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EXAMINER	
TSUI, ALFRED H	

ART UNIT	PAPER NUMBER
3621	

NOTIFICATION DATE	DELIVERY MODE
11/29/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOC@Fenwick.com

Office Action Summary	Application No. 14/717,952	Applicant(s) Chadwick, Mark	
	Examiner ALFRED H TSUI	Art Unit 3621	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 07/19/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Acknowledgments

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

This is a Final action in reply to the application **14717952** response filed on **07/19/2018**.

Claims 1, 3, 8, 10, 14 and 16 are amended

Claims 1 – 20 are currently pending, have been examined and rejected.

Response to Arguments

The applicant states that the examiner has not met his burden, however based the applicants amendment, the examiner respectfully disagrees and states the following:

The examiner states that the applicants' arguments regarding McRO with respect to Finjan and Thales is not persuasive. The examiner states that claims are still directed to a even still and the examiner followed the office guidance to determine patentability (i.e. step 2a and step 2b, the applicants claims did not have an improvement of unconventional means. Additionally the examiner states that the Electric Power group is still applicable and the claims are still only collecting data, analyzing the information and display the result of the analyzation and collection of data.

With respect to the applicants amended claims and the berkheimer, as stated in the MPEP, case law stating the following regarding generic computer implementations. These additional limitations are used to implement the abstract idea above and are recited in a high level of generality (i.e. a generic processor performing a generic computer function of processing data. Thus this step is no more than mere instructions to apply the exception on a generic computer. In addition, using a processor to

process data has been well understood routine, conventional activity in the industry for many years. Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception (the abstract idea). **See MPEP 2106.05d I and II**

Response to 103

The examiner states that the arguments are moot based upon a new grounds of rejection necessitated by the amendments.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 - 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim(s) 1 -20 are directed to the abstract idea of correlating advertisements to target audiences as explained in detail below. The claim(s) do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional computer elements, which are recited at a high level of generality, provide conventional computer functions that do not add meaningful limits to practicing the abstract idea.

Claim 1, 8 and 14 are recite, at least in part,

receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience; determining a target audience based on the target audience condition, the target audience comprising one or more audience members;

receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period; generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area the audience polygon generated based on: [;]] filtering an aggregated dataset based on the received target audience condition, segmenting the filtered data according to a set of time periods, and generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices over the geographic area Selecting an advertisement associated with the received ~~first~~ target audience; and providing the selected advertisement to the remote display system.

Claims 1, 8 and 14 specifically states of an abstract idea of correlating advertisements to target audiences of which is similar to the abstract idea of **Electric Power Group**. Electric Power Group was not patent eligible because of the following concept was ineligible:

- **Collecting the Information**
- **Analyzing the Information**
- **Displaying certain Information as a result of the collection and analysis.**

The applicants claims are similarly directed to Electric Power Group because it does the following: (claims mapped)

- **Collecting the Information** (receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience; receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first

target time period)

- **Analyzing the Information** (determining a target audience based on the target audience condition, the target audience comprising one or more audience members; ; generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area the audience polygon generated based in part on: [;]] filtering an aggregated dataset based on the received target audience condition, segmenting the filtered data according to a set of time periods, and generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices over the geographic area Selecting an advertisement associated with the received ~~first~~ target audience)
- **Display the certain result based on the collection and analysis of data** (providing the selected advertisement to the remote display system)

As shown above, the applicants claim is directed to an abstract idea, and the examiner provided explicit reasoning (mapped claims to the abstract idea) as to why the claim is directed to an abstract idea.

The concept described in claim 1, 8 and 14 are not meaningfully different than those concepts found by the courts to be abstract ideas. As such, the description in claim 1, 8 and 14 of correlating advertisements to target audiences is an abstract idea. The claims does not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea. The claim recites the additional limitations of a "processor" and a processor for performing the operations of adding determining, identifying and initializing. "Remote display system and computer-readable storage medium "are recited in a high level of

generality and recited as performing generic computer functions routinely used in computer applications. Generic computer components recited as performing generic computer functions that are well-understood, routine and conventional activities amount to no more than implementing the abstract idea with a computerized system. Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception (the abstract idea). Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology. Their collective functions merely provide conventional computer implementation.

Claim 2 – 7, 9 – 13, 15 - 20 are dependent on independent claims 1, 8 and 14 include all the limitations of the independent claims that with the similar concept of abstract ideas (Electric Power Group).

Additionally further analyzing the dependent claims for significantly more than the judicial exception. These dependent claims do not show any additional elements that are not already in the independent claim and states that the dependent claims are not sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea.

Claims 1- 20 are therefore not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

Claim Rejections - 35 USC § 103

The following is a quotation of AIA 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6 – 8, 12 – 14, and 19 – 20 are rejected under AIA 35 U.S.C. 103 as being unpatentable by US PG Pubs 20130041753 - Sathyanath et al. hereinafter as **SATHYANATH** in view of US PG Pubs 20140122040 – Marti et al. hereinafter as **MARTI**

Regarding Claim 1, 8 and 14:

SATHYANATH teaches:

A computer-implemented method for matching advertisements to target audiences, comprising:

- receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience; (See ref at least at para 003 – 0012)
- determining a target audience based on the target audience condition, the target audience comprising one or more audience members; (See ref at least at para 003 – 0012 and figure 1 – 9)
- receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period; (See ref at least at para 003 – 0012, 0031 – 0038 and 0041 - 0042 and figure 1 – 9)
- generating a first audience polygon based on a set of line segments enclosing a geographic area

wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area (See ref at least at para 003 – 0012, 0031 – 0038 and 0041 - 0042 0154and figure 1 – 9)

- selecting an advertisement associated with the received target audience; (See ref at least at para 003 – 0012, 0031 – 0038 and 0041 - 0042 and figure 1 – 9)
- providing the selected advertisement to the remote display system. (See ref at least at para. 0026 - 0028)

SATHYANATH does teach of the audience polygon doesn't explicitly teach of the following, however MARTI teaches:

- the audience polygon generated based on:
- filtering an aggregated dataset based on the received target audience condition, segmenting the filtered data according to a set of time periods, and generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices over the geographic area;(See ref at least at para. 0046, 0047, 0048, 0049 and 0056 and abstract)

It would be obvious to one of ordinary skill in the art to combine the method of **SATHYANATH** with **MARTI** in order for **SATHYANATH** to have ability to improve the campaign and increase relevance. (See ref at least at Col 23 line 43 - 46) Moreover, each of the elements claimed are all shown by the prior art of record but not combined as claimed. However, the technical ability exists to combine the elements as claimed and the results of the combination are predictable. Therefore, when combined, the elements perform the same function as they did separately. (KSR v. Teleflex, 127 S. Ct. 1727 (2007)).

Regarding Claim 6, 12 and 19:

SATHYANATH / MARTI teaches claim 1, 8 and 14

- determine the probability that the audience member is within a geographic segment associated with the first polygon relative to a population of audience members (See ref at least at para. 0036, 0152, 0043 – 0052 and fig. 1 – 9)
- generating the set of line segments based on the probability that the audience member is within the geographic region associated with the set of line segments (See ref at least at para. 0036, 0152, 0043 – 0052, 0073 – 0076, and 0080 and fig. 1 – 9)

Regarding Claim 7, 13 and 20:

SATHYANATH / MARTI teaches claim 6, 12 and 19

- wherein determining the probability that the audience member is within the geographical location comprises normalization a number of audience members within a segment of the audience raster. (See ref at least at para. 0036, 0152, 0043 – 0052, 0073 – 0076, and 0080 and fig. 1 – 9)

Claims 2, 9, and 15 are rejected under AIA 35 U.S.C. 103 as being unpatentable by US PG Pubs 20130041753 - Sathyanath et al. hereinafter as **SATHYANATH** in view of US PG Pubs 20140122040 – Marti et al. hereinafter as **MARTI** In further view of US Patent 7886047 – Potluri et al. hereinafter as **POTLURI**

Regarding Claim 2, 9 and 15:

SATHYANATH teaches the limitations of claim 1, 8 and 14,

SATHYANATH specifically teaches:

- receiving a data set including a plurality of records from one or more service providers that are

associated with mobile device users, each record including a respective timestamp and geographic identifier; (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 - 00119 and figure 1- 9)

- inferring a plurality of characteristics about one or more of the mobile device users by comparing timestamps and geographic identifiers in each record to a set of rules that map inferred characteristics to specific combinations of geographic and temporal conditions; and (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 - 00119 and figure 1- 9)
- generating one or more audience polygons using the inferred plurality of characteristics(See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 - 00119 and figure 1- 9)

SATHYANATH does not explicitly teach of the service provider being from cell service providers however Potluri teaches:

- receiving a data set including a plurality of records from one or more Cell service providers that are associated with mobile device users (See ref at least at figure 1 and col 5 line 37 – col 6 line 26)

It would be obvious to one of ordinary skill in the art to combine the method of **SATHYANATH / MARTI** with **POTLURI** in order for **SATHYANATH** to have ability to increase the granularity of an audience subset through sufficient quantity of data (such that the data including more types of audiences). (See ref at least at para. 0073) Moreover, each of the elements claimed are all shown by the prior art of record but not combined as claimed. However, the technical ability exists to combine the elements as claimed and the results of the combination are predictable. Therefore, when combined, the elements perform the same function as they did separately. (KSR v. Teleflex, 127 S. Ct. 1727 (2007)).

Claims 3 - 4, 10 – 11, and 16 – 17 are rejected under AIA 35 U.S.C. 103 as being unpatentable by US PG

Pubs 20130041753 - Sathyanath et al. hereinafter as **SATHYANATH** in view of US PG Pubs 20140122040 – Marti et al. hereinafter as **MARTI** in further view of US Patent 7886047 – Potluri et al. hereinafter as **POTLURI** in further view US PG Pubs 20140280549 – Rajan et al. hereinafter as **RAJAN**

Regarding Claim 3, 10 and 16:

SATHYANATH / MARTI / POTLURI teaches the limitations of claim 2, 9 and 15:

SATHYANATH teaches

- mobile device users across a geographic region which is subdivided into a plurality of sub-regions; (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 – 00119, 0154 - 0155 and figure 1- 9)
- indicating affinities describing probabilities that mobile device users having the first characteristic are found within each of the plurality of sub-regions; (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 – 00119, 0154 - 0155 and figure 1- 9)
- regions and sub regions (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 – 00119, 0154 - 0155 and figure 1- 9)

SATHYANATH teaches of geographical regions and interests of users but doesn't explicitly state of a baseline, however **RAJAN** teaches of a determining and generating a baseline of interests of an audience and the respective subsets of interests wherein:

- determining a baseline group of records in the data set having timestamps within a first time period; (See ref at least at para. 0099, 0101)
- generating a baseline raster using the baseline group of records, the baseline raster describing a baseline distribution of mobile device users across a interests which is subdivided into a plurality of sub-interests; (See ref at least at para. 0062 regarding determining a baseline interest profile)
- determining a subset of the baseline group of records that are associated with mobile device

users that each have in common a first inferred characteristic of the inferred plurality of characteristics (See ref at least at para. 0062 regarding determining a baseline interest profile, para. 0083, 0085 – 0086 - subset)

- generating an audience raster using the subset of the baseline group of records, the audience raster describing an audience distribution across the plurality of sub- sets for the mobile device users associated with the subset of the baseline group of records; (See ref at least at para. 0041, 0083, 0085 – 0086
- generating a normalized audience raster using the audience raster and the baseline raster, the normalized audience raster describing a normalized audience distribution across the plurality of subsets (See ref at least at para. 0062 regarding determining a baseline interest profile, para. 0041, 0083, 0085 – 0086 – wherein the normalization of)
- generating the one or more audience polygons using the normalized audience raster.(see ref at least at para. 0041, 0083, 0085 – 0086 and 0092)

It would be obvious to one of ordinary skill in the art to combine **SATHYANATH / MARTI / POTLURI** with **RAJAN** because this would allow **SATHYANATH** to have the ability to improve the likelihood of conversions and personalizing content (See ref at least at para. 0012 and 0042) Moreover, each of the elements claimed are all shown by the prior art of record but not combined as claimed. However, the technical ability exists to combine the elements as claimed and the results of the combination are predictable. Therefore, when combined, the elements perform the same function as they did separately. (KSR v. Teleflex, 127 S. Ct. 1727 (2007)).

Regarding Claim 4, 11 and 17:

SATHYANATH / MARTI / POTLURI teaches the limitations of claim 3, 10 and 16:

SATHYANATH teaches

- Identify regions of the plurality of regions (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 – 00119, 0154 - 0155 and figure 1- 9)
- Generating one or more audience polygons using the identified regions (See ref at least at para. 0005 – 12, 0034 – 0038, 0090, 0016 – 00119, 0154 - 0155 and figure 1- 9)

SATHYANATH does teach of audience interests but doesn't explicitly teach of the normalization of the audience, however **RAJAN** teach of identifying interests of the plurality of interests of the normalized audience as well as generating audiences using the identified interests, and additionally teaches of identifying user locations wherein:

- wherein generating the one or more audience polygons using the normalized audience raster comprises:
- identifying interests of the plurality of interests of the normalized audience raster that have different affinities; (See ref at least at para. 0043 and 0041)
- generating the one or more audience polygons using the identified interests, each audience polygon associated with the first time period and one of the different affinities; (See ref at least at para. 0061, 0062, 0043 and 0041
- storing the one or more audience polygons as part of the plurality of audience polygons. (See ref at least at para. 0058, 0080 and 0081)

It would be obvious to one of ordinary skill in the art to combine **SATHYANATH / MARTI / POTLURI** with **RAJAN** because this would allow **SATHYANATH** to have the ability to improve the likelihood of conversions and personalizing content (See ref at least at para. 0012 and 0042) Moreover, each of the elements claimed are all shown by the prior art of record but not combined as claimed. However, the technical ability exists to combine the elements as claimed and the results of the combination are predictable. Therefore, when combined, the elements perform the same function as they did

separately. (KSR v. Teleflex, 127 S. Ct. 1727 (2007)).

Therefore, when combined, the elements perform the same function as they did separately. (KSR v. Teleflex, 127 S. Ct. 1727 (2007)).

CONCLUSION

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Alfred Tsui** (alfred.tsui@uspto.gov) whose telephone number is **571.272.9511.** The Examiner can normally be reached on 9:00am - 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **RUTAO WU** can be reached at **571.272.3136**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see

http://portal.uspto.gov/external/portal/pair . Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

/A. H. T./
Examiner, Art Unit 3621
/RUTAO WU/
Supervisory Patent Examiner, Art Unit 3621

REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office action.

Status of the Claims

Claims 1-20 are pending. Claims 1, 6, 8, 12, and 14 are currently amended. No claims are canceled. No claims are added. No new matter has been added as a result of these amendments.

Summary of the Office action

Claims 1-20 stand rejected under 35 U.S.C. § 101 as allegedly being directed to a judicial exception.

Claims 1, 6-8, 12-14, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2013/0041753 to Sathyanath et al. (hereinafter "Sathyanath") in view of U.S. Patent Application Publication No. 2014/0122040 to Marti et al. (hereinafter "Marti").

Claims 2, 9, and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sathyanath in view of Marti in further view of U.S. Patent No. 7,886,047 to Potluri et al. (hereinafter "Potluri").

Claims 3, 4, 10, 11, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sathyanath in view of Marti in further view of Potluri in further view of U.S. Patent Application Publication No. 2014/0280549 to Rajan et al. (hereinafter "Rajan").

Rejections under 35 U.S.C. § 101

Claims 1-20 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Applicant respectfully submits that the current rejections were issued under the USPTO's previous guideline on subject matter eligibility, which has been superseded by

the 2019 Revised Patent Subject Matter Eligibility Guidance ("the 2019 Guidance"), effective January 7, 2019. Below, Applicant argues subject-matter eligibility of the pending claims under the 2019 Guidance, and requests the Examiner to reconsider and withdraw the rejections.

The subject-matter eligibility inquiry under the 2019 Guidance focuses on two aspects: (1) whether the claim recites a judicial exception; and (2) whether the judicial exception, if any, is integrated into a practical application.

Specifically, under prong one of Step 2A of the 2019 Guidance, Examiners must first determine whether the claimed subject matter falls into one of the enumerated categories of judicial exception provided by the new guidance: (1) mathematical concepts; (2) certain methods of organizing human activity; and (3) mental processes. ***In the absence of any specific statement from the Examiner, Applicant submits that the claims presented herein do not fall into any of these three enumerated categories of judicial exception.***

Even if for argument's sake it is assumed that prong one of Step 2A is satisfied, i.e., a judicial exception is identified, Applicant asserts that the claims are not "directed to" a judicial exception under prong two of Step 2A of the 2019 Guidance.

According to prong two of Step 2A of the 2019 Guidance, when an Examiner identifies a judicial exception in prong one, s/he must evaluate whether the claim integrates the judicial exception into a practical application by:

(a) identifying whether there are any additional elements recited in the claim beyond the judicial exception; and

(b) evaluating those additional elements individually and in combination to determine whether they integrate the abstract idea into a practical application.

The 2019 Guidance also states that "in revised Step 2A, examiners should ensure that they give weight to all additional elements, whether or not they are conventional, when evaluating whether a judicial exception has been integrated into a practical application."

Applicant respectfully submits at least some of the claimed elements in claim 1 integrate the judicial exception, if any, into a practical application. For example, claim 1 expressly recites, among other things, "receiving an advertisement request from a

remote display system having a display at a particular geographic location," "selecting an advertisement associated with the target audience; and providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period." A display is a non-abstract component. Based on the received advertisement request, in claim 1, an advertisement associated with a target audience is selected and provided to the remote display system for presentation on the display. Applicant respectfully submits that selecting such an advertisement and providing the selected advertisement to the remote display system inarguably qualifies as integration into a "practical application." Thus, at least for these reasons, claim 1 integrates the judicial exception into a practical application. Therefore, claim 1 cannot be properly considered as being directed to a judicial exception under prong 2 of Step 2A of the 2019 Guidance, and hence, should be patent eligible.

Prong two of Step2A mandates that Examiners perform a streamlined analysis to avoid having to perform further "inventiveness" analysis under Step 2B. In Step 2B, examiners must consider whether the additional elements, individually and in combination, represent well-understood, routine, conventional activity, or whether they provide "significantly more" that the recited judicial exception. Applicant respectfully submits that there is nothing routine or conventional at least in "selecting an advertisement associated with the target audience; and providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period," as expressly recited in amended claim 1. The Federal Circuit decisions in *Trading Technologies International, Inc., v. CQG, Inc.* (2017) and *Core Wireless Licensing v. LG Electronics* (2018) emphasize the practicality of displaying information and must be considered as evidence that the additional elements in the present claims have integrated the exception into a practical application. Hence, claim 1 must be considered to be patent eligible under Step 2B of the 2019 Guidance as well.

The other independent claims 8 and 14 also have both originally presented as well as amended language reciting claim elements similar to those found in claim 1, as discussed above. Therefore, claims 8 and 14 should also be patent eligible under both

Steps 2A and 2B of the 2019 Guidance. The remaining, dependent claims should also be patent-eligible at least by virtue of their dependency from a patent-eligible independent base claims, as well as for their own patentable features that are not directed to judicial exception. Accordingly Applicant respectfully requests that the rejection of claims 1-20 under 35 U.S.C. § 101 be withdrawn

Response to Rejections under 35 U.S.C. § 103(a)

CLAIMS 1, 6-8, 12-14, 19, and 20

Claims 1, 6-8, 12-14, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sathyanath in view of Marti. Applicant respectfully submits that claims 1, 8, and 14 are patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claims.

Claim 1, as amended, recites:

> A computer-implemented method for matching advertisements to target audiences, comprising:
>
> receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience;
>
> determining a target audience based on the target audience condition, the target audience comprising a first set of audience members one or more audience members;
>
> receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period;
>
> generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area, the audience polygon generated based on:
>
> filtering an aggregated dataset based on the received target audience condition,
>
> segmenting the filtered data according to a set of time periods, and
>
> **generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods**;
>
> selecting an advertisement associated with the target audience; and
>
> providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period.
>
> (Emphasis added.)

Obviousness requires that all of the claim features are disclosed by the cited references. Applicant respectfully disagrees with the Office action's characterization of the cited references because the combination of cited references fails to teach or suggest

all of the limitations of the claims. In particular, the combination of Sathyanath and Marti does not teach or suggest generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods.

Sathyanath is directed to identifying a path of a billboard audience group and providing advertising content based on the path. (Sathyanath, Abstract.) The Office action recognizes that Sathyanath does not teach or suggest generating an audience polygon based on: filtering an aggregated dataset based on the received target audience condition, segmenting the filtered data according to a set of time periods, and generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices over the geographic area. (Office action, November 29, 2018, Page 8.) Thus, Sathyanath also does not teach or suggest generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods, as claimed.

Marti is directed to venue based real time crowd modeling and forecasting. (Marti, Abstract.) Marti teaches that a mobile device can use its sensors in order to determine a direction in which the mobile device's user tends to walk and a speed at which the user walks. Using this information Marti makes a determination of where the user is and where the user is going. (Marti, Paragraph 46.) Each mobile device user in the environment can be modeled as a separate particular, and each of one or more such modeled particles is observed over time in order to estimate an amount of time that will be required for anyone to move through the environmental system being observed. (Marti, Paragraph 48.) ***Marti, however, does not teach or suggest generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods, as claimed***. Rather Marti teaches that fewer than all of the mobile device users' motions are used in order to perform the estimation. Instead, a

limited sample including a subset of the mobile device users present in the environment can be used to perform the estimation. By examining the motions of some mobile device users in a group of people, the motions of the whole group can be predicted. (Marti, Paragraph 48.) There is no indication, however, that when generating an estimate using a limited sample of mobile device users, Marti generates anything that can be properly interpreted as the claimed "audience raster." The limited sample of Marti is not representative of a distribution of a plurality or mobile devices that satisfy a received target audience condition, much less of such devices over a plurality of sub-regions of a geographic area for a give one of a set of time periods. Therefore, Marti does not teach or suggest this limitation of the claims.

For at least the reasons stated above, the combination of Sathyanath and Marti fails to teach or suggest all of the limitations of the claims. Therefore, Applicant respectfully submits that claims 1, 8, and 14 are patentable over the cited references.

Given that claims 6, 7, 12, 13, 19, and 20 directly or indirectly depend from at least one of the above independent claims, at least for reasons similar to those discussed above, it is respectfully submitted that these dependent claims are patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 1, 6-8, 12-14, 19, and 20 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 2, 9, and 15

Claims 2, 9, and 15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sathyanath in view of Marti and further in view of Potluri. Applicant respectfully submits that claims 2, 9, and 15 are patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claims.

Claims 2, 9, and 15 depend from and include the limitations of claims of at least one of independent claims 1, 8, and 14. As discussed above, the combination of Sathyanath and Marti fails to teach or suggest all of the limitations of the claims. Potluri fails to cure these deficiencies because Potluri also fails to teach or suggest generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience

condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods, as claimed. Therefore, Applicant respectfully submits that claims 2, 9, and 15 are patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 2, 9, and 15 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 3, 4, 10, 11, 16, and 17

Claims 3, 4, 10, 11, 16, and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sathyanath in view of Marti and further in view of Rajan. Applicant respectfully submits that claims 3, 4, 10, 11, 16, and 17 are patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claims.

Claims 3, 4, 10, 11, 16, and 17 depend from and include the limitations of at least one of independent claims 1, 8, and 14. As discussed above, the combination of Sathyanath and Marti fails to teach or suggest all of the limitations of the claims. Rajan fails to cure these deficiencies because Rajan also fails to teach or suggest generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods, as claimed. Therefore, Applicant respectfully submits that claims 3, 4, 10, 11, 16, and 17 are patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 3, 4, 10, 11, 16, and 17 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome.

If there are any additional charges, please charge them to Deposit Account No.: 50-1358.

Respectfully submitted,

LOWENSTEIN SANDLER LLP

Date: February 28, 2019

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AMENDMENTS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Currently amended) A computer-implemented method for matching advertisements to target audiences, comprising:

receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience;

determining a target audience based on the target audience condition, the target audience comprising a first set of audience members one or more audience members;

receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period;

generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area, the audience polygon generated based on:

filtering an aggregated dataset based on the received target audience condition,

segmenting the filtered data according to a set of time periods, and

generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods;

selecting an advertisement associated with the ~~received~~ target audience; and

providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period.

2. (Original) The computer-implemented method of claim 1, further comprising:

receiving a data set including a plurality of records from one or more cell service providers that are associated with mobile device users, each record including a respective timestamp and geographic identifier;

inferring a plurality of characteristics about one or more of the mobile device users by comparing timestamps and geographic identifiers in each record to a set of rules that map inferred characteristics to specific combinations of geographic and temporal conditions; and

generating one or more audience polygons using the inferred plurality of characteristics.

3. (Previously Presented) The computer-implemented method of claim 2, wherein generating one or more audience polygons using the inferred plurality of characteristics, comprises:

determining a baseline group of records in the data set having timestamps within a first time period;

generating a baseline raster using the baseline group of records, the baseline raster describing a baseline distribution of mobile device users across a geographic region which is subdivided into a plurality of sub-regions;

determining a subset of the baseline group of records that are associated with mobile device users that each have in common a first inferred characteristic of the inferred plurality of characteristics;

generating a second audience raster using the subset of the baseline group of records, the second audience raster describing an audience distribution across the plurality of sub-regions for the mobile device users associated with the subset of the baseline group of records;

generating a normalized audience raster using the audience raster and the baseline raster, the normalized audience raster describing a normalized audience distribution across the plurality of sub-regions and indicating affinities describing probabilities that mobile device users having the first characteristic are found within each of the plurality of sub-regions; and

generating the one or more audience polygons using the normalized audience raster.

4. (Original) The computer-implemented method of claim 3, wherein generating the one or more audience polygons using the normalized audience raster comprises:

identifying regions of the plurality of regions of the normalized audience raster that have different affinities;

generating the one or more audience polygons using the identified regions, each audience polygon associated with the first time period and one of the different affinities; and

storing the one or more audience polygons as part of the plurality of audience polygons.

5. (Original) The computer-implemented method of claim 1, wherein the display is statically mounted at the particular geographic location and is configured to present the advertisement to multiple members of the target audience.

6. (Currently amended) The computer-implemented method of claim 1, wherein generating a first audience polygon based on a set of line segments comprises:

determining the probability that the audience member is within a geographic segment associated with the first audience polygon relative to a population of audience members; and

generating the set of line segments based on the probability that the audience member is within the geographic region associated with the set of line segments.

7. (Previously Presented) The computer-implemented method of claim 6, wherein determining the probability that the audience member is within the geographic location comprises normalizing a number of audience members within a segment of the audience raster with a normalization value.

8. (Currently amended) A non-transitory computer-readable storage medium storing executable computer program instructions for method for matching advertisements to target audiences, the instructions executable to perform steps comprising:

receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience;

determining a target audience based on the target audience condition, the target audience comprising one or more audience members;[[;]]

receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period;

generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of being located within the geographic area, the audience polygon generated based on:

filtering an aggregated dataset based on the received target audience condition,

segmenting the filtered data according to a set of time periods, and

generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods;

selecting an advertisement associated with the ~~received~~ target audience; and

providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period.

9. (Original) The computer-readable medium of claim 8, further comprising:

receiving a data set including a plurality of records from one or more cell service providers that are associated with mobile device users, each record including a respective timestamp and geographic identifier;

inferring a plurality of characteristics about one or more of the mobile device users by comparing timestamps and geographic identifiers in each record to a set of rules

that map inferred characteristics to specific combinations of geographic and temporal conditions; and

generating one or more audience polygons using the inferred plurality of characteristics.

10. (Previously Presented) The computer-readable medium of claim 9, wherein generating one or more audience polygons using the inferred plurality of characteristics, comprises:

determining a baseline group of records in the data set having timestamps within a first time period;

generating a baseline raster using the baseline group of records, the baseline raster describing a baseline distribution of mobile device users across a geographic region which is subdivided into a plurality of sub-regions;

determining a subset of the baseline group of records that are associated with mobile device users that each have in common a first inferred characteristic of the inferred plurality of characteristics;

generating a second audience raster using the subset of the baseline group of records, the second audience raster describing an audience distribution across the plurality of sub-regions for the mobile device users associated with the subset of the baseline group of records;

generating a normalized audience raster using the second audience raster and the baseline raster, the normalized audience raster describing a normalized audience distribution across the plurality of sub-regions and indicating affinities describing probabilities that mobile device users having the first characteristic are found within each of the plurality of sub-regions; and

generating the one or more audience polygons using the normalized audience raster.

11. (Original) The computer-readable medium of claim 10, wherein generating the one or more audience polygons using the normalized audience raster comprises:

identifying regions of the plurality of regions of the normalized audience raster that have different affinities;

generating the one or more audience polygons using the identified regions, each audience polygon associated with the first time period and one of the different affinities; and

storing the one or more audience polygons as part of the plurality of audience polygons.

12. (Currently amended) The computer-readable medium of claim 8, wherein generating a first audience polygon based on a set of line segments comprises:

determining the probability that the audience member is within a geographic segment associated with the first audience polygon relative to a population of audience members; and

generating the set of line segments based on the probability that the audience member is within the geographic region associated with the set of line segments.

13. (Previously Presented) The computer-readable medium of claim 12, wherein determining the probability that the audience member is within the geographic location comprises normalizing a number of audience members within a segment of the audience raster with a normalization value.

14. (Currently amended) [[A]]An audience matching system comprising:

a processor; and

a non-transitory computer-readable storage medium coupled to the processor, the computer-readable storage medium including instructions that, when executed by the processor, cause the system to perform steps comprising:

receiving a target audience condition wherein the target audience condition includes a geographic location and a time period associated with a target audience;

determining a target audience based on the target audience condition, the target audience comprising one or more audience members;

receiving an advertisement request from a remote display system having a display at a particular geographic location, the request including an advertisement parameter that identifies a first target time period;

generating a first audience polygon based on a set of line segments enclosing a geographic area wherein the one or more audience members have a probability above a threshold probability of located with the geographic area, the audience polygon generated based on:

filtering an aggregated dataset based on the received target audience condition,

segmenting the filtered data according to a set of time periods, and

generating an audience raster based on the filtered data wherein the audience raster is representative of a distribution of the plurality of mobile devices that satisfy the received target audience condition over a plurality of sub-regions of the geographic area for a given one of the set of time periods;

selecting an advertisement associated with the ~~received~~ target audience; and

providing the selected advertisement to the remote display system for presentation on the display at the particular geographic location during the first target time period.

15. (Original) The system of claim 14, wherein the instructions, when executed by the processor, further cause the system to perform steps comprising:

receiving a data set including a plurality of records from one or more cell service providers that are associated with mobile device users, each record including a respective timestamp and geographic identifier;

inferring a plurality of characteristics about one or more of the mobile device users by comparing timestamps and geographic identifiers in each record to a set of rules that map inferred characteristics to specific combinations of geographic and temporal

conditions; and

generating one or more audience polygons using the inferred plurality of characteristics.

16. (Previously Presented) The system of claim 15, wherein generating one or more audience polygons using the inferred plurality of characteristics, comprises:

determining a baseline group of records in the data set having timestamps within a first time period;

generating a baseline raster using the baseline group of records, the baseline raster describing a baseline distribution of mobile device users across a geographic region which is subdivided into a plurality of sub-regions;

determining a subset of the baseline group of records that are associated with mobile device users that each have in common a first inferred characteristic of the inferred plurality of characteristics;

generating a second audience raster using the subset of the baseline group of records, the second audience raster describing an audience distribution across the plurality of sub-regions for the mobile device users associated with the subset of the baseline group of records;

generating a normalized audience raster using the second audience raster and the baseline raster, the normalized audience raster describing a normalized audience distribution across the plurality of sub-regions and indicating affinities describing probabilities that mobile device users having the first characteristic are found within each of the plurality of sub-regions; and

generating the one or more audience polygons using the normalized audience raster.

17. (Original) The system of claim 16, wherein generating the one or more audience polygons using the normalized audience raster comprises:

identifying regions of the plurality of regions of the normalized audience raster that have different affinities;

generating the one or more audience polygons using the identified regions, each audience polygon associated with the first time period and one of the different affinities; and

storing the one or more audience polygons as part of the plurality of audience polygons.

18. (Original) The system of claim 14, wherein the display is statically mounted at the particular geographic location and is configured to present the advertisement to multiple members of the target audience.

19. (Previously Presented) The system of claim 14, wherein generating a first audience polygon based on a set of line segments comprises:

determining the probability that the audience member is within a geographic segment associated with the first audience polygon relative to a population of audience members; and

generating the set of line segments based the probability that the audience member is within the geographic region associated with the set of line segments

20. (Previously Presented) The system of claim 19, wherein determining the probability that the audience member is within the geographic location comprises normalizing a number of audience members within a segment of the audience raster with a normalization value.