacted] (for Search Ads) and the [redacted] (for Content Ads). (Trial Tr. 850:24-851:9; 854:20-855:2.) PUM has not and cannot point to evidence that Google actually ***uses*** that information to estimate the required probability. Moreover, PUM does not dispute that Google simply [redacted]. And, neither Search Ads nor Content Ads uses the specific [redacted] PUM identifies to generate a probability ***on their own.*** To the extent PUM asserts that an *unconverted* portion of that calculation is the "probability," a portion of a computation is not equivalent to the computation itself. (Trial Tr. 1338:15-17; 1451:25-1453:3 (Dr. Fox: "he's pointing to an entry in this calculation and not a probability"); 1454:12-19.)

For Search, PUM again does not specifically identify what is the alleged probability. For the [redacted], it seems that PUM points to a *portion* of the [redacted] function. (Trial Tr. 828:18-829:1; 1453:18-1454:11; Ex. 1, 141.) PUM appears to contend that a ***hypothetical*** probability is computed using ***only*** the [redacted]. (Trial Tr. 861:23-863:11). But again, PUM has not and cannot show that this hypothetical probability is actually computed, much less estimated. (Trial Tr. 1454:12-19 (Dr. Fox explaining that a portion of a calculation is not itself a probability).)

For the [redacted], PUM seems to point to [redacted] as the probability. (*See* Trial Tr. 861:23-862:5; 828:18-829:1; 848:4-7; Ex. 1, 141.) This number is a function of the [redacted]. (*See* Trial Tr. 846:14-19.) PUM failed to provide any evidence

that this number is bounded by any range, and as PUM represented to the PTO, a number must at least exist on an absolute scale to be a "degree of belief or likelihood." (*See* July 27, 2011 Response, 32, D.I. 584-5.) PUM has not and cannot point to any scale for [redacted].

E. PUM Failed to Present Evidence of Infringement of the '276 Patent.

In addition to the above failures as to specific limitations of the '276 patent, PUM failed to present sufficient evidence of infringement of the '276 patent on an element by element basis, just instead repeatedly referring back to Dr. Pazzani's presentation regarding the '040 patent. (Trial Tr. 903:17-22; *see also* Ex. 1, 227; Trial Tr. 875:16-876:6; 882:1-883:4); *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998), *abrogated on other grounds by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558 (Fed. Cir. 2000).

F. PUM Failed to Present Evidence of Infringement of the Dependent Claims.

Having failed to show that the accused products infringe claim 1 of the '040 patent or claim 1 of the '276 patent, PUM failed to show infringement of the asserted dependent claims.

III. PUM IS NOT ENTITLED TO JMOL OF VALIDITY.

In arguing that no reasonable jury could find the asserted claims invalid over Google's prior art references, PUM does not cite a single passage from any of the references. It just repeatedly cites the opinions of its validity expert, Dr. Carbonell. This is no basis for JMOL. The jury heard Dr. Carbonell's opinions, but chose to credit the opinions of Google's expert, Dr. Jordan. This credibility call was the jury's to make, particularly since – as discussed below – the plain text of the references supports Dr. Jordan's opinions rather than Dr. Carbonell's.

A. Google Presented Sufficient Evidence that PWW Anticipates '040 Claim 1.

In arguing that Mladenic (Personal WebWatcher or PWW) fails to meet '040 element 1(c), PUM argues that Dr. Jordan failed to identify its learning machine and parameters. (D.I. 670, 16.) To the contrary, Dr. Jordan testified at length about how PWW meets this limitation

(Trial Tr. 1229:19-1231:14), supported by the text of PWW, which discloses a "learner" module that "generate[s] [a] model of user interests." (DTX-264, 7.) This learner could utilize "two learning algorithms" – Naïve Bayes and k-nearest neighbor. (*Id.,* 10-11.) Both parties' experts testified that Bayesian models contain parameters, which alone shows "parameters" in PWW. (Trial Tr. 1778:12-15; 1830:23-25.) And while Dr. Carbonell testified that k-nearest neighbor was nonparametric, Dr. Jordan explained that nonparametric models still have parameters; the term "nonparametric" just means they lack a fixed number of parameters. (*Id.,* 1830:4-1831:1).

Regarding limitation 1(d), PUM's argument that PWW analyzes only hyperlinks instead of documents is again inconsistent with Dr. Jordan's opinions and the disclosures in PWW. Dr. Jordan testified repeatedly that PWW analyzes documents, not just hyperlinks. (Trial Tr. 1231:15-1232:3; 1831:18-1832:16.) For example, PWW analyzes documents as unstructured bags-of-words (DTX264, 4) as well as analyzing "additional information from HTML structure," such as "frequency of word in headlines of a given document." (*Id.*) Regarding limitations (e) and (f), PUM argues that PWW teaches mapping to Boolean categories, not probabilities. (D.I. 670, 17.) Yet PWW's Bayesian model outputs probabilities, as all Bayesian models do (Trial Tr. 1232:14-1233:1), then uses these probabilities to determine whether a document falls within the Boolean categories of being interesting or uninteresting to the user. (*Id.,* 1832:17-1833:7.)

B. There Is Sufficient Evidence that PWW Renders Obvious '276 Claim 1.

As Dr. Jordan testified, it would have been obvious to modify PWW to meet the search limitations of '276 claim 1 by simply pairing PWW with the search functionality of its predecessor WebWatcher system – a system described in the PWW paper itself. (Trial Tr. 1242:2-1244:7.) PUM's argument that WebWatcher did not disclose search is belied by PWW's own description of WebWatcher: "the user provides a few keyword describing a search goal and WebWatcher highlights related hyperlinks on the current page." (DTX264, 2.) And PUM

provides nothing beyond Dr. Carbonell's conclusory opinion for its argument that PWW could not be combined with WebWatcher's search functionality. As noted above, Dr. Jordan disagreed with Dr. Carbonell on this issue, and the jury was entitled to credit one expert over the other.

C. Montebello Anticipates '040 Claim 1 and '276 Claim 1.

PUM argues that Montebello fails to teach the "parameters" element of '040 claim 1(c) and '276 claim 1(c). (D.I. 670, 17.) But Dr. Jordan testified (and Montebello plainly discloses) that Montebello used conventional machine learning techniques to build its user profiles. (Trial Tr. 1248:20-1249:9; DTX266, 2 ("No novel machine learning technique has been developed for the profile generator. It uses specific techniques previously employed by other similar systems.")) As discussed above, these conventional machine learning techniques inherently contain parameters. *See* Section III(A), *supra.* PUM also argues that Montebello does not disclose a "learning machine." (D.I. 670, 17-18.) But this ignores Montebello's explicit teaching (and Dr. Jordan's associated testimony) about how Montebello's user profile is built over time through machine learning, based on the documents that the user has shown interest in. (DTX266, 3; Trial Tr. 1248:20-1250:3.) PUM also argues that Montebello does not disclose a "probability." But as Dr. Jordan testified, Montebello matches documents to user profiles using a TFIDF frequency count, and such frequency counts are probabilities. (Trial Tr. 1250:24-1252:2.) The text of Montebello supports Dr. Jordan's opinions about this TFIDF document-to-profile matching. (DTX266, 3 (disclosing TFIDF representation of documents); 4.)

D. Google Presented Sufficient Evidence That Wasfi Anticipates '040 Claim 1.

PUM's primary argument against the jury's anticipation finding for Wasfi is to cite Dr. Carbonell's opinion that Wasfi teaches the "wrong" entropy equation. (D.I. 670, 18.) Yet Dr. Jordan refuted Dr. Carbonell's opinion, explaining at length how Wasfi's entropy equation is perfectly appropriate for determining a user's preferences. (Trial Tr. 1837:17-1841:24.) Dr.

Jordan also explained how this entropy equation outputs a probability. (*Id.*, 1840:13-1841:4.) Again, the jury was entitled to credit Dr. Jordan's opinion over Dr. Carbonell's.

E. There Is Sufficient Evidence That the Dependent Claims are Obvious.

PUM argues that Refuah (DTX251) does not teach the limitations added by the dependent claims, again citing nothing more than Dr. Carbonell's opinions. (D.I. 670, 18-19.) Yet Dr. Jordan testified that Refuah does teach these limitations. (Trial Tr. 1235:14-1236:2; 1256:25-1259:19.) The jury was entitled to believe Dr. Jordan over Dr. Carbonell, especially since the text of Refuah supports Dr. Jordan's opinion that Refuah discloses each dependent limitation. (DTX271, 3:6-11 (disclosing interactions times); 5:35-41 (multiple modes of user interaction); 3:63-4:1 (products); 17:49-55 (relevance to both user and query).)

PUM also argues that one of skill in the art would not be motivated to combine Refuah with PWW or Montebello, again citing nothing more than Dr. Carbonell's opinions. (D.I. 670, 19.) Yet Dr. Jordan testified that it would be obvious to combine these references, as they all solved the same "information overload" problem in the same basic way. (Trial Tr. 1238:3-8; 1260:2-8.) Once again, the jury was entitled to credit Dr. Jordan's opinions over Dr. Carbonell's.

F. Google Presented Sufficient Evidence That All Claims Are Obvious.

Contrary to PUM's arguments, Dr. Jordan testified at great length how all claim elements are present and accounted for when one considers PWW, Montebello, Wasfi, and Refuah. (Trial Tr. 1227:19-1265:14.) Dr. Jordan also explained how each reference was devoted to solving the same information overload problem through the same solution – personalization. (*Id.* at 1227:5-18; 1234:17-1235:5; 1244:15-1245:19; 1261:2-1262:4; 1266:23-1267:25.) He further explained how many of these references cite each other, providing yet a further reason why one of skill in the art would be motivated to combine their teachings. (*Id.*, 1268:6-1269:3; DTX264, 14; DTX266, 6; DTX270, 63.) And he explicitly anchored his analysis in the *Graham* factors.

(Trial Tr. 1266:9-22.) Thus, there was more than a sufficient basis to find all claims invalid for obviousness.

The jury was also well within its rights to hold that no secondary considerations rebutted the obviousness showing. While PUM cites Dr. Carbonell's testimony about Google's commercial success using personalization as a whole (D.I. 670, 20), Dr. Jordan correctly pointed out that Dr. Carbonell did not show any nexus between Google's commercial success and the asserted claims. (Trial Tr. 1844:22-1846:1.) Nor could Dr. Carbonell show a nexus, as Dr. Carbonell had not even analyzed what was accused of infringing those claims. (*Id.*, 1765:19-1766:21; 1799:10-15.) Such a nexus is required before commercial success can be probative of non-obviousness. *Tokai Corp. v. Easton Enter., Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011). In any event, the jury's finding that Google does not practice the asserted claims proves that Google's commercial success is not attributable to these claims. Meanwhile, the jury heard evidence that one company that did practice the Asserted Patents – Utopy, the named inventors' company – was a commercial failure. (Trial Tr. 1271:23-1272:3.)

PUM also cites unresolved need and failure of others as secondary considerations of non-obviousness. (D.I. 670, 20.) But given the jury's finding that the independent claims were anticipated by PWW, Montebello, and/or Wasfi, the jury could easily conclude that there was no unresolved need for the asserted claims or any failure of others to achieve these claims. Dr. Jordan likewise testified that there was no unresolved need or failure of others. (Trial Tr. 1272:4-12.) Finally, PUM's cited evidence about Google's efforts to create personalized search cannot show long-felt need or failure of others with respect to the asserted claims, especially given the jury's findings that Google does not practice the asserted claims at all.

Conclusion

For the foregoing reasons, PUM's JMOL motions should be denied.

Respectfully submitted,

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, Richard L. Horwitz, hereby certify that on April 15, 2014, 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.

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