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16/119,819	08/31/2018	Michael Yavonditte	YIEL-M12-US	3927
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Run8 Patent Group, LLC 6 Mint #504 San Francisco, CA 94103			TOKARCZYK, CHRISTOPHER B	
			ART UNIT	PAPER NUMBER
			3622	
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			03/07/2019	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):

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Office Action Summary

Application No.

16/119,819

Applicant(s)

Yavonditte et al.

Examiner

CHRISTOPHER B TOKARCZYK

Art Unit

3622

AIA (FITF) 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 19 November 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

Notice of Pre-AIA or AIA Status

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

Status of Application

2. This action is in reply to the application filed on August 31, 2018 and the drawings filed November 19, 2018.
3. Claims 1-20 are pending.

Claim Rejections - 35 U.S.C. § 101

4. 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.
5. **Claims 1, 7, 8, 11-14, 17, and 20** are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-20 are directed to an abstract idea without significantly more as required by the *Alice* test as discussed below.

Step 1

Claims 1-20 are directed to a process, machine, manufacture, or composition of matter, because they recite methods.

Step 2A

Claims 1, 7, 8, 11-14, 17, and 20 are directed to abstract ideas, as explained below.

Prong one of the Step 2A analysis requires identifying the specific limitation(s) in the claim under examination that the examiner believes recites an abstract idea; and determining whether the identified limitation(s) falls within at least one of the groupings of abstract ideas of mathematical concepts, mental processes, and certain methods of organizing human activity.

The claims recite the following limitations. **Claims 1 and 17** recite recording proportions of pixels rendered on a display, calculating cumulative pixel exposure of the digital advertisement based on a combination of products of proportions and duration, and storing the cumulative pixel exposure as an engagement metric. **Claims 7 and 20** recite during a test period, recording test cumulative pixel exposures for each instance of a digital advertisement served, accessing outcomes of consumption of the set of instances, calculating a correlation between cumulative pixel exposure and outcomes, defining a threshold cumulative pixel exposure associated with a threshold probability of an outcome, and recording that an impression occurred. **Claim 8** recites characteristics of the data stored. **Claim 11** recites accessing weights defined in a map and using them to calculate the cumulative pixel exposure. **Claims 12-14** further specifies when data is recorded, the type of data recorded, and what the data represents.

These limitations describe abstract ideas that correspond to concepts identified as abstract ideas by the courts as mental processes—such as concepts performed in the human mind (including an observation, evaluation, judgment, or opinion)—because the claimed features highlighted above (such as recording proportions, calculation exposures, storing results, calculating correlations, etc.) are concepts performed in the human mind (including an observation, evaluation, judgment, or opinion).

These limitations describe abstract ideas that correspond to concepts identified as abstract ideas by the courts as certain methods of organizing human activity—such as fundamental economic principles or practices (including hedging, insurance, mitigating risk), commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations), managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)—for the following reasons. First, the claimed features identified above are commercial or legal interactions such as

advertising, marketing or sales activities or behaviors, and business relations. Second, the claimed features identified above manage personal behavior or relationships or interactions between people, e.g., following rules or instructions.

Thus, the concepts set forth in 1, 7, 8, 11-14, 17, and 20 recite abstract ideas.

Prong two of the Step 2A requires identifying whether there are any additional elements recited in the claim beyond the judicial exception(s), and evaluating those additional elements to determine whether they integrate the exception into a practical application of the exception. “Integration into a practical application” requires an additional element or a combination of additional elements in the claim to apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the exception. Further, “integration into a practical application” uses the considerations laid out by the Supreme Court and the Federal Circuit to evaluate whether the judicial exception is integrated into a practical application, such as considerations discussed in M.P.E.P. § 2106.05(a)-(h).

The claims recite the following additional elements beyond those identified above as being directed to an abstract idea. **Claims 1 and 17** recite *servicing a digital* advertisement to a *mobile computing device*, and that the *mobile computing device* performs the several of the method’s steps. **Claim 7** recites that the pixels are *rendered* on the *display* of the mobile computing device. **Claim 20** recites *servicing* digital advertisements to *mobile devices*.

The identified judicial exception(s) are not integrated into a practical application for the following reasons.

First, evaluated individually, the additional elements do not integrate the identified abstract ideas into a practical application. The additional computer elements identified above—the *mobile computing devices* having *displays*—are recited at a high level of generality (see, e.g., applicant’s Specification at ¶ [0080]). Inclusion of these elements amounts to mere instructions to implement the identified abstract ideas on a computer. See M.P.E.P. § 2106.05(f). The use of conventional computer elements to *serve* an

ad to a user device, *display/render* it, and *store* information regarding these activities is the insignificant, extra-solution activities of mere data gathering and outputting in conjunction with a law of nature or abstract idea. See M.P.E.P. § 2106.05(g). To the extent that the claims transform data, the mere manipulation of data is not a transformation. See M.P.E.P. § 2106.05(c). Inclusion of *mobile devices* in the claims amounts to generally linking the use of the judicial exception to a particular technological environment or field of use. See M.P.E.P. § 2106.05(h). Thus, taken alone, the additional elements do not amount to significantly more than a judicial exception.

Second, evaluating the claim 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 improve the functioning of a computer or improves any other technology. See M.P.E.P. § 2106.05(a). Their collective functions merely provide an implementation of the identified abstract ideas on a computer system in the general field of use of online advertising. See M.P.E.P. § 2106.05(h).

Thus, claims 1, 7, 8, 11-14, 17, and 20 recite mathematical concepts, mental processes, or certain methods of organizing human activity without including additional elements that integrate the exception into a practical application of the exception.

Accordingly, claims 1, 7, 8, 11-14, 17, and 20 are directed to abstract ideas.

Step 2B

Claims 1, 7, 8, 11-14, 17, and 20 do 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 analysis above describes how the claims recite the additional elements beyond those identified above as being directed to an abstract idea, as well as why identified judicial exception(s) are not integrated into a practical application. These findings are hereby incorporated into the analysis of the

additional elements when considered both individually and in combination. Additional features of these analyses are discussed below.

Evaluated individually, the additional elements do not amount to significantly more than a judicial exception. In addition to the factors discussed regarding **Step 2A**, prong two, these additional computer elements also provide conventional computer functions that do not add meaningful limits to practicing the abstract idea. 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. The use of generic computer components to *serve* and *display/render* advertising on a mobile device is likewise the well-understood, routine, and conventional computer functions of receiving or transmitting data over a network, e.g., the Internet, and does not impose any meaningful limit on the computer implementation of the identified abstract ideas. See M.P.E.P. § 2106.05(d)(II). Similarly, the use of generic computer components to *store* information is likewise the well-understood, routine, and conventional computer functions of receiving, processing, and storing data and does not impose any meaningful limit on the computer implementation of the identified abstract ideas. *Id.* Further, Richardson et al. (U.S. Pub. No. 2008/0249832 A1) describes online advertising as “a significant aspect of the Web browsing experience” through which “many search engines received revenue through advertisements positioned adjacent to a user’s query results,” thus demonstrating that this activity is well-understood, routine, and conventional activity. Thus, taken alone, the additional elements do not amount to significantly more than a judicial exception.

Evaluating the claim limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. In addition to the factors discussed regarding **Step 2A**, prong two, there is no indication that the combination of elements improves the functioning of a computer or improves any other technology. Their collective functions merely amount to mere instructions to implement the identified abstract ideas on a computer.

Thus, claims 1, 7, 8, 11-14, 17, and 20, taken individually and as an ordered combination of elements, are not directed to eligible subject matter since they are directed to an abstract idea without significantly more.

Claim Rejections - 35 U.S.C. § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

7. **Claims 1 and 15-17** are rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Meyers et al. (U.S. Pub. No. 2002/0087403 A1) (hereinafter “Meyers”).

Claims 1 and 17: Meyers, as shown, discloses the following limitations:

at a first time, serving a digital advertisement to a mobile computing device (see at least ¶ [0034]: the Internet connection may be used in the context of this application for various purposes, including to download a web page from a content provider (which may provide the content ordered by a user over a web server 180) to host computer 110 via network 170 which receives the ordered content from the content provider 180 and forwards it to the display 120; see also at least ¶ [0038]: the graphics engine of graphics board 130 scans for metadata 212 and, upon detection, counts the number of pixels 125 in the displayed data frame having metadata 212 of a value indicating that the pixel 125 is part of an advertisement);

recording a first proportion of pixels of the digital advertisement rendered on a display of the mobile computing device during a first sampling period (see at least ¶ [0038]: a record may be maintained of the total number of pixels 125 displayed or an average over time using counter 145. The advertiser is charged using a “pixel×time” metric which multiplies the number of pixels 125 identified by metadata

212 as belonging to an advertisement that are visible on the display screen by the length of time that these pixels 125 are visible, as measured by timer 147, to determine how much the user is to be charged; see also at least ¶ [0039]);

recording a second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during a second sampling period offset in time from the first sampling period (see at least ¶ [0039]: in the sample screen 300 shown in FIG. 3, an email 310 is opened and a first advertisement 312 within the email 310 is visible in its entirety. The advertiser is charged for the number of pixels 125 occupied by the advertisement 312 multiplied by the amount of time the advertisement 312 is visible, e.g., 30 seconds. Also shown in FIG. 3 is a second advertisement banner 314 and a window 316 containing a content channel. The user may then decide to move the content channel window 316 to overlay a portion of first advertisement 312, as shown in FIG. 4, for whatever reason, such as to launch another program that will occupy a window to be displayed in the vacated space. Using the “pixel×time” metric, since only a portion (approximately%) of the advertisement 312 is now visible, the advertiser is charged for the display of the entire advertisement 312 during the time the entire advertisement 312 is displayed based on the “pixel×time” metric and, for the portion of time that the advertisement 312 is only partially visible, the advertiser is only charged for that portion of the advertisement 312 that is visible, based on the number of pixels 125 occupied by the portion of the advertisement 312 that is visible, multiplied by the length of time the pixels are displayed according to one embodiment of the invention. Similarly, if the number of pixels 125 of the advertisement 312 that are visible were changed a third time, the number of pixels 125 displayed times the length of time the pixels 125 are displayed would be added to the first two computations. Thus, there is a summation of the “pixel×time” metric over a total period of time that advertisement 312 is visible; see also at least ¶¶ [0034] and [0040]-[0041]: the same techniques discussed in the email context are applied in an online advertising context);

calculating a cumulative pixel exposure of the digital advertisement at the mobile computing device based on a combination of:

a first product of the first proportion of pixels and a duration of the first sampling period
(see at least ¶ [0039] and the analysis above); *and*
a second product of the second proportion of pixels and a duration of the second
sampling period (see at least ¶ [0039] and the analysis above); *and*
storing the cumulative pixel exposure as an engagement metric for a user consuming the digital
advertisement at the mobile computing device (see at least ¶ [0036]: the payload data and metadata may
be stored and streamed to display 120 as compressed data; see also at least ¶ [0039]: there is a summation
of the “pixel×time” metric over a total period of time that advertisement 312 is visible. Either the
summation or averaging technique can be used to charge for additional advertisements that are displayed,
each advertisement 312 being individually metered).

Claim 15: Meyers discloses the limitations as shown in the rejection above. Further, Meyers, as
shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device comprises serving the
digital advertisement comprising a video segment to the mobile computing device (see at least ¶ [0033]:
graphics board 130 also has a counter 145 to count the number of pixels in a given frame with a particular
metadata value or to keep a running total or average over multiple frames, a timer 147 to measure the
length of time pixels with the particular metadata value are displayed, and a filter application 149, either
in hardware or software within graphics board 130 or elsewhere in host computer 110, to filter out certain
pixels from being displayed; see also at least ¶¶ [0034] and [0037]: the content can be a networked video
game; see also at least ¶ [0047]);

wherein recording the first proportion of pixels of the digital advertisement rendered on the
display of the mobile computing device during the first sampling period comprises recording the first
proportion of pixel rows in a first frame of the video segment rendered on the display of the mobile
computing device during the first sampling period (see at least ¶ [0038]: a record may be maintained of
the total number of pixels 125 displayed or an average over time using counter 145. The advertiser is

charged using a “pixel×time” metric which multiplies the number of pixels 125 identified by metadata 212 as belonging to an advertisement that are visible on the display screen by the length of time that these pixels 125 are visible, as measured by timer 147, to determine how much the user is to be charged; see also at least ¶¶ [0033]-[0034] and [0037]: the content can be video frames in a networked video game);

wherein recording the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the second sampling period comprises recording the second proportion of pixel rows in a second frame of the video segment rendered on the display of the mobile computing device during the second sampling period (see at least ¶¶ [0033]-[0034] and [0037]-[0038] and analysis above); and

wherein calculating the cumulative pixel exposure of the digital advertisement at the mobile computing device comprises calculating the cumulative pixel exposure that represents a proportion of a total area of frames in the video segment in the digital advertisement displayed on the mobile computing device during an ad session (see at least ¶ [0039]: using the “pixel×time” metric, since only a portion (approximately%) of the advertisement 312 is now visible, the advertiser is charged for the display of the entire advertisement 312 during the time the entire advertisement 312 is displayed based on the “pixel×time” metric and, for the portion of time that the advertisement 312 is only partially visible, the advertiser is only charged for that portion of the advertisement 312 that is visible, based on the number of pixels 125 occupied by the portion of the advertisement 312 that is visible, multiplied by the length of time the pixels are displayed according to one embodiment of the invention. Similarly, if the number of pixels 125 of the advertisement 312 that are visible were changed a third time, the number of pixels 125 displayed times the length of time the pixels 125 are displayed would be added to the first two computations).

Claim 16: Meyers discloses the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device comprises serving the digital advertisement, comprising a set of cards arranged laterally within a visual element, to the mobile computing device (see at least FIGS. 3-4: the digital advertisements include at least three cards—i.e., the Ferrari ad, the soccer ad, and the shark ad—which are arranged laterally; see also at least ¶¶ [0034] and [0038]-[0041]);

wherein recording the first proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the first sampling period comprises recording the first proportion of pixel rows in a first card, in the set of cards, rendered on the display of the mobile computing device during the first sampling period (see also at least ¶¶ [0034] and [0038]-[0041]);

wherein recording the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the second sampling period comprises recording the second proportion of pixel rows in a second card, in the set of cards, rendered on the display of the mobile computing device during the second sampling period responsive to a lateral swipe event over the visual element at the mobile computing device (see also at least ¶¶ [0034] and [0038]-[0041]: the soccer ad is swiped laterally across the visual element);

wherein calculating the cumulative pixel exposure of the digital advertisement at the mobile computing device comprises calculating the cumulative pixel exposure that represents a proportion of a total area of the set of cards displayed on the mobile computing device during an ad session (see at least ¶¶ [0034] and [0038]-[0041]).

Claim Rejections - 35 U.S.C. § 103

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. **Claims 2-4, 9, 10, and 18** are rejected under AIA 35 U.S.C. § 103 as being unpatentable over Meyers et al. (U.S. Pub. No. 2002/0087403 A1) (hereinafter “Meyers”) in view of Itzhak (U.S. Pub. No. 2011/0082755 A1).

Claim 2: Meyers discloses the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device at the first time comprises serving the digital advertisement to the mobile computing device for loading into a first advertisement slot within a first webpage opened within a web browser executing on the mobile computing device (see at least ¶ [0034]: the Internet connection may be used in the context of this application for various purposes, including to download a web page from a content provider (which may provide the content ordered by a user over a web server 180) to host computer 110 via network 170 which receives the ordered content from the content provider 180 and forwards it to the display 120; see also at least ¶ [0038]: the graphics engine of graphics board 130 scans for metadata 212 and, upon detection, counts the number of pixels 125 in the displayed data frame having metadata 212 of a value indicating that the pixel 125 is part of an advertisement); and

Meyers does not disclose, but Itzhak, as shown, teaches the following limitations:

further comprising, at a second time succeeding the first time, in response to the cumulative pixel exposure remaining below a threshold cumulative pixel exposure, serving a second instance of the digital advertisement to the mobile computing device for loading into a second advertisement slot within a second webpage opened within the web browser executing on the mobile computing device (see at least ¶ [0050]: in block 290, it may be determined if the time an advertisement or other message has exceeded a total or cumulative time for being visible to a user. The cumulative time may be broken up into segments of time during which the segment was visible (which in some embodiments may have a minimum time period, but need not have this limit) If the cumulative visibility time for an advertisement does not exceed a threshold or cap, the process may proceed to block 230, where visibility time measurement may continue. The threshold or cap may be for a specific advertisement displayed to a user over a given time period (e.g. a cap of 1 minute over 24 hours) **across different page**, or the cap may be for a single page-view by a user (e.g. a cap of 30 seconds in a single page-view). The threshold or cap may in some cases be tied to a time period, for example the amount of time a specific advertisement is visible to a specific user (possibly across different pages or sites) is visible during a period (e.g., an advertisement cannot be visible to user A for more than 1 minute during a 24 hour period). The same ad will be served on a different page when the cumulative visibility time is under the cap; see also at least ¶¶ [0015], [0019], and [0023]-[0024]).

It would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the techniques for presenting and metering advertisements taught by Itzhak with the systems and methods for metering and filtering content disclosed by Meyers, because Itzhak teaches that there is a need in the art to “enable determining an actual presentation of advertisement content to its intended audience, including a determination of the content’s exposure and/or visibility level” (Itzhak at ¶ [0006]), that “limit or cap may be placed on viewing time, so that after a

certain amount of time the advertisement is replaced with a different advertisement and/or the advertiser does not pay beyond the limit or cap time” (Itzhak at ¶ [0013]), and that “Relating a charge for a presentation of an advertisement to the time spent viewing it may motivate production of high quality pages due to associated higher revenues” (Itzhak at ¶ [0014]). See also, e.g., Itzhak at ¶ [0055]. See also M.P.E.P. § 2143(I)(G).

Moreover, it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the techniques for presenting and metering advertisements taught by Itzhak with the systems and methods for metering and filtering content disclosed by Meyers, because the claimed invention is merely a combination of old elements (the techniques for presenting and metering advertisements taught by Itzhak and the systems and methods for metering and filtering content disclosed by Meyers), in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. See M.P.E.P. § 2143(I)(A).

Claim 3: The combination of Meyers and Itzhak teaches the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

recording a third proportion of pixels of the second instance of the digital advertisement rendered on the display of the mobile computing device during a third sampling period following the second time (see at least ¶ [0039]: in the sample screen 300 shown in FIG. 3, an email 310 is opened and a first advertisement 312 within the email 310 is visible in its entirety. The advertiser is charged for the number of pixels 125 occupied by the advertisement 312 multiplied by the amount of time the advertisement 312 is visible, e.g., 30 seconds. Also shown in FIG. 3 is a second advertisement banner 314 and a window 316 containing a content channel. The user may then decide to move the content channel window 316 to overlay a portion of first advertisement 312, as shown in FIG. 4, for whatever reason, such as to launch another program that will occupy a window to be displayed in the vacated space. Using the “pixel×time” metric, since only a portion (approximately%) of the advertisement 312 is now visible, the advertiser is

charged for the display of the entire advertisement 312 during the time the entire advertisement 312 is displayed based on the “pixel×time” metric and, for the portion of time that the advertisement 312 is only partially visible, the advertiser is only charged for that portion of the advertisement 312 that is visible, based on the number of pixels 125 occupied by the portion of the advertisement 312 that is visible, multiplied by the length of time the pixels are displayed according to one embodiment of the invention. Similarly, if the number of pixels 125 of the advertisement 312 that are visible were changed a third time, the number of pixels 125 displayed times the length of time the pixels 125 are displayed would be added to the first two computations. Thus, there is a summation of the “pixel×time” metric over a total period of time that advertisement 312 is visible; see also at least ¶¶ [0034], [0038], and [0040]-[0041]: the same techniques discussed in the email context are applied in an online advertising context);

recording a fourth proportion of pixels of the second instance of the digital advertisement rendered on the display of the mobile computing device during a fourth sampling period offset in time from the third sampling period (see at least ¶¶ [0034], [0038]-[0039], and [0040]-[0041] and analysis above);

calculating a second cumulative pixel exposure of the second instance of the digital advertisement at the mobile computing device based on a combination of:

a third product of the third proportion of pixels and a duration of the third sampling period (see at least ¶ [0039] and the analysis above); and

a fourth product of the fourth proportion of pixels and a duration of the fourth sampling period (see at least ¶ [0039] and the analysis above).

Meyers does not disclose, but Itzhak, as shown, teaches the following limitations:

at a third time succeeding the second time, in response to a sum of the cumulative pixel exposure and the second cumulative pixel exposure exceeding the threshold cumulative pixel exposure, serving a second digital advertisement different from the digital advertisement to the mobile computing device for loading into a third advertisement slot within a third webpage opened within the web browser executing

on the mobile computing device (see at least ¶ [0050]: in block 290, it may be determined if the time an advertisement or other message has exceeded a total or cumulative time for being visible to a user. The cumulative time may be broken up into segments of time during which the segment was visible (which in some embodiments may have a minimum time period, but need not have this limit) If the cumulative visibility time for an advertisement does not exceed a threshold or cap, the process may proceed to block 230, where visibility time measurement may continue. The threshold or cap may be for a specific advertisement displayed to a user over a given time period (e.g. a cap of 1 minute over 24 hours) **across different page**, or the cap may be for a single page-view by a user (e.g. a cap of 30 seconds in a single page-view). The threshold or cap may in some cases be tied to a time period, for example the amount of time a specific advertisement is visible to a specific user (possibly across different pages or sites) is visible during a period (e.g., an advertisement cannot be visible to user A for more than 1 minute during a 24 hour period). The same ad will be served on a different page when the cumulative visibility time is under the cap; see also at least ¶ [0024]: the cap applies to the same user across different pages or sites; see also at least ¶¶ [0015], [0019], and [0023]).

The rationales to modify/combine the teachings of Meyers to include the teachings of Itzhak are presented above regarding claim 2 and incorporated herein.

Claims 4 and 18: Meyers discloses the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device at the first time comprises serving the digital advertisement within a first advertising campaign to the mobile computing device for loading into a first webpage accessed at the mobile computing device (see at least ¶ [0034]: the Internet connection may be used in the context of this application for various purposes, including to download a web page from a content provider (which may provide the content ordered by a user over a web server 180) to host computer 110 via network 170 which receives the ordered content from the

content provider 180 and forwards it to the display 120; see also at least ¶ [0038]: the graphics engine of graphics board 130 scans for metadata 212 and, upon detection, counts the number of pixels 125 in the displayed data frame having metadata 212 of a value indicating that the pixel 125 is part of an advertisement).

Meyers does not disclose, but Itzhak, as shown, teaches the following limitations:

further comprising, at a second time succeeding the first time:

in response to the cumulative pixel exposure exceeding a threshold cumulative pixel exposure, serving a second digital advertisement within the first advertising campaign to the mobile computing device for loading into a second webpage accessed at the mobile computing device (see at least ¶ [0050]: in block 290, it may be determined if the time an advertisement or other message has exceeded a total or cumulative time for being visible to a user. The cumulative time may be broken up into segments of time during which the segment was visible (which in some embodiments may have a minimum time period, but need not have this limit) If the cumulative visibility time for an advertisement does not exceed a threshold or cap, the process may proceed to block 230, where visibility time measurement may continue. The threshold or cap may be for a specific advertisement displayed to a user over a given time period (e.g. a cap of 1 minute over 24 hours) across different page, or the cap may be for a single page-view by a user (e.g. a cap of 30 seconds in a single page-view). The threshold or cap may in some cases be tied to a time period, for example the amount of time a specific advertisement is visible to a specific user (possibly across different pages or sites) is visible during a period (e.g., an advertisement cannot be visible to user A for more than 1 minute during a 24 hour period); see also at least ¶ [0051]: If the cumulative visible time for an advertisement exceeds a time threshold, in some embodiments, the process may proceed to block 200, where a new or replacement advertisement is requested and served in place of the previous advertisement, the process continuing to block 210; see also at least ¶¶ [0015], [0019], [0023]-[0024], and [0056]); and

in response to the cumulative pixel exposure remaining below the threshold cumulative pixel exposure, serving a third digital advertisement within a second advertising campaign different from the first advertising campaign to the mobile computing device for loading into the second webpage (see at least ¶ [0029]: upon receiving a request from content presentation management module 113 or browser 112, one of advertisement servers 135 may select one or more advertisements to serve to browser 112 based on, for example, targeting data, budget and other campaign data relating to each advertisement and/or campaign. A campaign may define, for example, times of day that the advertisement may be displayed, the maximum exposure time per user (for example in minutes) and per time period (for example, 10 minutes per week), the geographical locations of users that should be exposed to the advertisement etc. When a different time of day occurs, or other campaign criteria changes besides the maximum exposure time per user, another advertisement—i.e., a third digital advertisement—would be selected instead of the originally-shown advertisement; see also at least ¶ [0053]).

The rationales to modify/combine the teachings of Meyers to include the teachings of Itzhak are presented above regarding claim 2 and incorporated herein.

Claim 9: Meyers discloses the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device comprises serving a visual element containing the digital advertisement to the mobile computing device via a computer network (see at least ¶ [0034]: the Internet connection may be used in the context of this application for various purposes, including to download a web page from a content provider (which may provide the content ordered by a user over a web server 180) to host computer 110 via network 170 which receives the ordered content from the content provider 180 and forwards it to the display 120; see also at least ¶ [0038]: the graphics engine of graphics board 130 scans for metadata 212 and, upon detection, counts

the number of pixels 125 in the displayed data frame having metadata 212 of a value indicating that the pixel 125 is part of an advertisement);

wherein recording the first proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the first sampling period comprises, at the visual element, recording a first proportion of pixel rows of the digital advertisement rendered within a viewport at the mobile computing device during the first sampling period in response to a portion of the visual element entering the viewport (see at least ¶ [0038]: a record may be maintained of the total number of pixels 125 displayed or an average over time using counter 145. The advertiser is charged using a “pixel×time” metric which multiplies the number of pixels 125 identified by metadata 212 as belonging to an advertisement that are visible on the display screen by the length of time that these pixels 125 are visible, as measured by timer 147, to determine how much the user is to be charged; see also at least ¶ [0039]; see also at least ¶ [0040]: scrolling down a web page so that only a portion of the advertisement 312 remains visible—thereby changing the number of the advertisement’s rows that are displayed; see also at least ¶¶ [0034] and [0040]-[0041]: the same techniques discussed in the email context are applied in an online advertising context);

wherein recording the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the second sampling period comprises, at the visual element, recording a second proportion of pixel rows of the digital advertisement rendered within the viewport at the mobile computing device during the second sampling period (see at least ¶¶ [0034] and [0038]-[0040]);

wherein calculating the cumulative pixel exposure of the digital advertisement at the mobile computing device comprises, at the visual element, summing the first proportion of pixel rows integrated over the first sampling period and the second proportion of pixel rows integrated over the second sampling period to calculate the cumulative pixel exposure (see at least ¶ [0039]: in the sample screen 300 shown in FIG. 3, an email 310 is opened and a first advertisement 312 within the email 310 is visible in its entirety. The advertiser is charged for the number of pixels 125 occupied by the advertisement 312

multiplied by the amount of time the advertisement 312 is visible, e.g., 30 seconds. Also shown in FIG. 3 is a second advertisement banner 314 and a window 316 containing a content channel. The user may then decide to move the content channel window 316 to overlay a portion of first advertisement 312, as shown in FIG. 4, for whatever reason, such as to launch another program that will occupy a window to be displayed in the vacated space. Using the “pixel×time” metric, since only a portion (approximately%) of the advertisement 312 is now visible, the advertiser is charged for the display of the entire advertisement 312 during the time the entire advertisement 312 is displayed based on the “pixel×time” metric and, for the portion of time that the advertisement 312 is only partially visible, the advertiser is only charged for that portion of the advertisement 312 that is visible, based on the number of pixels 125 occupied by the portion of the advertisement 312 that is visible, multiplied by the length of time the pixels are displayed according to one embodiment of the invention. Similarly, if the number of pixels 125 of the advertisement 312 that are visible were changed a third time, the number of pixels 125 displayed times the length of time the pixels 125 are displayed would be added to the first two computations. Thus, there is a summation—i.e., integration—of the “pixel×time” metric over a total period of time that advertisement 312 is visible); *and*

Meyers does not explicitly disclose, but Itzhak, as shown, teaches the following limitations:

further comprising, at the visual element, returning the cumulative pixel exposure to a remote database via the computer network in response to the visual element exiting the viewport at the mobile computing device (see at least ¶ [0043]: in blocks 260 and 280, exposure time may be recorded (e.g., an internal counter of absolute time or a number of time periods passed may be updated) and/or reported, e.g., to a server such as server 125 or server 115. Recording of exposure time may be done by increasing or decreasing counters or by storing information, e.g., in a log file, memory location, database or in any applicable structure).

The rationales to modify/combine the teachings of Meyers to include the teachings of Itzhak are presented above regarding claim 2 and incorporated herein.

Claim 10: Meyers discloses the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein serving the digital advertisement to the mobile computing device comprises serving a visual element containing the digital advertisement to the mobile computing device via a computer network (see at least ¶ [0034]: the Internet connection may be used in the context of this application for various purposes, including to download a web page from a content provider (which may provide the content ordered by a user over a web server 180) to host computer 110 via network 170 which receives the ordered content from the content provider 180 and forwards it to the display 120; see also at least ¶ [0038]: the graphics engine of graphics board 130 scans for metadata 212 and, upon detection, counts the number of pixels 125 in the displayed data frame having metadata 212 of a value indicating that the pixel 125 is part of an advertisement);

wherein calculating the cumulative pixel exposure of the digital advertisement at the mobile computing device comprises, [...], integrating proportions of the visual element rendered within the viewport at the mobile computing device based on a duration of the regular interval to calculate the cumulative pixel exposure between entry of the portion of the visual element into the viewport and exit of the visual element from the viewport (see at least ¶ [0039]: in the sample screen 300 shown in FIG. 3, an email 310 is opened and a first advertisement 312 within the email 310 is visible in its entirety. The advertiser is charged for the number of pixels 125 occupied by the advertisement 312 multiplied by the amount of time the advertisement 312 is visible, e.g., 30 seconds. Also shown in FIG. 3 is a second advertisement banner 314 and a window 316 containing a content channel. The user may then decide to move the content channel window 316 to overlay a portion of first advertisement 312, as shown in FIG. 4, for whatever reason, such as to launch another program that will occupy a window to be displayed in the vacated space. Using the “pixel×time” metric, since only a portion (approximately%) of the advertisement

312 is now visible, the advertiser is charged for the display of the entire advertisement 312 during the time the entire advertisement 312 is displayed based on the “pixel×time” metric and, for the portion of time that the advertisement 312 is only partially visible, the advertiser is only charged for that portion of the advertisement 312 that is visible, based on the number of pixels 125 occupied by the portion of the advertisement 312 that is visible, multiplied by the length of time the pixels are displayed according to one embodiment of the invention. Similarly, if the number of pixels 125 of the advertisement 312 that are visible were changed a third time, the number of pixels 125 displayed times the length of time the pixels 125 are displayed would be added to the first two computations. Thus, there is a summation—i.e., integration—of the “pixel×time” metric over a total period of time that advertisement 312 is visible); *and*

Meyers does not explicitly disclose, but Itzhak, as shown, teaches the following limitations:

wherein recording the first proportion of pixels and the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device comprises, at the visual element, streaming data representing proportions of the visual element rendered within a viewport at the mobile computing device to a remote aggregator via the computer network on a regular interval between entry of a portion of the visual element into the viewport and exit of the visual element from the viewport (see at least ¶ [0043]: in blocks 260 and 280, exposure time may be recorded (e.g., an internal counter of absolute time or a number of time periods passed may be updated) and/or reported, e.g., to a server such as server 125 or server 115. Recording of exposure time may be done by increasing or decreasing counters or by storing information, e.g., in a log file, memory location, database or in any applicable structure; see also at least ¶¶ [0022], [0042], and [0044]-[0047]);

The calculating occurs *at the remote aggregator* (see at least ¶ [0022]: server 125 may increase a visibility count or other measure of visibility (e.g., stored at server 125) for that advertisement by the time interval length);

wherein storing the cumulative pixel exposure comprises storing the cumulative pixel exposure, linked to the user, in a remote database (see at least ¶ [0043]: in blocks 260 and 280, exposure time may

be recorded (e.g., an internal counter of absolute time or a number of time periods passed may be updated) and/or reported, e.g., to a server such as server 125 or server 115. Recording of exposure time may be done by increasing or decreasing counters or by storing information, e.g., in a log file, memory location, database or in any applicable structure).

The rationales to modify/combine the teachings of Meyers to include the teachings of Itzhak are presented above regarding claim 2 and incorporated herein.

11. **Claims 5, 6, and 19** are rejected under AIA 35 U.S.C. § 103 as being unpatentable over Meyers et al. (U.S. Pub. No. 2002/0087403 A1) (hereinafter “Meyers”) in view of Itzhak (U.S. Pub. No. 2011/0082755 A1) and further in view of Richardson et al. (U.S. Pub. No. 2008/0249832 A1) (hereinafter “Richardson”).

Claims 5 and 19: The combination of Meyers and Itzhak teaches the limitations as shown in the rejections above.

Meyers does not explicitly disclose, Itzhak does not explicitly teach, but Richardson, as shown, teaches the following limitations:

further comprising

during a test period preceding the first time (see at least ¶ [0029]: model developing module 210 is configured for developing an advertisement performance prediction model configured to estimate expected performance of advertisements. Expected advertisement performance may include, by way of example only and not limitation, the probability a user will select a displayed advertisement, i.e., click-through rate (CTR), the probability a user will perform another action with respect to a displayed advertisement (e.g., purchase a product, sign

up for a newsletter, and the like), or any other measure of performance known to those of ordinary skill in the art):

servicing a set of instances of the digital advertisement to mobile computing devices of a first population of users (see at least ¶ [0030]: sample set identifying component 224 is configured for identifying advertisements having at least one recognized information item and/or performance measure associated therewith. The sample set identifying component 224 is further configured for creating a sample set of advertisements that includes at least a portion of the advertisements identified; see also at least ¶ [0056]-[0057]: dividing component 228 is configured to divide the sample into subsets, e.g., a training, testing, and validation sets);

recording a test cumulative pixel exposure for each instance of the digital advertisement served to mobile computing devices of the first population of users (see at least ¶ [0055]: the extracting component 226 may also extract a variety of user features and request features. User features may include, for example, gender, age, location, interests, previous searches, and previous advertisement click behavior. Request features may include, for example, the day of the request or the time of the request; see also at least ¶¶ [0039]-[0046] and [0066]-[0067]. Examiner notes that Richardson does not explicitly teach a “test cumulative pixel exposure” as defined by calculations in the other claims. But in this claim and without further limitations being specified, the expression includes number of exposures of pixels in an advertisement, e.g., impressions);

accessing outcomes of consumption of the set of instances of the digital advertisement across the first population of users (see at least ¶ [0036]: extracting component 226 is configured to extract advertisement features for advertisements in the sample set, e.g. the sample set created by the sample set identifying component 224. An advertisement feature may be a value or datum that represents advertisement information item(s) or an advertisement performance measure, e.g., the number of words in the advertisement title, the existence of a word, or a CTR. As previously

mentioned, advertisement information may include, for example, a landing page, a bid term, a title, a body, a display URL, the number of clicks, or the number of views. Advertisement performance measures may include click-through rates or other advertisement performance measures; see also at least ¶¶ [0039]-[0046], [0054], and [0062]);

calculating a correlation between cumulative pixel exposure and outcome for the digital advertisement based on test cumulative pixel exposures and outcomes associated with the digital advertisement and recorded during the test period (see at least ¶ [0059]: developing component 230 is configured to develop the advertisement performance prediction model based on the learned data. One skilled in the art will recognize that the advertisement performance prediction model may be in the form of a logistic regression model, a decision tree, a linear regression model, a regression tree, a neural network, a support vector machine (SVM), a boosted tree, or another model form. The prediction model may be developed via machine learning, an algorithm, or a combination thereof ; see also at least ¶ [0062]: developing component 230 may further develop the model by utilizing the testing subset to measure the performance of the advertisement performance prediction model); *and*

defining the threshold cumulative pixel exposure based on the correlation (see at least ¶¶ [0059] and [0062]: the model defines thresholds for feature values to identify when these features are significant and what values or combination of values are significant); *and*

wherein serving the digital advertisement to the mobile computing device comprises, at the first time, serving the digital advertisement to the mobile computing device associated with the user outside of the first population of users (see at least ¶ [0082]: o estimate expected advertisement performance, advertisement features are extracted from an advertisement that was not included in the sample set. The extracted advertisement feature(s) is then input into the advertisement performance prediction model and expected advertisement performance is estimated. The estimated expected advertisement performance may then be used to appropriately rank the advertisement with respect to a plurality of other advertisements).

It would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the machine learning techniques taught by Richardson with the systems and methods for metering and filtering content disclosed by Meyers, because Richardson teaches its techniques can use performance metrics including “any other measure of performance known to those of ordinary skill in the art” (Richardson at ¶ [0029])—e.g., cumulative pixel exposure metrics as disclosed in Meyers—in order to achieve the recognized need to delivery more relevant results to maximize revenue of search engine provider and advertisers and product advertisements that are more desirable to advertising recipients . Richardson at ¶ [0002]. See M.P.E.P. § 2143(I)(G).

Moreover, it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the machine learning techniques taught by Richardson with the systems and methods for metering and filtering content disclosed by Meyers, because the claimed invention is merely a combination of old elements (the machine learning techniques taught by Richardson and the systems and methods for metering and filtering content disclosed by Meyers), in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. See M.P.E.P. § 2143(I)(A).

Claim 6: The combination of Meyers, Itzhak, and Richardson teaches the limitations as shown in the rejections above.

Meyers does not explicitly disclose, Itzhak does not explicitly teach, but Richardson, as shown, teaches the following limitations:

wherein accessing outcomes of consumption of the set of instances of the digital advertisement across the first population of users comprises accessing instances of conversion across the first population of users responsive to consumption of the digital advertisement (see at least ¶ [0036]:
extracting component 226 is configured to extract advertisement features for advertisements in the sample

set, e.g. the sample set created by the sample set identifying component 224. An advertisement feature may be a value or datum that represents advertisement information item(s) or an advertisement performance measure, e.g., the number of words in the advertisement title, the existence of a word, or a CTR. As previously mentioned, advertisement information may include, for example, a landing page, a bid term, a title, a body, a display URL, the number of clicks, or the number of views. Advertisement performance measures may include click-through rates or other advertisement performance measures; see also at least ¶¶ [0039]-[0046], [0054], and [0062]); *and*

wherein defining the threshold cumulative pixel exposure comprises defining the threshold cumulative pixel exposure correlated with a threshold probability of conversion responsive to viewing the digital advertisement based on the correlation (see at least ¶¶ [0059] and [0062]: the model defines thresholds for feature values to identify when these features are significant and what values or combination of values are significant to product conversions).

The rationales to modify/combine the teachings of Meyers to include the teachings of Richardson are presented above regarding claim 5 and incorporated herein.

12. **Claims 7, 8, and 20** are rejected under AIA 35 U.S.C. § 103 as being unpatentable over Meyers et al. (U.S. Pub. No. 2002/0087403 A1) (hereinafter “Meyers”) in view of Richardson et al. (U.S. Pub. No. 2008/0249832 A1) (hereinafter “Richardson”).

Claims 7 and 20: Meyers discloses the limitations as shown in the rejections above.

Meyers does not explicitly disclose, but Richardson, as shown, teaches the following limitations:

further comprising:

during a test period preceding the first time (see at least ¶ [0029]: model developing module 210 is configured for developing an advertisement performance prediction model configured to estimate expected performance of advertisements. Expected advertisement

performance may include, by way of example only and not limitation, the probability a user will select a displayed advertisement, i.e., click-through rate (CTR), the probability a user will perform another action with respect to a displayed advertisement (e.g., purchase a product, sign up for a newsletter, and the like), or any other measure of performance known to those of ordinary skill in the art):

servicing a set of instances of the digital advertisement to mobile computing devices of a first population of users (see at least ¶ [0030]: sample set identifying component 224 is configured for identifying advertisements having at least one recognized information item and/or performance measure associated therewith. The sample set identifying component 224 is further configured for creating a sample set of advertisements that includes at least a portion of the advertisements identified; see also at least ¶ [0056]-[0057]: dividing component 228 is configured to divide the sample into subsets, e.g., a training, testing, and validation sets);

recording a test cumulative pixel exposure for each instance of the digital advertisement served to mobile computing devices of the first population of users (see at least ¶ [0055]: the extracting component 226 may also extract a variety of user features and request features. User features may include, for example, gender, age, location, interests, previous searches, and previous advertisement click behavior. Request features may include, for example, the day of the request or the time of the request; see also at least ¶¶ [0039]-[0046] and [0066]-[0067]. Examiner notes that Richardson does not explicitly teach a “test cumulative pixel exposure” as defined by calculations in the other claims. But in this claim and without further limitations being specified, the expression includes number of exposures of pixels in an advertisement, e.g., impressions);

accessing outcomes, of a particular outcome type, of consumption of the set of instances of the digital advertisement across the first population of users (see at least ¶ [0036]: extracting component 226 is configured to extract advertisement features for advertisements in the sample

set, e.g. the sample set created by the sample set identifying component 224. An advertisement feature may be a value or datum that represents advertisement information item(s) or an advertisement performance measure, e.g., the number of words in the advertisement title, the existence of a word, or a CTR. As previously mentioned, advertisement information may include, for example, a landing page, a bid term, a title, a body, a display URL, the number of clicks, or the number of views. Advertisement performance measures may include click-through rates or other advertisement performance measures; see also at least ¶¶ [0039]-[0046], [0054], and [0062]);

calculating a correlation between cumulative pixel exposure and outcome of the particular outcome type for the digital advertisement based on test cumulative pixel exposures and outcomes associated with the digital advertisement and recorded during the test period (see at least ¶ [0059]: developing component 230 is configured to develop the advertisement performance prediction model based on the learned data. One skilled in the art will recognize that the advertisement performance prediction model may be in the form of a logistic regression model, a decision tree, a linear regression model, a regression tree, a neural network, a support vector machine (SVM), a boosted tree, or another model form. The prediction model may be developed via machine learning, an algorithm, or a combination thereof ; see also at least ¶ [0062]: developing component 230 may further develop the model by utilizing the testing subset to measure the performance of the advertisement performance prediction model); and

defining a threshold cumulative pixel exposure associated with a threshold probability of an outcome of the particular outcome type based on the correlation (see at least ¶¶ [0059] and [0062]: the model defines thresholds for feature values to identify when these features are significant and what values or combination of values are significant); and

wherein storing the cumulative pixel exposure as the engagement metric for the user comprises recording an impression for the digital advertisement viewed by the user at the mobile computing device in response to the cumulative pixel exposure exceeding the threshold cumulative pixel exposure (see at

least ¶ [0082]: o estimate expected advertisement performance, advertisement features are extracted from an advertisement that was not included in the sample set. The extracted advertisement feature(s) is then input into the advertisement performance prediction model and expected advertisement performance is estimated. The estimated expected advertisement performance may then be used to appropriately rank the advertisement with respect to a plurality of other advertisements).

It would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the machine learning techniques taught by Richardson with the systems and methods for metering and filtering content disclosed by Meyers, because Richardson teaches its techniques can use performance metrics including “any other measure of performance known to those of ordinary skill in the art” (Richardson at ¶ [0029])—e.g., cumulative pixel exposure metrics as disclosed in Meyers—in order to achieve the recognized need to delivery more relevant results to maximize revenue of search engine provider and advertisers and product advertisements that are more desirable to advertising recipients . Richardson at ¶ [0002]. See M.P.E.P. § 2143(I)(G).

Moreover, it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the machine learning techniques taught by Richardson with the systems and methods for metering and filtering content disclosed by Meyers, because the claimed invention is merely a combination of old elements (the machine learning techniques taught by Richardson and the systems and methods for metering and filtering content disclosed by Meyers), in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. See M.P.E.P. § 2143(I)(A).

Claim 8: The combination of Meyers and Richardson discloses the limitations as shown in the rejections above.

Meyers does not explicitly disclose, Itzhak does not explicitly teach, but Richardson, as shown, teaches the following limitations:

wherein accessing outcomes of consumption of the set of instances of the digital advertisement across the first population of users comprises accessing brand lift data for the first population of users responsive to consumption of the digital advertisement (see at least ¶ [0036]: extracting component 226 is configured to extract advertisement features for advertisements in the sample set, e.g. the sample set created by the sample set identifying component 224. An advertisement feature may be a value or datum that represents advertisement information item(s) or an advertisement performance measure, e.g., the number of words in the advertisement title, the existence of a word, or a CTR. As previously mentioned, advertisement information may include, for example, a landing page, a bid term, a title, a body, a display URL, the number of clicks, or the number of views. Advertisement performance measures may include click-through rates or other advertisement performance measures; see also at least ¶¶ [0039]-[0046], [0054], and [0062]); and

wherein defining the threshold cumulative pixel exposure comprises defining the threshold cumulative pixel exposure correlated with a minimum brand lift responsive to viewing the digital advertisement based on the correlation (see at least ¶¶ [0059] and [0062]: the model defines thresholds for feature values to identify when these features are significant and what values or combination of values are significant to product conversions).

The rationales to modify/combine the teachings of Meyers to include the teachings of Richardson are presented above regarding claim 7 and incorporated herein

13. **Claims 11-14** are rejected under AIA 35 U.S.C. § 103 as being unpatentable over Meyers et al. (U.S. Pub. No. 2002/0087403 A1) (hereinafter “Meyers”) in view of Doig et al. (U.S. Pub. No. 2012/0054143 A1) (hereinafter “Doig”).

Claim 11: Meyers discloses the limitations as shown in the rejections above.

Meyers does not explicitly disclose, but Doig, as shown, teaches the following limitations:

further comprising:

accessing a map defining weights of visual content within the digital advertisement (see at least ¶ [0327]: pixel rules table 925 may include mandatory pixel rules 930A-N and weighted pixel rules 935A-N; see also at least ¶ [0336]: weighted pixel rules 935A-N may include any type of rule, policy or a logic for evaluating or determining a validity of a particular campaign for a user having a pixel based on weights assigned to particular pixels. Weighted pixel rules 935 may include any software, hardware or a combination of software and hardware. Weighted pixel rules 935 may include a weight with which the pixel 940 or 945 is weighted when considered or evaluated by the pixel retargeting manager or CLR algorithm 937. In some embodiments, weighted pixel rules include policies, logic or rules for determining if a particular pixel associated campaign is suitable for a user on a client computer 130 based on a weight assigned to this pixel rule. Weighted pixel rules 935 may include positive or negative weights and may have positive or negative impact when considering a campaign for a particular user based on the pixel on the user's client machine. Weighted pixel rule 935 may include a rule which produces a weighted response. For example a response or evaluation of weighted pixel rule 935A may be more or less valued than a response of a weighted pixel response 935B);

accessing a first weight of the first product defined by the map for a first region of the digital advertisement represented by the first proportion of pixels (see at least ¶¶ [0336] and [0344]; see also at least [0477], [0537], and [0562]-[0563]);

accessing a second weight of the second product defined by the map for a second region of the digital advertisement represented by the second proportion of pixels (see at least ¶¶ [0336] and [0344]; see also at least [0477], [0537], and [0562]-[0563]);

wherein calculating the cumulative pixel exposure of the digital advertisement comprises summing the first product, weighted according to the first weight, and the second product, weighted

according to the second weight, to calculate the cumulative pixel exposure (see at least ¶ [0344]: weighted pixels may include rules which include weight values. The weighted pixels may be treated such that the sum of rules that are satisfied must meet or exceed a particular target weight threshold; see also at least ¶¶ [0477], [0537], and [0562]-[0563]).

It would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the techniques for pixel analysis in campaign management taught by Doig with the systems and methods for metering and filtering content disclosed by Meyers, because Doig teaches using these techniques “to determine if one campaign is *more appropriate* for a user than another campaign based on the rules associated with the pixels 940 or 945 the particular user had on his/her web browser 515” and may use pixel information “to identify a campaign *most suitable* for a user based on the rules of this pixel 940.” Doig at ¶ [0338], emphasis added. See M.P.E.P. § 2143(I)(G).

Moreover, it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to combine the techniques for pixel analysis in campaign management taught by Doig with the systems and methods for metering and filtering content disclosed by Meyers, because the claimed invention is merely a combination of old elements (the techniques for pixel analysis in campaign management taught by Doig and the systems and methods for metering and filtering content disclosed by Meyers), in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. See M.P.E.P. § 2143(I)(A).

Claim 12: The combination of Meyers and Doig teaches the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein recording the first proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the first sampling period comprises recording display of the first proportion of pixels in the digital advertisement within a viewport rendered on the display of the

mobile computing device during the first sampling period, the first proportion of pixels comprising a first row of pixels in the digital advertisement (see at least ¶ [0038]: a record may be maintained of the total number of pixels 125 displayed or an average over time using counter 145. The advertiser is charged using a “pixel×time” metric which multiplies the number of pixels 125 identified by metadata 212 as belonging to an advertisement that are visible on the display screen by the length of time that these pixels 125 are visible, as measured by timer 147, to determine how much the user is to be charged; see also at least ¶ [0039]; see also at least ¶ [0040]: scrolling down a web page so that only a portion of the advertisement 312 remains visible—thereby changing the number of the advertisement’s rows that are displayed; see also at least ¶¶ [0034] and [0040]-[0041]: the same techniques discussed in the email context are applied in an online advertising context); *and*

wherein recording the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the second sampling period comprises recording display of the second proportion of pixels in the mobile ad within the viewport during the second sampling period, the second proportion of pixels comprising the first row of pixels and a second row of pixels below the first row of pixels in the digital advertisement (see at least ¶¶ [0034] and [0038]-[0040]).

Claim 13: The combination of Meyers and Doig teaches the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

wherein recording the first proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the first sampling period comprises recording the first proportion of pixels spanning a background area within the digital advertisement (see at least FIGS. 3-4: the advertisements shown have backgrounds, segments of iconography, and calls to action; see also at least ¶¶ [0034] and [0038]-[0041]);

wherein recording the second proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during the second sampling period comprises recording the second proportion of pixels spanning the background area and a segment of iconography within the

digital advertisement (see at least FIGS. 3-4: the advertisements shown have backgrounds, segments of iconography, and calls to action; see also at least ¶¶ [0034] and [0038]-[0041]); *and*

Meyers does not explicitly disclose, but Doig, as shown, teaches the following limitations:

wherein accessing the second weight of the second product comprises, based on the map, calculating the second weight of the second product [...] responsive to the second proportion of pixels comprising the segment of iconography within the digital advertisement (see at least ¶ [0344]: weighted pixels may include rules which include weight values. The weighted pixels may be treated such that the sum of rules that are satisfied must meet or exceed a particular target weight threshold; see also at least ¶¶ [0477], [0537], and [0562]-[0563]).

The rationales to modify/combine the teachings of Meyers to include the teachings of Doig are presented above regarding claim 11 and incorporated herein.

Doig does not explicitly teach that weights for pixels of displayed content are greater for displays including a segment of iconography than displays including a background area but not iconography.

However, in view of Doig's teachings at ¶ [0336] that "Weighted pixel rules 935 may include positive or negative weights and may have positive or negative impact when considering a campaign for a particular user based on the pixel on the user's client machine" and "Weighted pixel rule 935 may include a rule which produces a weighted response," it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to try various weightings to arrive at pixel weightings in which weights for pixels of displayed content are greater for displays including a segment of iconography than displays including a background area but not iconography because of the following. First, at the time of the invention, Doig evinces that there had been a recognized need in the art to vary pixel values in order to assign levels of worth or desire to some pixels over others. Second, these pixel values have a finite number of identified, predictable potential solutions when compared to one

another—i.e., one of the values could have been less than, equal to, or greater than another value. Finally, one of ordinary skill in the art could have pursued these three potential solutions with a reasonable expectation of success. See M.P.E.P. § 2143(I)(E).

Claim 14: The combination of Meyers and Doig teaches the limitations as shown in the rejections above. Further, Meyers, as shown, discloses the following limitations:

further comprising:

recording a third proportion of pixels of the digital advertisement rendered on the display of the mobile computing device during a third sampling period offset in time from the second sampling period, the third proportion of pixels spanning a call to action within the digital advertisement (see at least FIGS. 3-4: the advertisements shown have backgrounds, segments of iconography, and calls to action; see also at least ¶¶ [0034] and [0038]-[0041]);

calculating a third product of the third proportion of pixels and a duration of the third sampling period (see at least ¶¶ [0034] and [0038]-[0041]); and

Meyers does not explicitly disclose, but Doig, as shown, teaches the following limitations:

based on the map, accessing a third weight of the third product, [...] responsive to the third proportion of pixels comprising the call to action within the digital advertisement (see at least ¶ [0344]: weighted pixels may include rules which include weight values. The weighted pixels may be treated such that the sum of rules that are satisfied must meet or exceed a particular target weight threshold; see also at least ¶¶ [0477], [0537], and [0562]-[0563]); and

wherein calculating the cumulative pixel exposure of the digital advertisement comprises summing the first product weighted according to the first weight, the second product weighted according to the second weight, and the third product weighted according to the third weight to calculate the cumulative pixel exposure (see at least ¶ [0344]: weighted pixels may include rules which include weight

values. The weighted pixels may be treated such that the sum of rules that are satisfied must meet or exceed a particular target weight threshold; see also at least ¶¶ [0477], [0537], and [0562]-[0563]).

The rationales to modify/combine the teachings of Meyers to include the teachings of Doig are presented above regarding claim 11 and incorporated herein.

Doig does not explicitly teach that weights for pixels of displayed content are greater for displays spanning a call to action than displays spanning the background area and a segment of iconography.

However, in view of Doig's teachings at ¶ [0336] that "Weighted pixel rules 935 may include positive or negative weights and may have positive or negative impact when considering a campaign for a particular user based on the pixel on the user's client machine" and "Weighted pixel rule 935 may include a rule which produces a weighted response," it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to try various weightings to arrive at pixel weightings in which weights for pixels of displayed content are greater for displays spanning a call to action than displays spanning the background area and a segment of iconography because of the following. First, at the time of the invention, Doig evinces that there had been a recognized need in the art to vary pixel values in order to assign levels of worth or desire to some pixels over others. Second, these pixel values have a finite number of identified, predictable potential solutions when compared to one another—i.e., one of the values could have been less than, equal to, or greater than another value. Finally, one of ordinary skill in the art could have pursued these three potential solutions with a reasonable expectation of success. See M.P.E.P. § 2143(I)(E).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher B. Tokarczyk whose telephone number is (571) 272-9594. The examiner can normally be reached on M-H 5:30 AM-4:00 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Choi can be reached at 469-295-9171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CBT/
Examiner, Art Unit 3622

/SCOTT D GARTLAND/
Primary Examiner, Art Unit 3622

REMARKS

The Applicant has: amended Claims 1-16; cancelled Claim 17-20; and added new Claims 21-24.

REJECTIONS OF CLAIMS 1, 7, 8, 11-14, 17, & 20 UNDER 35 U.S.C. §101

The instant Office Action rejects Claims 1, 7, 8, 11-14, 17, and 20 under 35 U.S.C. §101 as directed to non-statutory subject matter.

The Examiner has objected to Claim 1 as patent ineligible subject matter or more specifically as directed to abstract ideas. The Applicant has amended Claim 1 to include the limitations of Claim 4, which the Examiner has identified as eligible subject matter under 35 U.S.C. §101.

Therefore, the Applicant requests that the Examiner withdraw this rejection of Claim 1 under 35 U.S.C. §101.

Claims 7, 8, and 11-14 all depend from amended Claim 1. For the reasons stated above with reference to amended Claim 1, the Applicant requests that the Examiner withdraw these rejection of Claims 7, 8, and 11-14 under 35 U.S.C. §101.

Finally, the Applicant has cancelled Claims 17 and 20. Therefore, the Applicant requests that the Examiner withdraw these rejections of Claims 17 and 20 under 35 U.S.C. §101.

REJECTION OF CLAIMS 1 & 15-17 UNDER 35 U.S.C. §102

The Examiner has rejected Claims 1 and 15-17 under 35 U.S.C. §102 as being anticipated by Meyers et al. (U.S. Pub. No. 2002/0087403).

As the Examiner indicates on page 17 of the instant Office Action, Meyers fails to disclose each and every element and limitation of original Claim 4, including “serving a third digital advertisement within a second advertising campaign different from the first

advertising campaign to the mobile computing device for loading into the second webpage”. The Applicant has amended Claim 1 to include all elements and limitations of original Claim 4.

Therefore, the Applicant requests that the Examiner withdraw this rejection of amended Claim 1 under 35 U.S.C. §102.

Furthermore, Claims 15 and 16 depend from amended Claim 1. For the reasons stated above with respect to amended Claim 1, the Applicant requests that the Examiner withdraw these rejections of Claims 15 and 16 under 35 U.S.C. §102.

Finally, the Applicant has cancelled Claim 17. Therefore, the Applicant requests that the Examiner withdraw this rejection of Claim 17 under 35 U.S.C. §102.

REJECTION OF CLAIMS 2-14 & 18-20 UNDER 35 U.S.C. §103

The Examiner has rejected Claims 2-14 and 18-20 under AIA 35 U.S.C. § 103 as being unpatentable over Meyers (U.S. Pub. No. 2002/0087403) in view of Itzhak (U.S. Pub. No. 2011/0082755), Richardson (U.S. Pub. No. 2008/0249832), and/or Doig (U.S. Pub. No. 2012/0054143).

However, Claims 2, 3, and 5-14 depend from amended Claim 1. For the reasons stated above with respect to amended Claim 1, the Applicant requests that the Examiner withdraw these rejections of Claims 2, 3, and 5-14 under 35 U.S.C. §103.

Furthermore, the Applicant has also amended Claim 4 to depend from new Claim 21 and has cancelled Claims 18-20. Therefore, the Applicant requests that the Examiner withdraw these rejections of Claims 4 and 18-20 under 35 U.S.C. §103.

AMENDMENTS TO CLAIM 1

The Applicant has amended Claim 1, which now recites:

“at a second time succeeding the first time:

“in response to the cumulative pixel exposure exceeding a threshold cumulative pixel exposure, **servicing a second digital advertisement within the first advertising campaign** to the mobile computing device for loading into a second webpage accessed at the mobile computing device; and

“in response to the cumulative pixel exposure remaining below the threshold cumulative pixel exposure, serving a **third digital advertisement within a second advertising campaign different from the first advertising campaign** to the mobile computing device for loading into the second webpage.” (emphasis added)

In the instant Office Action, the Examiner has rejected Claim 4 – which recites the foregoing limitations that are now incorporated into amended Claim 1 – under AIA 35 U.S.C. § 103 as being unpatentable over Meyers (U.S. Pub. No. 2002/0087403) in view of Itzhak (U.S. Pub. No. 2011/0082755).

In particular, the Examiner has stated that Meyers fails to disclose “serving a third digital advertisement within a second advertising campaign different from the first advertising campaign to the mobile computing device for loading into the second webpage” of original Claim 4. The Applicant respectively agrees.

Therefore, the Examiner has looked to Itzhak for these limitations. However, Itzhak fails to disclose multiple advertising campaigns. Itzhak therefore cannot teach, suggest, or motivate “**servicing a second digital advertisement within the first advertising campaign**” responsive to “**the cumulative pixel exposure [of a first digital advertisement within the first advertising campaign]** exceeding a threshold cumulative pixel exposure” and “**servicing a third digital advertisement within a second advertising campaign**” responsive to “**the cumulative pixel exposure [of the first digital advertisement]** remaining below the threshold cumulative pixel exposure” of amended Claim 1.

For example, paragraphs [0050] and [0051] of Itzhak – which the Examiner has relied on in this instant rejection of Claim 4 under 35 U.S.C. § 103 – describe: serving an advertisement to a user until a threshold visibility of the advertisement is reached; and serving a new advertisement in place of the original advertisement only once the threshold visibility of the original advertisement is reached. More specifically, Itzhak merely teaches serving a second advertisement in place of a first advertisement once a threshold visibility of the first advertisement is reached and fails to teach, suggest, or motivate selection of the second advertisement from multiple active campaigns based on the visibility of the first advertisement.

Therefore, Itzhak cannot teach switching between different advertising campaigns based on cumulative pixel exposure. The Examiner has already recognized that Meyers similarly fails to teach, suggest, or motivate such limitations of amended Claim 1.

Amended Claim 1 is therefore distinct from Meyers and Itzhak, as described in paragraph [0014] of the instant Application, which states:

“For example, the ad platform can cooperate with a first mobile ad served to a user’s mobile computing device to calculate a cumulative pixel exposure of the first mobile ad viewed by a user. The ad platform can then elect to serve either: a next mobile ad in the same advertising campaign to the user responsive to a high cumulative pixel exposure for the first mobile ad; or a mobile ad in a different advertising campaign to the user responsive to a low cumulative pixel exposure for the first mobile ad. The ad platform can thus calculate and respond to a cumulative pixel exposure for a user viewing a mobile ad on a mobile computing device, which may be a strong predictor of an outcome related to this mobile ad for this user.”

Therefore, Meyers and Itzhak – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of original Claim 4. However, Claim 1 has been amended to include all elements and limitations of original Claim 4. Thus,

Meyers and Itzhak – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of amended Claim 1. The Applicant therefore respectfully requests that the Examiner withhold any rejection of amended Claim 1 under 35 U.S.C. § 103 as being unpatentable over Meyers in view of Itzhak.

NEW CLAIM 21

The Applicant has submitted new Claim 21, which contains elements and limitations presented in original Claims 1 and 7.

In the instant Office Action, the Examiner has rejected Claim 7 under AIA 35 U.S.C. § 103 as being unpatentable over Meyers (U.S. Pub. No. 2002/0087403) in view of Richardson (U.S. Pub. No. 2008/0249832)

In particular, Claim 7 recites:

“accessing outcomes, of a particular outcome type, of consumption of the set of instances of the first digital advertisement across the first population of users;

“calculating a **correlation between cumulative pixel exposure and outcome** of the particular outcome type for the first digital advertisement based on test cumulative pixel exposures and outcomes associated with the first digital advertisement and recorded during the test period; and

“**defining a threshold cumulative pixel exposure** associated with a threshold probability of an outcome of the particular outcome type **based on the correlation.**” (emphasis added)

The Examiner has stated that Meyers fails to disclose these limitations. The Applicant respectfully agrees.

The Examiner has therefore looked to Richardson for these limitations. However, Richardson fails to teach, suggest, or motivate “calculating a correlation between cumulative pixel exposure and outcome” for a digital advertisement based on “outcomes

...of consumption of ...the digital advertisement across [a] population of users” and then “defining a threshold cumulative pixel exposure” for this digital advertisement to achieve a “threshold probability of [a desired] outcome... based on this correlation.” In fact, **Richardson explicitly teaches away from the Invention of original Claim 7.** For example, paragraph [0004] of Richardson states, “Utilizing historical advertisement performance measures, however, has limitations as historical performance is not always an accurate predictor of future performance.”

Richardson instead discloses developing a model that predicts advertisement performance based on features contained inside the advertisement, such as “number of words in the advertisement title, the existence of a word, or a CTR” rather than based on past engagement between users and the advertisement. (Richardson, paragraph [0036])

The Examiner goes on to state in the instant Office Action, “Richardson does not explicitly teach a “test cumulative pixel exposure” as defined by calculations in the other claims. But in this claim and without further limitations being specified, the expression includes number of exposures of pixels in an advertisement, e.g., impressions.” (sic) However, MPEP 2111 clearly states:

“During patent examination, the pending claims must be “given their broadest reasonable interpretation consistent with the specification. ... The broadest reasonable interpretation does not mean the broadest possible interpretation. Rather, the meaning given to a claim term must be consistent with the ordinary and customary meaning of the term (unless the term has been given a special definition in the specification), and must be consistent with the use of the claim term in the specification and drawings.”

The instant Application as a whole clearly defines the concept of “cumulative pixel exposure.” (see [0014], [0034], [0050] of the instant Application). The Examiner appears to have failed to construe the “test cumulative pixel exposure” limitation of original Claim 7 as required by the MPEP and has therefore failed to appropriately address this limitation of original Claim 7 in such as way that establishes a prima facie case for obviousness.

Nonetheless, the Applicant agrees with the Examiner that Richardson does not teach, suggest, or motivate the “test cumulative pixel exposure” of original Claim 7.

Furthermore, Richardson fails to teach, suggest, or motivate even the concept of a “threshold” to characterize user interactions with an advertisement and therefore cannot disclose “**defining a threshold cumulative pixel exposure** associated with a threshold probability of an outcome” based on data collected during a test period and later “recording an impression for [a] digital advertisement [if] the cumulative pixel exposure [of the digital advertisement for a user] exceed[s] the threshold cumulative pixel exposure” of original Claim 7.

The Examiner has already recognized that Meyers fails to teach, suggest, or motivate such limitations of original Claim 7. Amended Claim 1 is therefore distinct from Meyers and Richardson, as described in paragraph [0014] of the instant Application, which states:

“The method S100 can therefore be executed by an ad platform to calculate a cumulative pixel exposure (i.e., a quantitative metric) based on an integral of the proportion of a mobile ad viewed by a user during an ad session. By repeating this process to calculate cumulative pixel exposures for the same mobile ad served to a population of users, the ad platform can combine these cumulative pixel exposure data and corresponding outcome data to derive a correlation between cumulative pixel exposure for the mobile ad and longer-term brand lift, longer-term conversions, and/or other outcomes among this population of users.”

Therefore, the Meyers and Richardson references – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of original Claim 7. Furthermore, the Applicant has entered new Claim 21, which contains elements and limitations presented in original Claims 1 and 7. Thus, Meyers and Richardson – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of new Claim 21. The Applicant therefore respectfully requests that

the Examiner withhold any rejection of amended Claim 21 under 35 U.S.C. § 103 as being unpatentable over Meyers in view of Richardson.

NEW CLAIM 24

The Applicant has submitted new Claim 24, which contains elements and limitations presented in original Claims 1 and 11.

In the instant Office Action, the Examiner has rejected Claim 11 under AIA 35 U.S.C. § 103 as being unpatentable over Meyers (U.S. Pub. No. 2002/0087403) in view of Doig (U.S. Pub. No.2012/0054143).

In particular, original Claim 11 recites:

“accessing a **map** defining **weights** of **visual content** within the digital advertisement;

“accessing a first weight of the first product defined by the map for a first region of the digital advertisement represented by the first proportion of pixels;

“accessing a second weight of the second product defined by the map for a second region of the digital advertisement represented by the second proportion of pixels; and

“...summing the **first product, weighted according to the first weight**, and the **second product, weighted according to the second weight**, to calculate the cumulative pixel exposure.” (emphasis added)

The Examiner has stated that Meyers fails to disclose these limitations. The Applicant respectively agrees.

The Examiner has therefore looked to Doig for these limitations. However, Doig teaches a mechanism for: extracting keywords from primary content – outside of advertisements – viewed on a webpage during a web session; weighting these keywords by location and frequency; and then matching an advertising campaign to this web

session based on similarities between weighted keywords extracted from primary content on the webpage and descriptors of available advertising campaigns. This is evident in FIGURES 5B-5G and in paragraph [0174] of Doig, which is duplicated here for convenience:

“Referring now to FIG. J, embodiments of augmented content delivered with a corresponding keyword is depicted. In brief overview, the page 517 may include an augmented keyword in the text of the content (e.g., see double underlined "Augmented Keyword" next to "in text of content"). When a user interacts with the augmented keywords, a user interface overlay SSO, also referred to as tooltip, may be displayed. This user interface overlay may deliver or provide the campaign corresponding to the keyword. Responsive to user interaction with the keyword, the agent may display related advertisements 554', such as via a banner ad, or augmented content 56'. The related advertisements 554' and/or augmented content 56' may be displayed in connection with the tooltip, without the tooltip or instead of the tooltip (sic).”

Therefore, the combination of Meyers and Doig would yield a process in which: keywords are extracted from primary text content on a webpage during a web session at a device; these keywords are weighted by location and frequency on the webpage; an advertising campaign is matched to this web session based on similarities between weighted keywords extracted from the webpage and descriptors of available advertising campaigns; an advertisement in this advertising campaign is served to the webpage (see Doig FIGURES 5B-5G and paragraph [0174]); pixels – in the advertisement – rendered on the device are tracked; and a measure of the effectiveness of the advertisement is derived based on the total display space and length of time that pixels in the advertisement are displayed on the device.

In particular, Doig fails to disclose a map or any spatial distribution of weight values. Doig therefore necessarily fails to disclose a map or any spatial distribution of weight values within an advertisement specifically. Furthermore, Doig necessarily fails to disclose “...summing a first product [of the first proportion of pixels and a first duration

of the first sampling period], weighted according to [a] first weight [defined by the map for a first region of the first digital advertisement], and [a] second product [of the second proportion of pixels and a second duration of the second sampling period], weighted according to [a] second weight [defined by the map for a second region of the first digital advertisement]” of original Claim 11.

The Examiner has already recognized that Meyers fails to teach, suggest, or motivate such limitations of original Claim 11. Claim 11 is therefore distinct from the combination of Meyers and Doig, as described in paragraph [0015] of the instant Application, which states:

“The ad platform can therefore implement a nonlinear model to compile pixels in a mobile ad viewed during an ad session into a cumulative pixel exposure, which may predict user awareness of and/or interest in content in the mobile ad (e.g., “brand lift”). For example, if the top 20% of a mobile ad served to a user’s mobile computing device excludes a call to action or branded content, the total possible brand lift yielded by viewing the top 20% of the mobile ad may be less than 5% of the brand lift yielded when 100% of the mobile ad is shown. Similarly, if the top 20% of the mobile ad does include a call to action and branded content, the total brand lift yielded by viewing the top 20% of the mobile ad may be as much as 80% of the brand lift yielded when 100% of the mobile ad is shown.”

Therefore, Meyers and Doig – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of original Claim 11. Furthermore, the Applicant has entered new Claim 24, which contains elements and limitations presented in original Claims 1 and 11. Thus, Meyers and Richardson – independently and in combination – fail to teach, suggest, or motivate each and every element and limitation of new Claim 24. The Applicant therefore respectfully requests that the Examiner withhold any rejection of amended Claim 24 under 35 U.S.C. § 103 as being unpatentable over Meyers in view of Richardson.

AUTHORIZATION OF INTERNET COMMUNICATIONS

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate via email (peter@r8pg.com) concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

CONCLUSION

In view of the preceding amendments and remarks, the Applicant respectfully submits that Specification, Drawings, and Claims are in order and that all of the Claims are now in condition for allowance. If the Examiner believes that personal contact would be advantageous to the disposition of this case, the Applicant respectfully requests that the Examiner contact the Agent for the Applicant at the earliest convenience of the Examiner.

Date: 07-JUN-2019

Respectfully submitted,
By: /Peter Miller/

Peter Miller
Reg. No. 69,351
Agent for the Applicant

AMENDMENTS IN THE CLAIMS

Please amend the Claims as follows:

1. (CURRENTLY AMENDED) A method for quantifying user engagement comprising:
 - at a first time, serving a first digital advertisement in a first advertising campaign to a ~~mobile~~ computing device for loading into a first webpage accessed at the ~~mobile~~ computing device;
 - recording a first proportion of pixels of the first digital advertisement rendered on a display of the ~~mobile~~ computing device during a first sampling period;
 - recording a second proportion of pixels of the first digital advertisement rendered on the display of the ~~mobile~~ computing device during a second sampling period offset in time from the first sampling period;
 - calculating a cumulative pixel exposure of the first digital advertisement at the ~~mobile~~ computing device based on a combination of:
 - a first product of the first proportion of pixels and a duration of the first sampling period; and
 - a second product of the second proportion of pixels and a duration of the second sampling period; and
 - storing the cumulative pixel exposure as an engagement metric for a user consuming the first digital advertisement at the ~~mobile~~ computing device; and
 - at a second time succeeding the first time:
 - in response to the cumulative pixel exposure exceeding a threshold cumulative pixel exposure, serving a second digital advertisement within

the first advertising campaign to the mobile computing device for loading into a second webpage accessed at the mobile computing device; and

- in response to the cumulative pixel exposure remaining below the threshold cumulative pixel exposure, serving a third digital advertisement within a second advertising campaign different from the first advertising campaign to the mobile computing device for loading into the second webpage.

2. (CURRENTLY AMENDED) The method of Claim 1:

- wherein serving the first digital advertisement to the mobile computing device at the first time comprises serving the first digital advertisement to the mobile computing device for loading into a first advertisement slot within a first webpage opened within a web browser executing on the mobile computing device; and
- further comprising, at a second time succeeding the first time, in response to the cumulative pixel exposure remaining below a threshold cumulative pixel exposure, serving a second instance of the first digital advertisement to the mobile computing device for loading into a second advertisement slot within a second webpage opened within the web browser executing on the mobile computing device.

3. (CURRENTLY AMENDED) The method of Claim 2, further comprising:

- recording a third proportion of pixels of the second instance of the first digital advertisement rendered on the display of the mobile computing device during a third sampling period following the second time;

- recording a fourth proportion of pixels of the second instance of the first digital advertisement rendered on the display of the ~~m~~obile computing device during a fourth sampling period offset in time from the third sampling period;
 - calculating a second cumulative pixel exposure of the second instance of the first digital advertisement at the ~~m~~obile computing device based on a combination of:
 - a third product of the third proportion of pixels and a duration of the third sampling period; and
 - a fourth product of the fourth proportion of pixels and a duration of the fourth sampling period; and
 - at a third time succeeding the second time, in response to a sum of the cumulative pixel exposure and the second cumulative pixel exposure exceeding the threshold cumulative pixel exposure, serving a second digital advertisement different from the first digital advertisement to the ~~m~~obile computing device for loading into a third advertisement slot within a third webpage opened within the web browser executing on the ~~m~~obile computing device.
4. (CURRENTLY AMENDED) The method of Claim ~~[[1;]]~~ 21, ~~wherein serving the digital advertisement to the mobile computing device at the first time comprises serving the digital advertisement within a first advertising campaign to the mobile computing device for loading into a first webpage accessed at the mobile computing device; and further comprising, at a second time succeeding the first time:~~
- in response to the cumulative pixel exposure exceeding a threshold cumulative pixel exposure, serving a second digital advertisement within the first advertising

campaign to the ~~mobile~~ first computing device for loading into a second webpage accessed at the ~~mobile~~ first computing device; and

- in response to the cumulative pixel exposure remaining below the threshold cumulative pixel exposure, serving a third digital advertisement within a second advertising campaign different from the first advertising campaign to the ~~mobile~~ first computing device for loading into the second webpage.

5. (CURRENTLY AMENDED) The method of Claim [[4]] 24:

- further comprising:
 - during a test period preceding the first time:
 - serving a set of instances of the first digital advertisement to ~~mobile~~ computing devices of a first population of users;
 - recording a test cumulative pixel exposure for each instance of the first digital advertisement served to ~~mobile~~ computing devices of the first population of users;
 - accessing outcomes of consumption of the set of instances of the first digital advertisement across the first population of users;
 - calculating a correlation between cumulative pixel exposure and outcome for the first digital advertisement based on test cumulative pixel exposures and outcomes associated with the first digital advertisement and recorded during the test period; and
 - defining the threshold cumulative pixel exposure based on the correlation;
- and

- wherein serving the first digital advertisement to the ~~mobile~~ computing device comprises, at the first time, serving the first digital advertisement to the ~~mobile~~ computing device associated with the user outside of the first population of users.
6. (CURRENTLY AMENDED) The method of Claim 5:
- wherein accessing outcomes of consumption of the set of instances of the first digital advertisement across the first population of users comprises accessing instances of conversion across the first population of users responsive to consumption of the first digital advertisement; and
 - wherein defining the threshold cumulative pixel exposure comprises defining the threshold cumulative pixel exposure correlated with a threshold probability of conversion responsive to viewing the first digital advertisement based on the correlation.
7. (CURRENTLY AMENDED) The method of Claim 1:
- further comprising:
 - during a test period preceding the first time:
 - serving a set of instances of the first digital advertisement to ~~mobile~~ computing devices of a first population of users; and
 - recording a test cumulative pixel exposure for each instance of the first digital advertisement served to ~~mobile~~ computing devices of the first population of users;

- accessing outcomes, of a particular outcome type, of consumption of the set of instances of the first digital advertisement across the first population of users;
- calculating a correlation between cumulative pixel exposure and outcome of the particular outcome type for the first digital advertisement based on test cumulative pixel exposures and outcomes associated with the first digital advertisement and recorded during the test period; and
- defining a threshold cumulative pixel exposure associated with a threshold probability of an outcome of the particular outcome type based on the correlation; and
- wherein storing the cumulative pixel exposure as the engagement metric for the user comprises recording an impression for the first digital advertisement viewed by the user at the ~~mobile~~ computing device in response to the cumulative pixel exposure exceeding the threshold cumulative pixel exposure.

8. (CURRENTLY AMENDED) The method of Claim 7:

- wherein accessing outcomes of consumption of the set of instances of the first digital advertisement across the first population of users comprises accessing brand lift data ~~[[for]]~~ within the first population of users ~~responsive to~~ following consumption of the first digital advertisement; and
- wherein defining the threshold cumulative pixel exposure comprises, based on the correlation, defining the threshold cumulative pixel exposure correlated with a minimum brand lift responsive to viewing the first digital advertisement ~~based on the correlation~~.

9. (CURRENTLY AMENDED) The method of Claim 1:

- wherein serving the first digital advertisement to the ~~m~~obile computing device comprises serving a visual element containing the first digital advertisement to the ~~m~~obile computing device via a computer network;
- wherein recording the first proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the first sampling period comprises, at the visual element, recording a first proportion of pixel rows of the first digital advertisement rendered within a viewport at the ~~m~~obile computing device during the first sampling period in response to a portion of the visual element entering the viewport;
- wherein recording the second proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the second sampling period comprises, at the visual element, recording a second proportion of pixel rows of the first digital advertisement rendered within the viewport at the ~~m~~obile computing device during the second sampling period;
- wherein calculating the cumulative pixel exposure of the first digital advertisement at the ~~m~~obile computing device comprises, at the visual element, summing the first proportion of pixel rows integrated over the first sampling period and the second proportion of pixel rows integrated over the second sampling period to calculate the cumulative pixel exposure; and

- further comprising, at the visual element, returning the cumulative pixel exposure to a remote database via the computer network in response to the visual element exiting the viewport at the ~~mobile~~ computing device.

10. (CURRENTLY AMENDED) The method of Claim 1:

- wherein serving the first digital advertisement to the ~~mobile~~ computing device comprises serving a visual element containing the first digital advertisement to the ~~mobile~~ computing device via a computer network;
- wherein recording the first proportion of pixels and the second proportion of pixels of the first digital advertisement rendered on the display of the ~~mobile~~ computing device comprises, at the visual element, streaming data representing proportions of the visual element rendered within a viewport at the ~~mobile~~ computing device to a remote aggregator via the computer network on a regular interval between entry of a portion of the visual element into the viewport and exit of the visual element from the viewport;
- wherein calculating the cumulative pixel exposure of the first digital advertisement at the ~~mobile~~ computing device comprises, at the remote aggregator, integrating proportions of the visual element rendered within the viewport at the ~~mobile~~ computing device based on a duration of the regular interval to calculate the cumulative pixel exposure between entry of the portion of the visual element into the viewport and exit of the visual element from the viewport; and
- wherein storing the cumulative pixel exposure comprises storing the cumulative pixel exposure, linked to the user, in a remote database.

11. (CURRENTLY AMENDED) The method of Claim 1:

- further comprising:
 - accessing a map defining a distribution of weights of visual content within the first digital advertisement;
 - accessing a first weight of the first product defined by the map for a first region of the first digital advertisement represented by the first proportion of pixels; and
 - accessing a second weight of the second product defined by the map for a second region of the first digital advertisement represented by the second proportion of pixels; and
- wherein calculating the cumulative pixel exposure of the first digital advertisement comprises summing the first product, weighted according to the first weight, and the second product, weighted according to the second weight, to calculate the cumulative pixel exposure.

12. (CURRENTLY AMENDED) The method of Claim 11:

- wherein recording the first proportion of pixels of the first digital advertisement rendered on the display of the ~~mobile~~ computing device during the first sampling period comprises recording display of the first proportion of pixels in the first digital advertisement within a viewport rendered on the display of the ~~mobile~~ computing device during the first sampling period, the first proportion of pixels comprising a first row of pixels in the first digital advertisement; and

- wherein recording the second proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the second sampling period comprises recording display of the second proportion of pixels in the ~~m~~obile ad within the viewport during the second sampling period, the second proportion of pixels comprising the first row of pixels and a second row of pixels below the first row of pixels in the first digital advertisement.

13. (CURRENTLY AMENDED) The method of Claim 11:

- wherein recording the first proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the first sampling period comprises recording the first proportion of pixels spanning a background area within the first digital advertisement;
- wherein recording the second proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the second sampling period comprises recording the second proportion of pixels spanning the background area and a segment of iconography within the first digital advertisement; and
- wherein accessing the second weight of the second product comprises, based on the map, calculating the second weight of the second product greater than the first weight of the first product responsive to the second proportion of pixels comprising the segment of iconography within the first digital advertisement.

14. (CURRENTLY AMENDED) The method of Claim 13:

- further comprising:
 - recording a third proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during a third sampling period offset in time from the second sampling period, the third proportion of pixels spanning a call to action within the first digital advertisement;
 - calculating a third product of the third proportion of pixels and a duration of the third sampling period; and
 - based on the map, accessing a third weight of the third product, greater than the second weight of the second product, responsive to the third proportion of pixels comprising the call to action within the first digital advertisement; and
- wherein calculating the cumulative pixel exposure of the first digital advertisement comprises summing the first product weighted according to the first weight, the second product weighted according to the second weight, and the third product weighted according to the third weight to calculate the cumulative pixel exposure.

15. (CURRENTLY AMENDED) The method of Claim 1:

- wherein serving the first digital advertisement to the ~~m~~obile computing device comprises serving the first digital advertisement comprising a video segment to the ~~m~~obile computing device;
- wherein recording the first proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the first sampling

period comprises recording the first proportion of pixel rows in a first frame of the video segment rendered on the display of the ~~m~~obile computing device during the first sampling period;

- wherein recording the second proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the second sampling period comprises recording the second proportion of pixel rows in a second frame of the video segment rendered on the display of the ~~m~~obile computing device during the second sampling period; and
- wherein calculating the cumulative pixel exposure of the first digital advertisement at the ~~m~~obile computing device comprises calculating the cumulative pixel exposure that represents a proportion of a total area of frames in the video segment in the first digital advertisement displayed on the ~~m~~obile computing device during an ad session.

16. (CURRENTLY AMENDED) The method of Claim 1:

- wherein serving the first digital advertisement to the ~~m~~obile computing device comprises serving the first digital advertisement, comprising a set of cards arranged laterally within a visual element, to the ~~m~~obile computing device;
- wherein recording the first proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the first sampling period comprises recording the first proportion of pixel rows in a first card, in the set of cards, rendered on the display of the ~~m~~obile computing device during the first sampling period;

- wherein recording the second proportion of pixels of the first digital advertisement rendered on the display of the ~~m~~obile computing device during the second sampling period comprises recording the second proportion of pixel rows in a second card, in the set of cards, rendered on the display of the ~~m~~obile computing device during the second sampling period responsive to a lateral swipe event over the visual element at the ~~m~~obile computing device;
- wherein calculating the cumulative pixel exposure of the first digital advertisement at the ~~m~~obile computing device comprises calculating the cumulative pixel exposure that represents a proportion of a total area of the set of cards displayed on the ~~m~~obile computing device during an ad session.

17. (CANCELLED)

18. (CANCELLED)

19. (CANCELLED)

20.(CANCELLED)

21. (NEW) A method comprising:

- during a test period:

- serving a first set of instances of a digital advertisement, in a first advertising campaign, to computing devices associated with users in a first population of users; and
- recording a test cumulative pixel exposure for each instance of the digital advertisement served to computing devices of the first population of users;
- accessing outcomes, of a particular outcome type, of consumption of the first set of instances of the digital advertisement across the first population of users;
- calculating a correlation between cumulative pixel exposure and outcome of the particular outcome type for the digital advertisement based on test cumulative pixel exposures and outcomes associated with the first set of instances of the digital advertisement;
- defining a threshold cumulative pixel exposure associated with a threshold probability of an outcome of the particular outcome type based on the correlation;
- at a first time succeeding the test period, serving a second instance of the digital advertisement to a first computing device for loading into a first advertisement slot within a first webpage accessed on the first computing device;
- recording a first proportion of pixels of the second instance of the digital advertisement rendered on a display of the first computing device during a first sampling period;
- recording a second proportion of pixels of the second instance of the digital advertisement rendered on the display of the first computing device during a second sampling period offset in time from the first sampling period;

- calculating a cumulative pixel exposure of the second instance of the digital advertisement at the first computing device based on a combination of:
 - a first product of the first proportion of pixels and a duration of the first sampling period; and
 - a second product of the second proportion of pixels and a duration of the second sampling period;
- storing the cumulative pixel exposure as an engagement metric for a user consuming the digital advertisement at the first computing device; and
- at a second time succeeding the first time, in response to the cumulative pixel exposure remaining below the threshold cumulative pixel exposure, serving a third instance of the digital advertisement to the first computing device for loading into a second advertisement slot within a second webpage accessed on the first computing device.

22.(NEW) The method of Claim 21, further comprising, in response to the cumulative pixel exposure exceeding the threshold cumulative pixel exposure, recording an impression for the second instance of the digital advertisement viewed by the user at the first computing device.

23.(NEW) The method of Claim 21:

- wherein accessing outcomes of consumption of the first set of instances of the digital advertisement across the first population of users comprises accessing brand lift data

within the first population of users following consumption of the digital advertisement; and

- wherein defining the threshold cumulative pixel exposure comprises, based on the correlation, defining the threshold cumulative pixel exposure correlated with a minimum brand lift responsive to viewing the digital advertisement.

24. (NEW) A method comprising:

- at a first time, serving a first digital advertisement in a first advertising campaign to a computing device for loading into a first advertisement slot within a first webpage accessed at the computing device;
- recording a first proportion of pixels of the first digital advertisement rendered on a display of the computing device during a first sampling period;
- recording a second proportion of pixels of the first digital advertisement rendered on the display of the computing device during a second sampling period offset in time from the first sampling period;
- accessing a spatial map defining a distribution of weights of visual content within the first digital advertisement;
- accessing a first weight defined by the spatial map for a first region of the first digital advertisement represented by the first proportion of pixels;
- accessing a second weight defined by the spatial map for a second region of the first digital advertisement represented by the second proportion of pixels;
- calculating a cumulative pixel exposure of the first digital advertisement at the computing device based on a summation of:

- a first product of the first proportion of pixels and a first duration of the first sampling period weighted according to the first weight; and
- a second product of the second proportion of pixels and a second duration of the second sampling period weighted according to the second weight; and
- storing the cumulative pixel exposure as an engagement metric for a user consuming the first digital advertisement at the computing device; and
- at a second time succeeding the first time, in response to the cumulative pixel exposure remaining below a threshold cumulative pixel exposure, serving a second instance of the first digital advertisement to the computing device for loading into a second advertisement slot within a second webpage accessed on the computing device.