

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE INC., NEST LABS, INC., AND DROPCAM, INC.
Petitioners

v.

E.DIGITAL CORPORATION
Patent Owner

Case IPR: Unassigned
U.S. Patent No. 8,311,523

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,311,523
UNDER 35 U.S.C. §311**

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Exhibit List

GOOG Exhibit #	<i>Description</i>
1001	Nunally, U.S. Patent No. 8,311,523 (continuation of application No. 12/891,875, filed on September 28, 2010; filed March 14, 2011; issued November 13, 2012).
1002	File History for U.S. Patent No. 8,311,523.
1003	Declaration of David H. Williams
1004	Curriculum Vitae of David H. Williams
1005	Jolliff <i>et al.</i> , U.S. Patent Publication No. 2009/0300525 A1 (filed May 27, 2008; published December 3, 2009).
1006	Jager, U.S. Patent Publication No. 2009/0094179 A1 (filed October 8, 2007; published April 9, 2009).
1007	Miluzzo <i>et al.</i> , International Patent Publication No. 2009/043020 A2 (filed September 29, 2008; published April 2, 2009).
1008	Robarts <i>et al.</i> , U.S. Patent Publication No. 2006/0004680 A1 (filed January 11, 2005; published January 5, 2006).
1009	Gellersen <i>et al.</i> , “Multi-Sensor Context-Awareness in Mobile Devices and Smart Artefacts,” Mobile Networks and Applications v.7 n.5, p.341-351, October 2002.
1010	Lee, U.S. Patent Publication No. 2009/0170480 A1 (filed December 28, 2007; published July 2, 2009).
1011	Kotz <i>et al.</i> , “A Privacy Framework for Mobile Health and Home-Care Systems,” SPIMACS ’09 (November 13, 2009).
1012	Rosen, U.S. Patent Publication No. 2006/0085419 A1 (filed October 18, 2005; published April 20, 2006).
1013	Stackpole, U.S. Patent Publication No. 2008/0140650 A1 (filed November 28, 2007; published June 12, 2008).

GOOG Exhibit #	<i>Description</i>
1014	Complaint for Patent Infringement, <i>e.Digital Corporation v. Dropcam, Inc.</i> , No. 3:14-cv-01579-BEN-DHB (SD.CA), filed July 1, 2014.
1015	T. Starner, Wearable Computing and Contextual Awareness, Ph.D. thesis, MIT Media Lab, April 30, 1999.
1016	V. Bellotti and A. Sellen, “Designing for privacy in ubiquitous computing environments,” in Proc. European Conference on Computer-Supported Cooperative Work, Milano, Italy, September 1993.
1017	Bo Luo and Lee, D, “On Protecting Private Information in Social Networks: A Proposal,” International Conference on Data Engineering, 2009. IEEE 25th International Conference on March 29, 2009 - April 2, 2009.
1018	Besecker, U.S. Patent Publication No. 2010/0275129 A1 (filed April 23, 2009; published October 28, 2010).
1019	“7 Things You Should Know About... Microblogging,” Educause Learning Initiative, 2009, retrieved from http://net.educause.edu/ir/library/pdf/ELI7051.pdf
1020	Naone, E., “A Brief History of Microblogging,” Technology Review 111 (5) 26, September/October 2008.
1021	Sethi, S. K., “Micro-blogging, Latest Tool in the Web 2.0,” Indian Pediatrics, Volume 46, p. 188, February 17, 2009.
1022	Kobler, F. <i>et al.</i> , “Social Connectedness on Facebook – An Explorative Study on Status Message Usage,” in Proceedings of the Sixteenth Americas Conference on Information Systems, Lima, Peru, paper 247, August 12-15, 2010.
1023	Plaintiff’s Opening Claim Construction Brief, <i>e.Digital Corporation v. Dropcam, Inc.</i> , No. 3:14-cv-04922-JST (ND.CA), filed June 10, 2015.

GOOG Exhibit #	<i>Description</i>
1024	Goettke <i>et al.</i> , "Privacy and Online Social Networking Websites," Computer Science 199r: Special Topics in Computer Science Computation and Society: Privacy and Technology, May 14, 2007.

I. INTRODUCTION AND STATEMENT OF RELIEF REQUESTED (37 C.F.R. § 42.22(a))

Google Inc., Nest Labs, Inc., and Dropcam, Inc. (collectively the “Petitioners”) petition for *inter partes* review of claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 of U.S. Patent No. 8,311,523 to Nunally. (EX 1001.) The challenged claims of the ’523 patent are nothing more than obvious variations of well-known concepts involving privacy and mobile context sensing. Indeed, the claims are replete with repetitive language, made up terms such as “social template,” and “social hierarchy,” and well-known concepts, such as comparing data to ranges. But, at their core, the claims of the ’523 patent merely recite providing different information to different groups of people based on a sensed context.

Contextual awareness, which is also referred to as presence detection, is a well-known term that refers to determining a user’s current status based on sensed environmental conditions. (EX 1003, ¶¶ 33-39.) For example, one can use sensed data to automatically determine that person is running, sleeping, busy, working, etc. Although contextual awareness systems can be used for different purposes, a popular type of contextual awareness system that existed long before the priority date of the ’523 patent involved determining a person’s status based on sensed environmental conditions, and automatically sharing that status with others. Obviously, when such information is shared automatically, it implicates various privacy concerns. Perhaps a person does not want to let their boss know they are gambling

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in a casino instead of attending a mandatory convention, but that same person may not care if their family members know such information. These types of privacy concerns were well understood with respect to contextual awareness long before 2010, the earliest benefit date of the '523 patent.

These privacy concerns were well understood and even heightened when automatic sharing occurred across different groups of people and in social networking services. Reflecting these privacy concerns, many social networking services such as Facebook long before 2010 were designed to provide different amounts of information to different groups of people in different levels of a social hierarchy (*e.g.*, family, friends, or other group). For example, a post in Facebook intended by a user for distribution to family members only may have the same amount information shared for a group of people at the same level of a social hierarchy (family), but a different amount of information shared for a different level of social hierarchy (none for friends in this case).

Even the path of implementation in the '523 patent was well-known. Template comparison was a well-known approach for evaluating a set of sensor data. Comparing sensed context data with stored templates associated with particular sensor set conditions (such as unique optical and acoustic sensor value ranges) to determine a current context was well-known before 2010 and adds nothing patentable. As set forth below, each of the applied combinations of references, Jolliff in

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view of Jager, and Miluzzo in view of Robarts, discloses providing differing amounts of information to others based on sensed context in the well-known particular way claimed here, and render claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 of the '523 patent unpatentable. The Petition and accompanying evidence demonstrate that at least a reasonable likelihood exists that claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 of the '523 patent are unpatentable. Accordingly, Petitioners respectfully request that the Board institute trial on the grounds set forth herein.

II. GROUNDS FOR STANDING (37 C.F.R. § 42.104(a))

The undersigned and Petitioners certify that the '523 patent is available for review. Petitioners further certify that they are not estopped from requesting an *inter partes* review challenging claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 on the grounds identified in this Petition. Dropcam, Inc. (acquired by Nest Labs, Inc., a wholly owned subsidiary of Google Inc.) was first served with a complaint for infringement less than one year ago on July 1, 2014 in the Southern District of California (3:14-cv-01579). (EX 1014.)

III. IDENTIFICATION OF CHALLENGE (37 C.F.R. § 42.104(b))

A. Statutory Grounds for the Challenge.

Petitioners requests review of claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 on four grounds: **GROUND 1:** Claims 1, 3, 4, 8-10, 19, 21, 23, 25, and 26 are unpatentable under 35 U.S.C. § 103 as obvious over U.S. Pat. Pub. No. 2009/0300525 A1 to Jolliff *et al.* ("Jolliff") in view of U.S. Pat. Pub. No.

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2009/0094179 A1 to Jager (“Jager ”). **GROUND 2:** Claims 6 is unpatentable under 35 U.S.C. § 103 as obvious over Jolliff in view of Jager and further in view of “On Protecting Private Information in Social Networks: A Proposal,” by Luo *et al.* (“Luo”). **GROUND 3:** Claims 1, 3, 4, 8-10, 19, 21, 23, 25, and 26 are unpatentable under 35 U.S.C. § 103 as obvious over Int’l. Pat. Pub. No. WO 2009/043020 A2 to Miluzzo *et al.* (“Miluzzo”) in view of U.S. Pat. Pub. No. 2006/0004680 A1 to Robarts *et al.* (“Robarts”). **GROUND 4:** Claims 6 is unpatentable under 35 U.S.C. § 103 as obvious over Miluzzo in view of Robarts in further view of Luo.

B. Citation of Prior Art.

Petitioners cites the following references which are prior art under 35 U.S.C. § 102(e) or § 102(b): **U.S. Patent Publication No. 2009/0300525 A1** to Jolliff *et al.* (EX 1005) is prior art under at least 35 U.S.C. § 102(e) because it was filed on May 27, 2008, more than one year before the earliest possible benefit date of the ’523 patent. **U.S. Patent Publication No. 2009/0094179 A1** to Jager (EX 1006) is prior art under at least 35 U.S.C. § 102(b) because it was published on April 9, 2009, more than one year before the earliest possible benefit date of the ’523 patent. **“On Protecting Private Information in Social Networks: A Proposal”** by Luo *et al.* (EX 1017) is prior art under at least 35 U.S.C. § 102(b) because it was published in Data Engineering, ICDE ’09, IEEE 25th International Conference on March 29 - April 2, 2009, more than one year before the earliest possible benefit

date of the '523 patent. **International Patent Publication No. WO 2009/043020 A2** to Miluzzo *et al.* (EX 1007) is prior art under at least 35 U.S.C. § 102(b) because it was published on April 2, 2009, more than one year before the earliest possible benefit date of the '523 patent. **U.S. Patent Publication No. 2006/0004680 A1** to Robarts *et al.* (EX 1008) is prior art under at least 35 U.S.C. § 102(b) because it was published on January 5, 2006, more than one year before the earliest possible benefit date of the '523 patent.

IV. The '523 patent

A. Overview of the '523 patent.

The '523 patent describes and claims a system, method, and computer readable medium to “automatically provide[] differing levels of information according to a predetermined social hierarchy. ” (EX 1001, Claim 1.) The technology claimed by the '523 patent uses optical and acoustic sensors on a mobile device to sense a user's activity (or status). (*Id.*, Abstract, 6:27-32.) Data from the sensors is matched with a “social signature“ that correlates sensor data with a user status. (*Id.*, Abstract.) Such status information is then provided to members of the user's social circle, with different members receiving different amounts of detail based on their level in the social hierarchy. (*Id.*) For example, a member of the user's family may receive more detailed information than the user's co-worker.

Unfortunately for the patentee, the earliest potential September 28, 2010 benefit date of the '523 patent is a late entry into the developed field of context

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awareness and privacy in social media. Despite the length of the '523 patent claims, these claims do no more than add a few well-known features to a conventional method of deriving user status information based on sensor data (including optical and acoustic sensor data), and providing different levels of information about the user status to different groups as specified by a privacy profile (*e.g.*, the claimed “social template”). The added features include privacy profiles allowing different levels of information based on “a predetermined social hierarchy” and selecting a privacy profile based on a sensor value-range comparison. As discussed further below, these added features themselves were well known in the art before the earliest possible benefit date for the '523 patent.

B. Level of Ordinary Skill in the Art.

One of ordinary skill in the art would have at least a B.S. degree in Electrical Engineering, Computer Engineering, Computer Science, or an equivalent field, as well as at least 2-5 years of academic or industry experience in mobile communication and context awareness.

C. Claim Construction.

The claim terms should be interpreted under the broadest reasonable interpretation (“BRI”) standard from the perspective of one of ordinary skill in the art in light of the specification.

- ***“social template”***: Under a BRI the term “social template” is “data that associ-

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ates a social signature with information provided to one or more levels of a social hierarchy.” The term “social template” is not expressly defined in the specification of the ’523 patent. However, the claims of the ’523 patent support Petitioners’ construction. Specifically, independent claims 1 and 19 each similarly recite, the social template is “selectable to provide, for each level of the predetermined social hierarchy, a corresponding differing amount of information to each member of the predetermined social hierarchy.” (*See, e.g.*, EX 1001, claims 1 and 19.) The independent claims also make clear that the social template is selected by correlating the signature stored in the template with a sensed social signature: “determines which of the social signatures of the social templates has a greatest correspondence with the created social signature.” (Claim 1.) Thus, the proper definition of “social template” is “data that associates a social signature with information provided to one or more levels of a social hierarchy” because the independent claims of the ’523 patent require (1) that the social template is selected based on its social signature, and (2) once selected, the social template “provides to at least one member of the predetermined social hierarchy only as much information as allowed.”

The specification also supports Petitioners’ construction explaining that the social template provides information to different groups of people in different social hierarchy levels based on social signatures: “[social templates] can be set up with varying levels of granularity in so far as who is given which information

about the user of the mobile device....” (*Id.*, 17:18-21.) In one embodiment, “the social template may allow specific friends to know that he is drinking coffee at the coffee shop, may allow his co-workers to know that he is in a personal meeting, and only allow the rest of the world to know that he is busy and should not be disturbed.” (*Id.*, 15:24-28.) Therefore, the term “social template” should be construed as: “data that associates a social signature with information provided to one or more levels of a social hierarchy.”

- **“social hierarchy”:** Under a BRI the term “social hierarchy” is “groupings of people receiving different information.” The term “social hierarchy” is also not expressly defined by the specification. The ’523 patent specification contains only a single example of a social hierarchy. Table 2 describes a four level social hierarchy titled “do-not-disturb-due-to-mother-and-baby-sleeping.” (*Id.*, 16:1-17.) The first level comprises “Father,” the second “Friend,” the third “School, Work,” and the fourth level “Strangers.” (*Id.*) The specification does not require any particular relation between these groups of people. Rather, the disparity between the groups is defined entirely by the stored level of information to be shared with the group. For example, the “Father” level is provided “a high level of information” while the “Friend” level is not “given as much detail as to the location and duration of the social signature.” (*Id.*, 16:32-49.) Again, the specification does not impose any particular data structure or organizing methodology to realize or enforce this relation-

ship. Rather, all notions of hierarchy are represented only in what information a user may choose to store in the social template.

The specification reinforces that a social hierarchy is a flexible concept, specifically “that additional or fewer levels can be provided” depending on various factors. (*Id.*, 17:27-30.) “[W]hile categories of social hierarchy levels can be established, exceptions can be programmed according to the needs of the end user.” (*Id.*, 17:14-17.) So while in the examples above a user had chosen to give the “Friend” level less detail than the “Father” level, nothing in the ’523 patent requires or suggests this delineation. A user could have constructed a social hierarchy where the “Friend” level received more information than the “Father” level and be fully compliant with the alleged invention.

In summary, the concept of a social hierarchy disclosed by the specification is very broad and may even be determined entirely “according to the needs of the end user.” (*Id.*) Therefore, under the broadest reasonable interpretation in light of the specification the term “social hierarchy” should be construed as “groupings of people receiving different information.”

- ***“level of [a] social hierarchy”***: Continuing from the above discussion of the term “social hierarchy,” the term “level” has no meaning other than being a sub-part of a social hierarchy. Therefore, the term “level of [a] social hierarchy” should be construed as “a grouping of people that receives information.”

All other terms should be construed based on their plain and ordinary meaning. Petitioners reserves the right to pursue different constructions under different standards applicable in other forums and request additional terms be construed.

V. IDENTIFICATION OF PRIOR ART AND CHALLENGE (37 C.F.R. § 42.104(b))

Petitioners propose four grounds of unpatentability. The following discussion and accompanying evidence shows a reasonable likelihood to prevail on each of the proposed grounds.

A. Ground 1: Claims 1, 3, 4, 8-10, 19, 21, 23, 25 and 26 are obvious over Jolliff in view of Jager.

1. Overview of Jolliff.

Jolliff discloses a system that “automatically update[s] a user’s virtual world avatar to provide a more accurate representation of the user’s current real world status or activity.” (EX 1005, ¶ [0006].) To determine the proper avatar for a user, Jolliff teaches using “the data from a variety of sensors” and using the sensed condition “to update or generate avatars which can be displayed to reflect the user’s status, location, mood and/or activity.” (*Id.*, ¶ [0050].) These sensors include “a camera or light sensor for sensing ambient light” (*i.e.*, “first sensor data”) and “a microphone for sensing ambient noise” (*i.e.*, “second sensor data”). (*Id.*, ¶ [0006].)

Jolliff determines the proper avatar to display by first creating a “parameter table 602” (*i.e.*, “a detected social signature”) from the combination of the collected sensor data (*i.e.*, “light and microphone data”), and then matching the parameter

table against an “avatar selection logic table 603.” (*Id.*, [0125]-[0126].) As shown below, each record (*i.e.*, the social template) in the avatar selection logic table 603 correlates sensed information (*i.e.*, the social signature), such as noise and light sensor ranges with an avatar and an authorization level (*i.e.*, the social hierarchy):¹

Social Signatures Social Hierarchies

603

	GPS	Noise	Light	Accel	Temp.	Calendar	Wallpaper	Ringtone	Authorization Level	Avatar
650	Office; 0 mph	<30db	Bright	0-2 g, random	70-75	Board Meeting	Company logo	any	No	Work
651	Office; 0 mph	<30db	Bright	0-2 g, random	70-75	Board Meeting	Company logo	any	Yes	Meeting
652	Home; 0 mph	any	Dark	0 g, random	any	any	any	any	Yes	Sleep
653	Home; 0 mph	any	Dark	0 g, random	any	any	any	any	No	Busy
654	Golf Course; 1-4 mph	any	Bright	0-3 g, random	>75	Weekday	any	silent	Family	Busy
655	Golf Course; 1-4 mph	any	Bright	0-3 g, random	>75	Weekday	any	silent	Buddy List	Golfing
656	Golf Course; 1-4 mph	any	Bright	0-3 g, random	>75	Weekday	any	silent	Boss	Work
657	Mall; >0 mph	>50 db	Bright	0-3 g, periodic	70-75	any	any	loud	any	Shopping
658	Track; >2 mph	any	Bright	5-1 g, periodic	>75	any	any	loud	any	Running
659	Restaurant; 0 mph	>50 db	Dark	0-2 g, random	70-75	any	any	loud	any	Eating
660	Movie Theater; 0 mph	>50db	Dark	0-2 g, random	70-75	any	any	silent	any	Movie
661	Campus; 0 mph	<30db	Bright	0-2 g, random	70-75	Study Group	any	silent	any	Studying
662	Variable; >10 mph	>50db	any	5-2 g, random	70-75	any	any	loud	any	Driving

Social Template

Amount of information

FIG. 19b

Jolliff’s authorization level determines what information to share based on the relationship of the person receiving the information to the user: “the user may also set permission or authorization levels for avatars to control who may view a particular avatar, at what times, and during what activities.” (EX 1005, ¶ [0056].)

¹ This is consistent with Patent Owner’s assertions that data for the claimed social signature is not limited to optical and acoustic data. (EX 1023, pp. 5-6.)

Jolliff also describes determining the proper values to use in the “avatar logic selection table” via a calibration process: in “a calibration process, the mobile device 301 can record the sensor values and device settings during the activity, average the values, and store the average or range within the avatar selection logic table 601.” (*Id.*, [0090].) “Users may repeat the [calibration] process...at any time to update the calibration or criteria for a particular avatar or to add selection criteria for a newly created avatar.” (*Id.*, [0093].)

2. Overview of the Combination of Jolliff and Jager.

As discussed above, Jolliff discloses collecting sensor data from light and audio sensors, storing the collected sensor data in a “parameter table,” and then comparing the parameter table against record in a “avatar selection logic table” to determine an avatar to display. Jolliff also discloses that different avatars can be displayed to different groups of people based on their relationship to the user. (EX 1003, ¶ 53.) Correlating Jolliff to the claims, the sensed data in a given record (including the noise and light values) is the “social signature,” the same record’s map between the authorization level and the displayed avatar is the “social hierarchy,” and the combination of the two, shown as the entire record, is the “social template.” But, as shown above in FIG. 19b, while each social template has a social signature and is selectable to provide a specific hierarchy, multiple records in Jolliff’s “avatar selection logic table” may include duplicate sensed values corre-

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sponding to different hierarchies. So Patent Owner may allege Jolliff does not clearly show that “each social template correspond[s] to a unique social signature.”

However, a POSA would have understood that duplicating data parameters across separate rows for different actions was simply a design choice. (EX 1003, ¶ 55.) It was well understood before the earliest date of the ’523 patent that removing duplicate records and merging their actions together (*e.g.*, combining two rows of a table into one) would lower the overall memory storage required and speed evaluation of the data parameters. (EX 1003, ¶ 56.) For example, “[i]n order to limit memory usage,” Jager describes removing duplicate profiles and merging their “actions” together, thereby ensuring that each profile is unique (EX 1006, ¶ [0078].) A POSA recognizing Jolliff’s inefficient duplication of data across multiple rows in its “avatar selection logic table” would have been motivated to seek out more efficient ways to store context data and have a unique social signature as taught by Jager.. (EX 1003, ¶ 57.)

Jager teaches a context aware mobile device similar to Jolliff. (EX 1006, ¶ [0037].) Like Jolliff, the Jager invention senses “ambient light” and “noise” and then stores these values in a “profile.” (*Id.*, ¶ [0082].) Jager’s profiles store the same kinds of information as Jolliff’s “avatar logic selection table”: sensor values and an action to take when sensory input matches those values. (*Id.*, ¶ [0035].) To determine the proper “context,” Jager compares observed sensory input with stored

profiles to find the profile with the “highest score,” *i.e.*, the unique profile that most closely matches the sensory input. (*Id.*, ¶ [0050] and [0035].) This highest scoring profile is sent to an action module to initiate some action stored in the profile, such as “setting the smartphone to ‘silent mode’.” (*Id.*, ¶ [0073].) In this way, Jager describes a more efficient storage scheme where each profile has a unique set of attributes (*i.e.*, a unique social signature).

As also explained above, Jolliff discloses “calibrating” its “avatar selection logic table.” Jolliff further discloses that users may manually perform the calibration: “Users may repeat the [calibration] process...at any time to update the calibration or criteria for a particular avatar or to add selection criteria for a newly created avatar.” (EX 1005, ¶ [0093].) While Jolliff does not provide details on its calibration process, it was well understood long before the earliest priority date of the ’523 patent that context awareness applications depend on properly calibrated data to ensure that context represented by received sensor data properly matches the detected context. Thus, a POSA would have been motivated to seek out methods for implementing such calibration automatically, such as those disclosed in Jager.

Jager also describes a process of training or calibrating its stored profiles: “stored profiles may be automatically adapted and adjusted based on differences between observed profiles and stored profiles.” (EX 1006, ¶ [0036].) Specifically, Jager discloses determining a score, which represents the similarity (or dissimilarity)

ty) between the observed profile and the closest matching stored profile. (EX 1003, 60; *see also* EX 1006, [0046]-[0051].) Jager then discloses establishing a “similarity threshold,” and “[i]f the highest score is less than the similarity threshold then...the observed profile is treated as a newly created profile.” (EX 1006, [0052].) Otherwise, if the score is equal to or greater than the similarity threshold, then the profile is either updated or not depending on whether the match is perfect. (EX 1003, ¶¶ 61-65; *see also* EX 1006, [0052].)

Accordingly, as demonstrated below, and supported by the declaration of Mr. Williams, the combination of Jolliff and Jager teaches all elements of claims 1, 3, 4, 6, 8-10, 19, 21, 23, 25 and 26 of the '523 patent.

3. Jolliff in view of Jager under 35 U.S.C. § 103 renders independent claim 1 obvious.

a) “A server in communication with a communication device via a network and which automatically provides differing levels of information according to a predetermined social hierarchy, the server comprising”

Jolliff discloses a system including a server in communication with a communication device that “*automatically update[s]* a user’s virtual world avatar to provide a more accurate representation of the user’s current real world status or activity.” (EX 1005, ¶ [0006].)² Jolliff provides “differing levels of information” in the form of different avatars based on different authorization levels of the request-

² Throughout the petition, emphasis is added, unless otherwise indicated.

ing users (i.e., “predetermined social hierarchy”). Jolliff’s system “select[s] an avatar” based on comparison of sensor data. (*Id.*, Abstract.) Jolliff discloses this system in the context of a server in communication with a communication device via “a cellular telephone network” or “a wireless data network.” (EX 1005, ¶ [0044].)

b) “a memory which stores social templates, each social template corresponding to a unique social signature”

Jolliff discloses storing “social templates” in memory via its “avatar selection logic table”: “[the] avatar selection logic table 603 shown in FIG. 19b may be stored in memory of the computing device which determines the appropriate avatar to display.” (EX 1005, ¶ [0127].) Each record in the avatar selection table corresponds to the claimed “social template” because each row in the avatar selection table includes light and noise values (*i.e.*, a social signature), information that is to be shared with others (the avatar), and an authorization level that controls the level of disclosure depending on the group the information is shared with (*i.e.*, a social hierarchy). (*Id.*, FIG. 19b.)

But, as explained above, Jolliff’s does not explicitly disclose that “each social template correspond[s] to a unique social signature” because the “avatar selection logic table” may include the same light and audio ranges for multiple records (*i.e.*, social templates). However, this is an inefficient approach to storing this information and a POSA would have been motivated to seek out more efficient data structures of context data, such as described in Jager.

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In the same field as Jolliff, Jager teaches such data structures in the form of profiles. Each profile in Jager uniquely corresponds to a different user status. (EX 1006, [0010].) Jager's profiles are similar to the claimed social templates because they both store sensor values that correspond to context, *i.e.*, what is happening around the device and the user. Jager teaches selecting a profile by comparing sensor data with the unique attributes of Jager's stored profiles. (*Id.*, [0035].) Jager further discloses that "[i]n order to limit memory usage" removing duplicate profiles and merging their "actions" together, thereby ensuring that each profile is unique (*Id.*, ¶ [0078].) Thus, Jager describes an efficient storage scheme where each profile has a unique set of attributes (*i.e.*, a unique social signature).

It would have been obvious to a POSA to combine Jolliff's avatar selection table with Jager's profiles such that Jolliff's data records avoid the storage of duplicate data in Jager's "avatar selection logic table," and each social template corresponds to a unique social signature. (EX 1003, ¶ 74.) A POSA would have been motivated to do so because such modification saves memory space and speeds up the avatar selection process. (*Id.*) Thus, combining Jager's profile with Jolliff's avatar selection table is nothing more than use of a known technique (Jager's profile including attributes of sensor data) to improve a similar system (Jolliff's server storing data records in an avatar selection table) in the same way. (EX 1003, ¶ 74.) *See KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

- c) “[the] unique social signature comprising a first sensor value range and a second sensor value range other than the first sensor value range”**

As explained above, Jolliff discloses that each row (*i.e.*, a social template) in its avatar selection table, includes a noise and light value (*i.e.*, a social signature). Jolliff further discloses that the avatar selection logic table can include ranges for sensor data such as temperature, suggesting that other values could be specified as ranges too. (EX 1005, FIG. 19b.) Thus, a POSA would have found it obvious to specify the noise and light values in the avatar selection logic table as ranges. Indeed, it was well understood to POSAs before the earliest priority date of the ’523 patent that one could specify light or noise values in ranges. (EX 1003, ¶ 76.)

- d) “each social template being selectable to provide, for each level of the predetermined social hierarchy, a corresponding differing amount of information to each member of the predetermined social hierarchy”**

Jolliff discloses providing “*a differing amount of information*” to different groups of people by displaying different avatars to different people based on their authorization level (*i.e.*, level in the social hierarchy): “[a] user may program the avatar selection logic table 603 with multiple levels of authorization such that more than two different avatars may be displayed for the identical sensor, calendar and settings data depending upon the authorization level of the requestor.” (EX 1005, ¶ [0132].) In other words, each row (*i.e.*, social template) in the avatar selection logic

table provides information (*i.e.*, an avatar), which is different depending on the requestor's "authorization level." (*Id.*, FIG. 19b.)

This authorization level corresponds to a requestor's level in a "*predetermined social hierarchy*." For example, consider the "Golf Course" social template disclosed by Jolliff. (*See id.*, FIG. 19b (rows 654-656); *see also id.*, ¶ [0132].) In this case, Jolliff discloses a predetermined social hierarchy that includes multiple groups of people: a first group of people includes members of a person's "Family," a second group of people includes members of a "Buddy List," and third group of people includes the person's "Boss." For each level of the predetermined social hierarchy different amounts of information are shared: "in data records 654-656 [in FIG. 19b]..., a requester whose authorization level indicates that the requestor is on the user's **buddy list** will be sent the '**golfing**' avatar (see data record 655). However, the user's spouse may have an authorization level of '**family**' which causes the '**busy**' avatar to be selected for display. Additionally, the user's **boss** may have an authorization level which would cause a 'work' avatar to be selected for display." (*Id.*, ¶ [0132]; *see also* FIG. 19b, rows 654-656.) By describing sharing the "busy" avatar with "family," and the "golfing" avatar with "friends," Jolliff discloses sharing a different *amount* of information between members of the social hierarchy because "busy" is less information than "golfing." (EX 1003, ¶ 79.)

- e) **“a processor which receives from the communication device sensor data received from a sensor set of the communication device”**

Jolliff discloses a server comprising a processor which receives sensor data from a sensor set of the communication device. The “mobile computing device 301 may transmit the **sensor**, calendar, and settings data to another computing device, such as **server 109** ..., so that the avatar determination, step 404, can be performed by the **processor** of the [server].” (EX 1005, ¶ [0074].)

- f) **“which detects sensor data including [i] a first detected sensor value comprising optical information detected by an optical sensor of the sensor set which detects an amount of light of an environment of the communication device and [ii] a second detected sensor value comprising acoustic information detected by an acoustic sensor of the sensor set which detects a sound level of the environment of the communication device”**

Data sensed by Jolliff’s sensors include [i] an optical sensor which detects an amount of light of an environment of the communication device: the “variety of sensors may include ... *a camera or light sensor for sensing ambient light.*” (EX 1005, ¶ [0006].) Jolliff’s sensors also include [ii] an acoustic sensor which detects a sound level of the environment of the communication device: the “variety of sensors may include ... *a microphone for sensing ambient noise.*” (*Id.*, ¶ [0006].)

- g) **“creates a detected social signature from the received sensor data”**

Jolliff discloses creating a “detected social signature” by storing received sensor data in a parameter value table. (EX 1003, ¶ 82-83.) The parameter value

table corresponds to the claimed “detected social signature” because it stores the received sensor data: “[t]he processor 391 stores all of the sensor, calendar, and settings data in a parameter value table.” (EX 1005, ¶ [0077]; *see also* FIG. 19a.)

h) “determines which of the social signatures of the social templates has a greatest correspondence with the created social signature through comparison of the first and second detected sensor values and the first and second sensor value ranges of each stored social template”

Once server 109 creates the parameter value table, “the values [in the parameter value table] may be compared to avatar selection criteria in the avatar selection logic table 601.” (EX 1005, ¶ [0103].) Further, Jolliff teaches finding the greatest correspondence by selecting an avatar with the greatest number of selection criteria, which includes the noise and light values (*i.e.*, the social signature of the template). (*Id.*, ¶ [0138].) Because the “processor ... can compare **each value** to corresponding criteria in the avatar selection logic table 601” and avatar selection logic table including light level range and noise level range (*Id.*, ¶ [0096]; *see also* FIG. 19b), a POSA would have recognized that the comparison in Jolliff involves comparison of the light and noise level range and the noise level range values stored in the avatar selection logic table (*i.e.*, the signature of the social template). (EX 1003, ¶ 84.) “If the sensor and setting data stored in the parameter value table 602 match the criteria in data records 650 and 651, a different avatar will be selected and displayed depending on the authorization level of the requestor.”

(GOOG 1005, ¶ [0129].) Jolliff thus discloses comparing the received light and noise sensor data (first and second detected sensor values) with the light and noise values stored in the avatar selection logic table (the first and second sensor value ranges of each stored social template) to determine the greatest correspondence.

Jolliff further discloses comparing a subset of parameters, such as the light and noise sensor data (*i.e.*, first and second detected sensor values), to determine the greatest correspondence. According to Jolliff, “[i]n using a variety of sensors and information sources to infer a user’s status, certain sensors or parameters may be given higher priority, particularly with respect to each other.” (GOOG 1005, ¶ [0064].) In some cases, “fewer parameters may be needed to accurately reflect a user’s current status.” (*Id.*, ¶ [0148]. In other words, Jolliff also discloses matching a subset of the retrieved sensor data with the sensor parameters stored in the avatar selection logic table. A POSA would have understood that in the case where the light and noise level values are stored as ranges in the avatar selection logic table, which as explained above would have been obvious to a POSA, then the match would have been determined by comparing the ranges stored in the avatar selection logic table (*i.e.*, first and second sensor value ranges of each stored social template) with the detected sensor data to determine the greatest match. (EX 1003, ¶85.)

- i) **“retrieves from the memory the determined one social template having the greatest correspondence and having the detected amount of light within the first sensor value range**

and the detected sound level within the second sensor value range”

As discussed above, to select the appropriate avatar, the server first needs to determine the group of records with the same selection criteria that has the greatest number of criteria match. Because “the avatar selection logic table 603 shown in FIG. 19b,” which contains the social templates, “may be stored in memory of the computing device” (EX 1005, ¶ [0127]), a POSA would have recognized that the processor on Server 109 needs to retrieve the determined group of records in order to compare the authorization level of the requesting user to those stored in the records for avatar selection. (EX 1003, ¶ 86.)

j) “provides to at least one member of the predetermined social hierarchy only as much information as allowed based on the retrieved social template”

Once Server 109 selects the appropriate avatar, Server 109 provides the avatar by transmitting the selected avatar to the requester’s computing device. The “server 109 transmits the avatar, step 432, for display on the requester’s computing device.” (EX 1005, ¶ [0103].)

As discussed above, because different avatars provide different amount of information and the authorization levels in Jolliff can correspond to social hierarchy levels, the selected avatar only conveys as much information as allowed based on the authorization level specified in the records in the avatar selection table. (*See e.g., id.*, ¶ [0132].) For example, if the requestor is the “spouse” in the social hier-

archy, the selected avatar only conveys “busy” information even if the sensor data indicates that the user is “golfing.” (*See e.g., id.*, ¶ [0132].)

k) “a transceiver which receives the sensor data from the sensor set in the communication device, and”

Jolliff discloses that server 109 receives the sensor data from the mobile computing device. The “mobile computing device 301 may transmit the sensor, calendar, and settings data to another computing device, such as server 109.” (EX 1005, ¶ [0074].) Further, server 109 is connected to the mobile computing device “via a wireless or cellular network, and the Internet 108.” (*Id.*, ¶ [0080].) While Jolliff only refers to server 109 receiving sensor data, a POSA would have recognized that server receives the data via a transceiver because wireless, cellular networks, or the Internet all require at least the transmission of acknowledgements when data is received. (EX 1003, ¶ 89.)

l) “provides under the control of the processor to at least one of the members of the predetermined social hierarchy only as much information as allowed based on the retrieved social template”

Once Server 109 selects the appropriate avatar, it “transmits the avatar, step 432, for display on the requester’s computing device.” (EX 1005, ¶ [0103].) Further, as discussed above, because different avatars provide different amount of information and the authorization levels in Jolliff can correspond to social hierarchy levels, the selected avatar only conveys as much information as allowed based on

the authorization level specified in the records in the avatar selection table. (*See e.g., id.*, ¶ [0132].) For example, if the requestor is the “spouse” in the social hierarchy, the selected avatar only conveys “busy” information even if the sensor data indicates that the user is “golfing.” (*Id.*) As such, Jolliff in view Jager render obvious all of the elements of claim 1.

4. Jolliff in view of Jager under 35 U.S.C. § 103 renders independent method claim 19 obvious.

Claim 19 contains limitations substantially similar to, and obvious variations of, claim 1, except that claim 19 only includes the step of “constructing a social signature” instead of “creat[ing] a detected social signature” like claim 1. As used in the claims, “constructing” is the same as “creating,” and the art applies in the same way as described with respect to claim 1 above because a POSA would understand in “creating” a “social signature” one is also “constructing” a social signature. (EX 1003, ¶ 94.) Thus, for the same reasons that Jolliff in view of Jager teaches the limitations of claim 1, the combination of Jolliff in view of Jager teaches the limitations of claim 19.

5. Jolliff in view of Jager renders dependent claim 3 obvious.

Claim 3 recites, “the levels of the social hierarchy of the retrieved social template include: a first social hierarchy level,” “a second social hierarchy level,” and “a third social hierarchy level.” As explained above, Jolliff discloses a social template with three different levels of a social hierarchy, specifically a “Family”

level, a “Buddy List” level, and a “Boss” level. (*See, e.g.*, EX 1005, ¶ [0132] and FIG. 19b, rows 654-656.)

As explained above, Jolliff discloses providing different avatars (i.e., information) to different groups of people depending on their relationship to the user, which Jolliff calls the “authorization level” (*i.e.*, the level in the social hierarchy). (*Id.*, ¶ [0122].) Jolliff gives the example of someone on a “buddy list” being sent a “golfing” avatar, a spouse being sent a “busy” avatar, and a boss being sent a “work” avatar. (*Id.*, ¶ [0132].) As such, Jolliff in view of Jager render obvious all of the elements of claim 3.

6. Jolliff in view of Jager renders dependent claims 4 and 21 obvious.

a) “The server of claim 1, wherein the processor further detects an error between the detected social signature and the social signature of the determined one social template having the greatest correspondence”

As described above, Jolliff discloses a calibration process for determining the ranges and values used in the “avatar selection logic table” (which is a plurality of “social templates”), but does not disclose how one can ensure that the avatar selection logic table stays properly calibrated all the time. However, it was well understood long before the earliest priority date of the ’523 patent that context aware applications depend on properly calibrated data to ensure that context represented by received sensor data properly matches the detected context. (EX 1003, ¶ 98.)

Thus, a POSA would have been motivated to seek out methods for ensuring such calibration, such as those disclosed in Jager.

Jager discloses environmental sensor modules that are “configured to sense a value of one or more aspects or features of the environment at a particular time or in a particular time window.” (*Id.*, ¶ [0032].) The attributes are then collected to form an “observed profile.” (*Id.*, ¶ [0034].) If there is a match, a related “associated task or state” may be initiated. (*Id.*, ¶¶ [0034]-[0035].) Jager further discloses that “stored profiles may be automatically adapted and adjusted based on differences between observed profiles and stored profiles.” (*Id.*, ¶ [0036].)

Jager’s determination of the difference between the observed profile and the stored profile is the claimed “detect[ing] an error,” with the error being the “differences.” If the score is equal to or greater than a threshold, then the profile is either updated with observed profile data. (EX 1003, ¶ 100; *see also* EX 1006, [0052].)

It would have been obvious to a POSA to incorporate automatically updating profiles with Jolliff to make the “avatar selection table” more closely represent the sensed context. (EX 1003, ¶ 101.) A POSA would have understood that one could use Jager’s automatically updating profiles to “detect an error” between Jolliff’s “parameter table” (*i.e.*, “the detected social signature”) and Jolliff’s and the entry in “avatar selection logic table” that most closely matches the parameter table (*i.e.*, “the social template having the greatest correspondence”). (*Id.*, ¶ 102.) This would

have improved Jolliff's "avatar selection table" so that it is more closely calibrated to the sensed data. Thus, using Jager's automatically adapting profiles with Jolliff's calibration process is merely using Jager's known technique of automatically adapting profiles to improve the similar processes described in Jolliff. (*Id.*)

- b) "updates the social signature of the determined one social template to include the detected error in the first and/or second sensor value ranges such that the social signature of the determined one social template incorporates the detected social signature where it is determined that the determined one social template is accurate"**

As discussed above, Jager discloses updating the social signature of the determined one social template to include the detected error where it is determined that social template is accurate. (*See* EX 1006, ¶ [0036].) A POSA would have understood that when adopting Jager's automatically adjusting profiles to Jolliff's "avatar selection logic table," that updating Jolliff's "avatar selection logic table" would include adjusting the acoustic sensor and light sensor values to include the differences (*i.e.*, the error) between the detected sensor values and the values in the avatar selection logic table because that is how Jolliff's matches are determined. (EX 1003, ¶ 104.) A POSA would have understood that one could affect the accuracy of matches by adjusting the acoustic and light sensor values to include the differences. (*Id.*, ¶ 105.) Likewise, in the case where such acoustic and light sensor values are ranges a POSA would have understood that the accuracy is affected by adjusting the ranges. (*Id.*, ¶ 106.)

- c) **“and creates a new social template using the detected social signature where it is determined that the determined one social template is not accurate”**

Jager discloses creating a new social template when the determined social template is not accurate: “[i]f no sufficiently closely matching stored profile is found then the learning module 106 may initiate storing of the observed profile in the profiles database, as a new profile.” (EX 1006, ¶ [0036].) A POSA would have understood that such a “new profile” would include the detected social signature (*i.e.*, the detected acoustic and light values). (EX 1003, ¶ 107.) As discussed above, Jolliff discloses that its “avatar selection logic table” is stored in memory, thus a POSA would have understood that when adopting Jager’s automatically adjusting profiles to Jolliff’s “avatar selection logic table,” the new profiles would take the form of additional entries in Jolliff’s table, and thus also be stored in memory.

As such, Jolliff in view of Jager render obvious all of the elements of claim 4. Dependent claim 21 is substantially similar to claim 4. Accordingly, claim 21 is unpatentable for the same reasons as claim 4.

7. Jolliff in view of Jager renders dependent claims 8 and 23 obvious.

As discussed, Jolliff discloses automatic update of a user's avatar and that the user's avatar can be displayed on one or more social networking sites. (See EX 1005, ¶¶ [0006], [0054].) When updating the avatar to one social networking site, Jolliff further discloses a single level of social hierarchy by setting the authoriza-

tion level to “any.” (See *e.g., id.*, record 657 of FIG. 19b.) Also as discussed with respect to claim 1, it would have been obvious that one authorization level in Jolliff would correspond to one social networking service. (See *id.*, ¶¶ [0053]-[0054].) A POSA would have recognized that for records with a single authorization level, the avatar would be updated to that one social networking service. (EX 1003, ¶ 111.) As such, Jolliff and Jager render obvious all of the elements of claim 8. Dependent claim 23 is substantially similar to claim 8. Accordingly, claim 23 is unpatentable for the same reasons as claim 8.

8. Jolliff in view of Jager renders dependent claims 9 and 25 obvious.

Claim 9 is substantially similar to claim 8. The only different is that claim 9 recites updating a “microblogging service” instead of a “social networking service.” As described above, Jolliff discloses updating an avatar on, *inter alia*, “facebook.com.” (EX 1005, ¶ [0054].) Microblogging is nothing more than the practice of posting small piece of information (*e.g.*, brief text or image updates) on the Internet. (EX 1003, ¶ 114.) A POSA would have recognized that Facebook is a microblogging service because Facebook provides functionalities for posting small pieces of digital content on the Internet. (*Id.*)

As such, Jolliff in view of Jager render obvious all of the elements of claim 9. Dependent claim 25 is substantially similar to claim 9. Accordingly, claim 25 is unpatentable for the same reasons as claim 9.

9. Jolliff in view of Jager renders dependent claims 10 and 26 obvious.

As discussed above, Jolliff discloses using avatars in social networking services. (See EX 1005, ¶ [0053].) Jolliff further discloses using the discloses invention “[in] a medical setting ... such as an emergency room or hospital.” (*Id.*, ¶ [0156].) Jolliff further discloses an example where a “a pacemaker” capable of “*efficiently communicat[ing] the patient's status to the doctor.*” (*Id.*) Therefore, Jolliff teaches providing information related to an emergency (e.g., pacemaker data) to predetermined emergency services (e.g., a doctor). (EX 1003, ¶¶ 117-118.) As such, Jolliff in view of Jager render obvious all of the elements of claim 10. Dependent claim 26 is substantially similar to claim 10. Accordingly, claim 26 is unpatentable for the same reasons as claim 10.

B. Ground 2: Claim 6 is obvious over Jolliff in view of Jager in further view of Luo.

Jolliff discloses displaying a user's avatar on one or more social networks such as Facebook or MySpace. (EX 1005, ¶ [0054].) But the Jolliff-Jager combination does not explicitly describe how to protect the privacy of the user status information on different social networks. Thus, a POSA would have been motivated to seek out a teaching of how to protect a user's private information as avatars were displayed on different social networks. It was well known that people uses different social networks for different purposes and different group of contacts. (EX

1003, ¶ 120.) For example, people use LinkedIn for professional purpose. (EX 1017, § I, p. 1.) Further, users of multiple social networks may not want information from different contexts to mix up with each other. (*Id.*) To prevent such mix-up, Luo describes a private information model in which a different social network corresponds to a different privacy disclosure set. (*Id.*, § III, p. 2.)

A POSA would have been motivated to seek out a per-social-network based privacy protection model because Jolliff teaches each authorization level corresponding to a different group (*e.g.*, boss, buddy, or family) and it was well known that a user often uses different social networks for different groups of contacts as taught by Luo. Accordingly, as demonstrated below, and supported by the declaration of Mr. Williams, the combination of Jolliff, Jager, and Luo teaches all elements of claim 6 of the '523 patent.

1. Jolliff in view of Jager in further view of Luo renders dependent claim 6 obvious.

Jolliff discloses that a user's (EX 1005, ¶ [0054].) But the Jolliff-Jager combination does not explicitly describe how to protect the privacy of the user status information on different social networks. Thus, a POSA would have been motivated to seek out a teaching of how to protect a user's private information as avatars were displayed on different social networks. It was well known before the earliest benefit date of the '523 patent that different social networks have different purposes and different groups of contacts. (EX 1003, ¶ 126.) Luo describes a private in-

formation model in which each social network corresponds to a different privacy disclosure set. (EX 1017, § III, p. 2., *see also* FIG. 3.) The private information under the discretionary privacy model can be user profile information shown in Fig. 3 or “[u]ser generated content such as blogs, messages posted to forums, etc.” (*Id.*)

As discussed, Jolliff in view of Jager renders obvious that a profile, with a unique sensor matching criteria (i.e., a social signature), includes authorization levels corresponding to different recipient groups receiving different avatars. It would have been obvious for a POSA to modify the Jolliff-Jager system such that each authorization level in a profile in the Jolliff-Jager system would correspond to a different social network, as taught by Luo. Incorporating Luo’s privacy disclosure set into the profile of the Jolliff-Jager system is a simple substitution of one known element (Jolliff-Jager’s profile with each authorization level corresponding to a different recipient group) for another (Luo’s private information model with each privacy disclosure set corresponding to a different social network) to obtain predictable results (a profile with each authorization level corresponding to a different social network). (EX 1003, ¶ 127.) *See KSR*, 550 U.S. 398 at 418. As such, Jolliff in view of Jager render obvious all of the elements of claim 6.

C. Ground 3: Claims 1, 3, 4, 8, 9, 10, 19, 21, 23, 25, and 26 are obvious over Miluzzo in view of Robarts.

Miluzzo teaches a method for “injecting sensed presence into social networking applications.” (EX 1007, Abstract.) Miluzzo uses “microphones” and

“cameras” in smartphones to detect a “noise index” and a “brightness index” used to infer a presence status of a user. (*Id.*, ¶ [0081].) Miluzzo teaches sharing this sensed presence with others “according to group membership policies.” (*Id.*, ¶ [0052].) The level of detail sent to a group can vary, for example “users are also given the ability to further apply per-buddy policies to determine the level of data disclosure on per-user, per-group, or global level.” (*Id.*, ¶ [0053].) Miluzzo teaches “the Virtual Walls model which provides different levels of disclosure based on context, enabling access to the complete sensed/inferred data set, a subset of it, or no access at all.” (*Id.*) Therefore Miluzzo teaches sensing a user's context, and then providing varying levels of information to others based on the sensed context.

Robarts also teaches “provid[ing] appropriate computer actions based on a current context,” similar to Miluzzo’s invention. (EX 1008, Abstract.) Robarts teaches “themes” including “attributes that reflect the context of the user” such as the user’s “setting, situation, or physical environment.” (*Id.*, ¶ [0040].) Attributes in a theme can include light and sound level attributes. (*See e.g., id.*, FIG. 8 (showing “Ambient_noise_level” and “Ambient_light_level”).) Robarts additionally teaches that privacy settings can be based on social hierarchy groups such as “Family, Friends, Acquaintances.” (*See id.*, ¶ [0203].)

Miluzzo does not explicitly disclose where to store, and how to organize and retrieve users’ privacy settings (*e.g.*, “group membership policies”). Thus, a POSA

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would have been motivated to seek out reference that discloses how to store, organize, and retrieve user's privacy settings, which was well known in the art. For example, Robarts teaches a “theme data structure includes Privacy, Security, and Permission information.” (*Id.*, ¶ [0040].) Privacy levels in Robarts can be based on social hierarchies such as “Private, Public, Work, Family, Friends, Acquaintances, People in immediate vicinity, and Everyone.” (*Id.*, ¶ [0203].) Further, the “themes each include related sets of attributes that reflect the context of the user.” (*Id.*, ¶ [0040].) “Attributes represent measures of specific context elements such as ambient temperature, latitude, and current user task.” (*Id.*, ¶ [0043].)

It would have been obvious for a POSA to modify Miluzzo’s system such that Miluzzo’s privacy settings (*e.g.*, group membership policies) can be stored together with sensor attributes in data structures such as the theme data structures as taught by Robarts. Miluzzo does not explicitly disclose how to organize and retrieve users' “group membership policies.” But, Miluzzo teaches that the Miluzzo system “provides different levels of disclosure based on context,” (EX 1007, ¶ [0053]), a POSA would have been motivated to incorporate Robarts' context-based themes into Miluzzo to organize and retrieve the user's “group membership policies” because Robarts teaches that “the themes each include related sets of attributes that reflect the context of the user.” (EX 1008, ¶ [0040].) Further, the data structure of Robarts' themes includes privacy settings. (*See* EX 1008, ¶ [0203].)

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As demonstrated below, and supported by the declaration of Dr. Williams, the combination of Miluzzo and Robarts teaches all elements of claims 1, 3, 6, 17, 21, 25, and 25 of the '523 patent.

1. Miluzzo in view of Robarts under 35 U.S.C. § 103 renders independent claim 1 obvious.

a) “A server in communication with a communication device via a network and which automatically provides differing levels of information according to a predetermined social hierarchy, the server comprising”

Miluzzo further discloses a system and a method “for injecting sensed presence into social networking applications.” (EX 1007, Abstract.) Miluzzo discloses “a presence server (116) for receiving and storing the sensor data.” (*Id.*) The sensor data is sent by a communication device such as a “cell phone” (*Id.*, ¶ [0069].) It was well known that a server would include a processor such as a CPU. (EX 1003, ¶¶ 137-139.) For example, Robarts teaches that “a Theme Server computing device 1400 ... includes a CPU 1405.” (EX 1008, ¶ [0212].)

The “shared presence status of user 102 is **automatically updated** by presence server 116 via social networking server 126.” (EX 1007, ¶ [0021].) Miluzzo also discloses providing different levels of information according to a predetermined social hierarchy using virtual walls that include per-group disclosure policies: “[the system provides] the ability to further apply per-buddy policies to determine the level of data disclosure on per-user, per-group, or global level. Certain

embodiments of system 100 follow the Virtual Walls model *which provides different levels of disclosure based on context.*” (*Id.*, ¶ [0053].)

- b) “a memory which stores social templates, each social template corresponding to a unique social signature comprising a first sensor value range and a second sensor value range other than the first sensor value range”**

As discussed above, Miluzzo discloses capturing light and acoustic data through sensors. Miluzzo further discloses using an “inference engine” to “determine the presence status of the user” based on “inferences derived from combinations of current data...” (i.e., the light and acoustic data). (*Id.*, ¶ [0043].) Miluzzo also discloses a social hierarchy (i.e., virtual walls) that provide different information to different levels of the hierarchy: system gives users “Certain embodiments of system 100 follow the Virtual Walls model which provides *different levels of disclosure* based on context.” (*Id.*, ¶ [0053].) Miluzzo, however, does not explicitly disclose how these inferences are derived other than stating that “[h]uman activity-inferring algorithms are incorporated within engine 212 to log and predict a users' behavior.” (*Id.*, ¶ [0045].) Thus, a POSA would have been motivated to seek out information for how to implement such an inference engine or “human activity-inferring algorithms,” such as described in Robarts. (EX 1003, ¶¶ 140-144.)

Robarts discloses a system to “provide appropriate computer actions based on a current context.” (EX 1008, Abstract.) Specifically, Robarts’ “themes” (i.e., social templates) include “attributes” (i.e., unique social signatures) that reflect the

context of the user such as the user's "setting, situation, or physical environment." (*Id.*, ¶ [0040].) The attributes include optical and acoustic data sensed from light and sound sensors. (*See e.g., id.*, FIG. 8.) Robarts' attributes can also be specified as a range: "such attribute includes ... value or quantity of the attribute; an uncertainty value that represents a *range of values* around the attribute value that the attribute is likely to have." (*Id.*, ¶ [0092].) Thus, as the Robarts' attributes can be specified as ranges, Robarts discloses a social template (*i.e.*, a theme) that includes an ambient light level attribute (*i.e.*, first sensor value range) and an ambient noise level attribute (*i.e.*, second sensor value range).

Robarts' themes are stored in memory: "a Theme Server computing device 1400 is illustrated that includes a CPU 1405, a storage 1420, memory 1430, and various I/O devices.... *The storage includes various themes* and theme-related information for distribution to user computing devices, including multiple themes 1421." (*Id.*, ¶ [0212].) And, "these items or portions of them can be *transferred between memory and other storage devices* for purposes of memory management and data integrity." (*Id.*, ¶ [0224].)

It would have been obvious for a POSA to modify Miluzzo's inference engine to incorporate Robarts theme and user context recognition because both Miluzzo's inference engine and Robarts themes accomplish the same thing—recognizing a user's context based on sensor data. Robarts' themes already include

privacy setting, but Robarts' does not explicitly disclose this privacy setting is a "social hierarchy," but a POSA would have understood that when adapting Robarts' themes for use in Miluzzo's inference engine, the privacy setting would correspond with Miluzzo's "group member policy" (*i.e.*, a social hierarchy) to ensure that Robarts' themes worked with the other processes described in Miluzzo. Thus, using Robarts' themes with Miluzzo is nothing more than substituting Robarts' themes and user context recognition for Miluzzo's inference engine. The results would be predictable because both Robarts and Miluzzo have the same goals recognizing a user's context from sensors. (EX 1003, ¶¶ 140-144.)

c) "each social template being selectable to provide, for each level of the predetermined social hierarchy, a corresponding differing amount of information to each member of the predetermined social hierarchy"

As discussed above, the combination of Miluzzo and Robarts' teaches a social template that includes a privacy settings, such as Miluzzo's group member policy. Robarts teaches that themes are selectable. (EX 1008, ¶ [0162].)

Miluzzo teaches that a group membership policy can specify that different information is given to different groups of people based on a user's presence status. Specifically, Miluzzo explains that, "[u]sers' raw sensor feeds and inferred information (collectively considered as the user's sensed presence) ... may be shared by the owning user according to *group membership policies*." (EX 1007, ¶ [0052].) These group membership policies allow a user to specify different levels

of disclosure based on the relationship of the user to the person requesting access to the data (i.e. a social hierarchy). (*Id.*, ¶ [0053].) A POSA would have understood that, because Miluzzo explains that a user can create “group membership policies” that result in certain group members only seeing a certain “subset” of the data, Miluzzo discloses providing “a corresponding differing amount of information to each member of the predetermined social hierarchy.” (EX 1003, ¶¶ 146-149.)

d) “a processor which receives from the communication device sensor data received from a sensor set of the communication device”

Miluzzo discloses “a presence server [(116)] for receiving and storing the sensor data.” (EX 1007, Abstract.) The sensor data is sent by a communication device such as a cell phone: “[i]n one example of step 302, a client (*e.g.*, a thin client) within cell phone 106 samples sensors within cell phone 106 and sends this sensor data to presence server 116.” (*Id.*, ¶ [0069].) A POSA would have understood that for Miluzzo’s “presence server” to operate, it would include a processor such as a CPU. (EX 1003, ¶ 150.) For example, in Robarts “a Theme Server computing device 1400 ... includes a CPU 1405.” (EX 1008, ¶ [0212].)

- e) **“which detects sensor data including [i] a first detected sensor value comprising optical information detected by an optical sensor of the sensor set which detects an amount of light of an environment of the communication device and [ii] a second detected sensor value comprising acoustic information detected by an acoustic sensor of the sensor set which detects a sound level of the environment of the communication device”**

Miluzzo teaches sensors for sensing the device user's environment, including the sound and light levels of the environment: “certain embodiments of system 100 automatically sense and store ... [a] history of sensed environment (*e.g.*, [ii] *sound and [i] light levels*).” (GOOG 1007, ¶ [0056].) Miluzzo further discloses that a [i] cellphone's camera (*i.e.*, an optical sensor) and [ii] microphone (*i.e.*, an acoustic sensor) can capture sensor values: “a *noise index* ... is generated from audio samples captured from the ... microphones. Similarly, a *brightness index* ... is generated from the ... cameras. The sounds and brightness indices help presence server 116 infer information about a person's surroundings.” (*Id.*, ¶ [0081].) Thus, Miluzzo discloses [i] “a first detected sensor value” (*i.e.*, brightness index) and [ii] a “second detected sensor value” (*i.e.*, noise index) that are captured from [i] an optical sensor (*i.e.*, camera) and [ii] an acoustic sensor (*i.e.*, microphone).

- f) **“creates a detected social signature from the received sensor data”**

As explained above, Miluzzo teaches inferring a user's presence information based on sensor data: “method 300 infers presence information of the user based

upon the sensor data.” (*Id.*, ¶ [0069].) But, Miluzzo does not explicitly disclose how this presence information is inferred or how the sensor data is stored or analyzed to generate the presence information. Robarts discloses this.

Robarts teaches creating “a current model” (i.e., a detected social signature) of the user context based on collected sensor data. “After the characterization system 100 receives one or more of these types of information, it processes the information and creates a current model of the user context based on multiple attributes (with current values for some or all of the variables).” (EX 1008, ¶ [0063].) The current model includes environmental sensor data: “the characterization system 100 receives a variety of types of information, and can use this information to determine the user's current context in a variety of ways. These types of information [include] ... sensed user information (via user sensors 126, etc.), and sensed environment information (via environment sensors 128, etc.).” (*Id.*, ¶ [0056].)

g) “determines which of the social signatures of the social templates has a greatest correspondence with the created social signature through comparison of the first and second detected sensor values and the first and second sensor value ranges of each stored social template”

Robarts teaches identifying a theme (*i.e.*, the social template) based on matching the attributes (*i.e.*, the social signature) in the theme with collected sensor data. The collected sensor data is stored in the modeled context (*i.e.* the created social signature): “each theme specifies a set of multiple attributes, and includes for

each of the specified attributes one or more possible values for the attribute. Such a theme will match the current modeled context only if all the specified attributes have current values in the modeled context that are one of their possible values.” (EX 1008, ¶ [0157].) In other words, Robarts discloses determining the greatest correspondence between the “social signatures of the stored social templates (i.e. the attributes in the theme) and the “created social signatures” (the modeled context) because a theme is only considered a match with a modeled context if every attribute in the modeled context matches the attributes specified in the theme.

As discussed above, an attribute includes “an uncertainty value that represents *a range of values* around the attribute value that the attribute is likely to have.” (*Id.*, ¶ [0092].) A POSA would have recognized that matching attributes involves comparison of ranges. (EX 1003, ¶¶ 155-156.) Thus, Robarts further discloses that the “greatest correspondence” is determined “through a comparison of the first and second detected sensor values and the first and second sensor value ranges of each stored social template.”

h) “retrieves from the memory the determined one social template having the greatest correspondence and having the detected amount of light within the first sensor value range and the detected sound level within the second sensor value range”

As discussed above, Robarts discloses an embodiment to select a theme with the greatest correspondence, where “the theme can still match the current context

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even if the current values for *non-required attributes* do not match the specified possible values.” (EX 1008, ¶ [0157].) Then, in case of multiple candidate themes, Robarts teaches selecting the theme with the *highest degree of match* by using the presence or absence of non-required attributes for the theme. “The selection of a current theme from multiple matching themes in the current theme set can be performed in a variety of ways... . In some situations the various themes may contain information to facilitate the selection, such as a priority. If so, *the highest priority theme* in the current theme set could be selected as the current theme.... Alternately, in some embodiments the themes in the current theme set could have an associated degree of match (*e.g.*, by using the presence or absence of *non-required attributes for the theme*), and the theme with *the highest degree of match* could be selected.” (*Id.*, ¶ [0162].)

A POSA would have recognized that, once a them is selected, the theme needs to be retrieved from the memory for further processing. (EX 1003, ¶¶ 157-160.) For example, Robarts states that “additional themes may be loaded or retrieved in an attempt to make available a theme that matches the current modeled context.” (EX 1008, ¶ [0158].) As discussed, themes can be stored in a memory. A POSA would have understood that the theme can be retrieved from the memory.

- i) “provides to at least one member of the predetermined social hierarchy only as much information as allowed based on the retrieved social template”**

Miluzzo teaches automatically providing a user status update based on the user's preferences (such as group member policies). “In step 308, method 300 sends the presence status to a social networking server based upon the user's preferences. In one example of step 308, user 102 defines preferences within presence server 116 to send presence status 102 to social networking server 126, thereby automatically updating presence for user 102 within Facebook.” (EX 1007, ¶ [0069].) For example, “[u]sers’ raw sensor feeds and inferred information (collectively considered as the user’s sensed presence) ... may be shared by the owning user according to group membership policies.” (*Id.*, ¶ [0052].) In addition, “users are also given the ability to further apply per-buddy policies to determine the level of data disclosure on per-user, *per-group*, or global level. Certain embodiments of system 100 follow the Virtual Walls model *which provides different levels of disclosure based on context.*” (*Id.*, ¶ [0053].)

Robarts also teaches that privacy settings can be based on social hierarchy groups such as “Family, Friends, Acquaintances.” (*See* EX 1008, ¶ [0203].) A POSA would have recognized that groups in Miluzzo's group membership policy would be based on social hierarchy groups. (EX 1003, ¶ 162.)

j) “a transceiver which receives the sensor data from the sensor set in the communication device, and”

Miluzzo teaches that “sensor data [are] sent to a presence server 116 via network 120.” (EX 1007, ¶ [0014].) Miluzzo also discloses that “[c]ommunication between consumer devices and presence server 116 takes place according to the availability of the *802.11 and cellular data channels*,” using a “TCP/IP connection.” (*Id.*, ¶ [0026].) A POSA would have recognized that the presence server would have included a transceiver to receive data over the 802.11 and cellular data channels. (EX 1003, ¶ 163.)

k) “provides under the control of the processor to at least one of the members of the predetermined social hierarchy only as much information as allowed based on the retrieved social template”

As discussed above, Miluzzo states “embodiments of system 100 follow the Virtual Walls model which *provides different levels of disclosure* based on context.” (EX 1007, ¶ [0053].) Because Miluzzo’s group member policy can be per-group based, a POSA would have recognized that providing different levels of disclosure involves determining to which group a receiving user belongs, then providing the amount of information as specified in the group membership policy. (EX 1003, ¶¶ 164-165.) As such, Miluzzo in view of Robarts renders obvious all of the elements of claim 1.

2. Miluzzo in view of Robarts under 35 U.S.C. § 103 renders independent claim 19 obvious.

Claim 19 contains limitations substantially similar to, and obvious variations of, claim 1, except that claim 19 includes the step of “constructing a social signature” instead of “creat[ing] a detected social signature” like claim 1. As used in the claims, “constructing” is the same as “creating,” and the art applies in the same way as described with respect to claim 1 above because a POSA would understand in “creating” a “social signature” one is also “constructing” a social signature. (EX 1003, ¶ 167.) Thus, for the same reasons that Miluzzo in view of Robarts teaches the limitations of claim 1, Miluzzo in view of Robarts teaches claim 19.

3. Miluzzo in view of Robarts renders dependent claim 3 obvious.

Robarts discloses at least three levels of social hierarchies in the privacy setting of a theme: “Work, Family, Friends, Acquaintances.” (EX 1008, ¶ [0203].) Miluzzo also discloses three levels of group disclosure: “embodiments of system 100 follow the Virtual Walls model which **provides different levels of disclosure** based on context, enabling access to the **complete** sensed/inferred data set, a **subset** of it, or **no access** at all.” (EX 1007, ¶ [0053].) A POSA would have recognized that, because more than one subset of the sensed data can be created, a group policy can specify even more levels of disclosure. (EX 1003, ¶ 168.) Furthermore, a POSA would have recognized that providing different levels of disclosure involves

determining to which group a receiving user belongs, then providing the amount of information as specified in the group membership policy. (*Id.*, ¶ 169.) As such, Miluzzo in view of Robarts renders obvious all of the elements of claim 3.

4. Miluzzo in view of Robarts renders dependent claims 4 and 21 obvious.

a) “The server of claim 1, wherein the processor further detects an error between the detected social signature and the social signature of the determined one social template having the greatest correspondence”

As explained above, Miluzzo teaches inferring a user's presence information based on sensor data: “method 300 infers presence information of the user based upon the sensor data.” (EX 1007, ¶ [0069].) Miluzzo infers the presence information by using an “inference engine” that “analyzes sensor data received from cell phone 106 ... and generates presence status 122.” (*Id.*) But, Miluzzo does not disclose how the inference engine actually determines the presence status other than stating that the inference engine may use “[h]uman activity inferring algorithms,” which may classify activity “from several different data inputs, alone or in combination.” (*Id.*, ¶ [0045].) As explained above, this would motivate a POSA to seek out methods for inferring presence status, such as those disclosed in Robarts.

A POSA would have further understood that, long before the '523 patent's earliest priority date, such “human activity inferring algorithms” required training because they may make incorrect inferences based on sensed conditions. (EX

1003, ¶ 172.) For example, consider an algorithm that infers that a person is outside based on bright light, when in reality the person has only just had their picture taken with a camera flash. (*Id.*, ¶ 173.) A POSA would have been motivated to seek out methods to reduce incorrect inferences, such as also described in Robarts.

As explained above, Robarts teaches a system to “provide appropriate computer actions based on a current context.” (EX 1008, Abstract.) Specifically, Robarts teaches “themes“ including “attributes that reflect the context of the user“ such as the user's “setting, situation, or physical environment.” (*Id.*, ¶ [0040].) Robarts also teaches that sometimes manual feedback is necessary to “provid[e] critical feedback necessary for machine learning.” Using the manual feedback, which Robarts refers to as “appropriateness verification,” Robarts explicitly discloses that an “error” can sometimes be detected between the user context information in the theme (*i.e.*, the signature of the determined one social template) and the current model (*i.e.*, the detected social signature), which causes the wrong suggestion/action to be made. (*Id.*, ¶ [0273].) In such a case, Robarts’ discloses that the system “presents a suggested rule to the user for verification,” and a user can tell the system: “No, do not perform the suggestion. In the future, the system should ask the user for confirmation (because the suggestion was good, just not entirely appropriate). In this case, the user could specify more information to the system to improve the appropriateness of the request.” (*Id.*, ¶¶ [0273]-[0276].)

It would have been obvious to a POSA to incorporate Robarts “appropriateness verification” with Miluzzo’s inference engine to improve the inference engine’s ability to make better inferences regarding the sensed context. (EX 1003, ¶ 174.) Moreover, both Miluzzo and Robarts relate to sensing user context information by analyzing sensor data and comparing that against previously stored sensor data to determine a state. (*Id.*, ¶¶ 171-174.) Thus, using Robarts’ “appropriateness verification” with Miluzzo’s inference engine is merely using Robarts’ known technique of verifying the appropriateness of sensed user context to improve the similar process described in Miluzzo. (*Id.*, ¶¶ 171-174.)

b) “updates the social signature of the determined one social template to include the detected error in the first and/or second sensor value ranges such that the social signature of the determined one social template incorporates the detected social signature where it is determined that the determined one social template is accurate”

As explained above, Robarts discloses a manual “appropriateness verification” to determine “the appropriateness of the computer generated suggestions for computer action.” (GOOG 1008, ¶ [0272].) For example, “if the system presents a suggested rule to the user for verification, different responses are possible.” (*Id.*, ¶ [0273].) The “responses” for the “appropriateness verification” can be based on the “user’s answer ... of appropriateness” (*i.e.*, received confirmation information). In other words, the answer is “feed back [sic] to the inference engine, providing critical feedback necessary for machine learning.” (*Id.*, ¶ [0273].) Robarts discloses

that one type of “appropriateness feedback” is an answer such as, “No, do not perform the suggestion” because “the suggestion was good” (*i.e.*, accurate), “just not entirely appropriate.” (*i.e.*, detected error).” (*Id.*, ¶ [0276].) In this case, “the user could specify more information to the system to improve the appropriateness of the request.” (*Id.*, ¶ [0276].) Although Roberts only provides limited examples as to what this “more information” is, it would have been obvious to a POSA that it would involve adjusting the “uncertainty value” (*i.e.*, the range) for at least one attribute to incorporate the detected error. This would affect whether or not a particular theme matched or did not match a given user context, and because the “uncertainty value” is part of the theme data, it is modifiable by Roberts’ GUI. (EX 1003, ¶ 175; *see also* EX 1008, ¶ [214].)

c) “and creates a new social template using the detected social signature where it is determined that the determined one social template is not accurate”

Roberts discloses creating new themes (*i.e.*, social templates) using its GUI: “Theme Creator/Modifier component 1436 is executing in memory so that a user can use the component to create or modify themes” and “the component may provide a Graphical User Interface (“GUI”) with which the user can visually create theme-related data structures.” (EX 1008, ¶ [0214].) This is further illustrated in FIG. 17 of Roberts, which states that a user can “create [an] empty theme” (step 1720) and then “modify [a] theme attribute, theme CS, or theme CC....” (step

1760.). This is also illustrated in FIGs. 12A-12H, which depict an example user interface for creating themes. (*Id.*, ¶¶ [0020], [0194].) Specifically, a user can specify the current activity based on the current context. (*Id.*, FIG. 12B.)

And the current context includes the detected social signature (i.e., the light and sound sensor data), as shown in FIG. 12E, which “displays environment-related contextual information, such as information about the temperature, light, and sound.” (*Id.*, ¶ [0199].) A POSA would have found it obvious that one could create a new theme based on current context information, if the wrong theme is presented (*i.e.*, when the “social template is not accurate”). (EX 1003, ¶¶ 176-177.) Robarts already explains that incorrect themes or suggestions based on themes can be incorrect if the user's answer is "No, ... the suggestion was totally inappropriate" (i.e., not accurate)” (EX 1008, ¶ [0277].) But, Robarts also discloses that one can use a GUI to establish a new theme based on current context information. (EX 1003, ¶ 177.) Accordingly, creating such a new theme when the wrong theme is presented would have been merely an obvious alternative to “do not perform the suggestion” because Robarts suggests that a user's answer would provide the user "an opportunity to improve the Implicit Model." (EX 1005, ¶ [0277]; EX 1003, ¶ 178.) Moreover, because Robarts provides a GUI that can create new themes based on the current sensed context, it would have been obvious to a POSA under

Robarts' system to create a new theme (*i.e.*, a new social template) based on the current sensed context (detected social signature).

Thus, Miluzzo in view of Robarts renders obvious all elements of claim 4. Dependent claim 21 is substantially similar to claim 4. Accordingly, claim 21 is unpatentable for the same reasons as claim 4.

5. Miluzzo in view of Robarts renders dependent claims 8 and 23 obvious.

As discussed, Miluzzo teaches automatically updating the user's presence to one or more social networking services. (*See* EX 1007, ¶¶ [0021], [0069].) When updating the user's presence to one social networking site, Miluzzo teaches a single level of authorization by including a single buddy list. (*See Id.*, ¶ [0052].) It would have been obvious that one disclosure level in Miluzzo would correspond to one social networking service. (EX 1003, ¶ 182.) Further, Miluzzo teaches that “presence status ... is *automatically updated* by presence server 116 via social networking server 126.” (EX 1007, ¶ [0021].) As such, Miluzzo in view of Robarts renders obvious all of the elements of claim 8. Dependent claim 23 is substantially similar to claim 8. Accordingly, claim 23 is unpatentable for the same reasons as claim 8.

6. Miluzzo in view of Robarts renders dependent claims 9 and 25 obvious.

Claim 9 is substantially similar to claim 8. The only different is that claim 9 recites updating a “microblogging service” instead of a “social networking ser-

vice.” As described above, Miluzzo discloses updating user’s presence on, *inter alia*, “Facebook.” (*Id.*, ¶ [0052], [0069], [0088].) As Mr. Williams explains in the State of the Art section, microblogging is nothing more than the practice of posting small piece of information (e.g., brief text or image updates) on the Internet. Examples of social networking services that provide microblogging functionalities include Twitter, Jaiku, and Facebook. (EX 1003, ¶ 185.) A POSA would recognize that the social networking service “Facebook” contains microblogging features. (*Id.*, ¶¶185-186.) As such, Miluzzo in view of Robarts renders obvious all of the elements of claim 9. Dependent claim 25 is substantially similar to claim 9. Accordingly, claim 25 is unpatentable for the same reasons as claim 9.

7. Miluzzo in view of Robarts renders dependent claims 10 and 26 obvious.

Robarts teaches specialized themes with attributes of emergency services: “examples of specialized themes for modeling characteristics of a user's current state [include].... Health—such as the cardiac condition attribute set above; attributes may also include ***emergency services*** and reflect ways in which a user's wearable PC may help the user **provide or receive emergency services.**” (EX 1008, ¶¶ [0114], [0118].) For example, Robarts teaches “a Safety theme” responsive to a “health crisis” that could “**alert emergency personnel and family**” in the event of an emergency. (*Id.*, ¶ [0210].)

Thus, Miluzzo in view of Robarts renders obvious all of the elements of claim 10. Dependent claim 26 is substantially similar to claim 10. Accordingly, claim 26 is unpatentable for the same reasons as claim 10.

D. Ground 4: Claim 6 is obvious over Miluzzo in view of Robarts in further view of Luo.

Miluzzo teaches creating buddy sub-lists by importing buddy lists from different social network services in defining access policies. (EX 1007, ¶¶ [0052], [0088].) But, the Miluzzo-Robarts system does not explicitly disclose how to define access policies for each imported buddy sub-list from each social networking service. A POSA would have been motivated to seek out a teaching of how to define the access policies while protecting the private user presence information. It was well known that people uses different social networks for different purposes and different group of contacts. (EX 1003, ¶ 191.) For example, people use LinkedIn for professional purpose. (EX 1017, § I, p. 1.) Further, users of multiple social networks may not want information from different contexts to mix up with each other. (*Id.*, § I, p. 1.) To prevent such mix-up, Luo describes a private information model in which a different social network corresponds to a different privacy disclosure set. (*Id.*, § III, p. 2.)

It would have been obvious for a POSA to modify the Miluzzo-Robarts system such that each disclosure level in a theme in the Miluzzo-Robarts system would correspond to a different social network, as taught by Luo. A POSA would

have been motivated to seek out a per-social-network based privacy protection setting because Miluzzo teaches creating buddy sub-lists in defining access policies and that the sub-lists are imported from different social networks. A POSA would also have been motivated to incorporate Luo's per-social-network based privacy disclosure set into the Miluzzo-Robarts system to prevent mixing up information from different social networks. (*See id.*, § I, p. 1.) Further, incorporating Luo's per-social-network-based privacy disclosure set into the theme of the Miluzzo-Robarts system is nothing more than a simple substitution of one known element (Miluzzo-Robarts' theme with each disclosure level corresponding to a different group) for another (Luo's private information model with each privacy disclosure set corresponding to a different social network) to obtain predictable results (a theme with each disclosure level corresponding to a different social network).

1. Miluzzo in view of Robarts in further view of Luo renders dependent claim 6 obvious.

Miluzzo teaches sending a user's presence status to one or more social networking services, such as Facebook or MySpace. “These characteristics (e.g., presence status **122**, **124**) may also be sent to a social networking server **126** that supports one or more social network applications **119**, such as Facebook and MySpace, and instant messaging.” (EX 1007, ¶ [0021].)

As discussed above, it was well known before the earliest benefit date of the '523 patent that different social networks have different purposes and different

groups of contacts. (EX 1003, ¶ 197, *see also* EX 1017, § I, p. 1.) To prevent mixing up data between social networks, Luo discloses a private information model in which a different social network N corresponds to a different privacy disclosure set. (EX 1017, § III, p. 2., *see also* FIG. 3.) The private information under the discretionary privacy model can be user profile information shown in Fig. 3 or “[u]ser generated content such as blogs, messages posted to forums, etc.” (*Id.*, § III, p. 2.)

As discussed, Miluzzo and Robarts render obvious that a theme data structure includes a group membership policy can have a per-group level of data disclosure. It would have been obvious for a POSA to modify the Miluzzo-Robarts system such that each disclosure level in a theme in the Miluzzo-Robarts system would correspond to a different social network, as taught by Luo. (EX 1003, ¶ 198.) Incorporating Luo's per-social-network-based privacy disclosure set into the theme of the Miluzzo-Robarts system is nothing more than a simple substitution of one known element (Miluzzo-Robarts' theme with each disclosure level corresponding to a different group) for another (Luo's private information model with each privacy disclosure set corresponding to a different social network) to obtain predictable results (a theme with each disclosure level corresponding to a different social network). (EX 1003, ¶¶ 194-198.) As such, Miluzzo in view of Robarts renders obvious all of the elements of claim 6.

E. The proposed grounds are noncumulative of one another.

The above grounds are noncumulative and non-redundant because the references used in each of the grounds are combined differently. For example, as explained above, Jolliff discloses “social templates,” but does not explicitly disclose that “each social template correspond[s] to a unique social signature” or “detecting an error,” but Jager teaches social templates corresponding to unique signatures and error detection. Miluzzo teaches “inferring a presence status of the user based upon analysis of the sensor data” and sharing different statuses with different people based on their membership in a social hierarchy, but doesn’t explain the details as to how the inferences are made. Robarts teaches how to make inferences regarding a user’s presence status from sensor data using social templates. Additionally, Jolliff is only available under § 102(e) and may not be available as prior art if it is sworn behind.

VI. MANDATORY NOTICES (37 C.F.R. § 42.8(a)(1))

The Real Parties-In-Interest (37 C.F.R. § 42.8(b)(1)) are: Google Inc., Dropcam, Inc., and Nest Labs, Inc.

Petitioners Provides Notice of Related Matters (37 C.F.R. §42.8(b)(2)):
e.Digital Corporation v. Dropcam, Inc., No. 3:14-cv-04922 (N.D. Cal.), filed November 5, 2014; *e.Digital Corporation v. Dropcam, Inc.*, No. 3:14-cv-01579 (S.D. Cal.), filed July 1, 2014.

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Designation of Lead and Back-Up Counsel (37 C.F.R. §42.8(b)(3)):

- **Lead:** Michael V. Messinger (Reg. # 37,575), STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C., 1100 New York Avenue, NW, Washington, DC 20005, 202.772.8667 (telephone), 202.371.2540 (fax), mikem-PTAB@skgf.com
- **Backup:** Michelle K. Holoubek (Reg. # 54,179), 1100 New York Avenue, NW, Washington, DC 20005, 202.772.8855 (telephone) 202.371.2540 (fax), mholoubek-PTAB@skgf.com

Notice of Service Information (37 C.F.R. §42.8(b)(4)): Please direct all correspondence to lead and back-up counsel at the above address. Petitioners consent to email service at: mikem-PTAB@skgf.com and mholoubek-PTAB@skgf.com.

VII. CONCLUSION

For the reasons above, Petitioners requests that the Board institute *inter partes* review of the '523 patent. Attached are a Power of Attorney, an Exhibit List, and copies of the references per §42.10(b), §42.63(e), and §42.6(d). The required fee is paid via online credit card payment. The Office is authorized to charge fee deficiencies and credit overpayments to Deposit Account No. 19-0036 (Customer ID No. 45324).

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Michael Messinger Reg. No. 37,575/

Michael V. Messinger, Reg. No. 37,575

Michelle K. Holoubek, Reg. No. 54,179

Attorneys for Petitioners

Date: June 24, 2015
1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

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CERTIFICATION OF SERVICE (37 C.F.R. §§ 42.6(e), 42.105(a))

The undersigned hereby certifies that the above-captioned **PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 8,311,523 UNDER 35 U.S.C. §311** and all associated exhibits were served in their entireties on June 24, 2015, upon the following parties via FEDEX®:

Stein IP, LLC
1400 I Street, N.W.
Suite 300
Washington, DC 20005
Patent Owner's correspondence address of record for U.S. Patent No. 8,311,523

Handal & Associates
Symphony Towers
750 B Street, Suite 2510
San Diego, California 92101
Additional address known to Petitioner as likely to effect service

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Michael Messinger Reg. No. 37,575/

Michael V. Messinger, Reg. No. 37,575
Michelle K. Holoubek, Reg. No. 54,179
Attorneys for Petitioners

Date: June 24, 2015

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600