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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* WILLARD L. SIMMONS and SANDRO N. CATANZARO

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Appeal 2018-005918  
Application 12/856,554<sup>1</sup>  
Technology Center 3600

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Before ERIC B. CHEN, HUNG H. BUI, and NABEEL U. KHAN,  
*Administrative Patent Judges.*

BUI, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant seeks our review under 35 U.S.C. § 134(a) from the Examiner’s Non-Final Rejection of claims 1–7 and 23–25, which are all the claims pending in the application. Appeal Br. 31–33 (Claims App.). Claims 8–22 are canceled. Non-Final Act. 2. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.<sup>2</sup>

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<sup>1</sup> We use the word “Appellant” to refer to “applicant(s)” as defined in 37 C.F.R. § 1.42. The real party in interest is DataXu, Inc. Appeal Br. 1.

<sup>2</sup> Our Decision refers to Appellant’s Appeal Brief (“Appeal Br.”) filed November 14, 2017; Examiner’s Answer (“Ans.”) mailed March 21, 2018; Non-Final Office Action (“Non-Final Act.”) mailed June 14, 2017; and original Specification (“Spec.”) filed August 13, 2010.

## STATEMENT OF THE CASE

Appellant’s invention relates to “presenting advertisements to digital media users” and, specifically, relates to “methods and systems for applying a plurality of algorithms to predict performance of online advertising placements” based on a variety of market conditions, including, for example: “advertiser data, historic event data, user data, real-time event data, contextual data, and third-party commercial data.” Spec. ¶¶ 2–3, 5, Abstract. According to Appellant, “historic event data” may include, for example: “weather data, events data, local news data, or some other type of data” such as “response rates to certain types of advertisements [that] may be correlated to stock market movements.” Spec. ¶ 58. Real-time data may include “information about the Internet Protocol (IP) address, context of an ad and/or ad placement, a user’s history, geo-location information of the user, social behavior, inferred demographics or some other type of data.” Spec. ¶ 67. User’s behavior may include “an advertisement clickthrough [clickrate], impression, webpage visit, transaction or purchase, or third party data associated with the user.” Spec. ¶ 108.

Claim 1—the only independent claim—is illustrative of Appellant’s invention, as reproduced below:

1. A computer implemented method for real-time advertisement bidding in an ad exchange, the method comprising:
  - using one or more processors:
  - applying a plurality of algorithms to predict performance of online advertisement placements in an ad exchange;
  - tracking respective performance of each of the plurality of algorithms under a variety of market conditions for each of the advertisement placements, including analyzing an extent to which each algorithm reflects actual economic performance;

tracking current market conditions;  
selecting an algorithm of the plurality of algorithms for predicting performance of each of the respective advertisement placements based on a comparison of relative performances of the plurality of algorithms under the current market conditions;  
and

automatically selecting and presenting to the ad exchange, on behalf of an advertiser desirous of placing an advertisement, a recommended bid amount for at least one of the advertisement placements based on at least whether available funds exist in a budget for the advertiser for the at least one of the advertisement placements and on a predicted performance determined by the selected algorithm for the at least one of the advertisement placements.

Appeal Br. 31 (Claims App.).

#### EXAMINER'S REJECTIONS & REFERENCES

(1) Claims 1–7 and 23–25 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. Non-Final Act. 4–7.

(2) Claims 1–7 and 23–25 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a patent-ineligible “abstract idea” without significantly more. Non-Final Act. 7–9.

(3) Claims 1–4 and 24–25 stand rejected under 35 U.S.C. § 103(a) as being obvious over Galperin (US 8,571,930 B1; issued Oct. 29, 2013) and Scholl et al. (US 8,447,651 B1; issued May 21, 2013; “Scholl”). Non-Final Act. 10–17.

(4) Claims 5–7 and 23 stand rejected under 35 U.S.C. § 103(a) as being obvious over Galperin, Scholl, and Henkin et al. (US 2010/0138271 A1; published June 3, 2010; “Henkin”). Non-Final Act. 17–21.

## DISCUSSION

### I. 35 U.S.C. § 112(a)

In support of the § 112(a) rejection of claims 1–7 and 23–25, the Examiner finds these claims fail to comply with the written description requirement because “the invention is claimed and described in functional language but the specification does not sufficiently identify *how* [] these steps are performed,” i.e., “*how* the invention achieves the claimed functions.” Non-Final Act. 4–6. For example, claim 1 recites, *inter alia*: (1) “applying a plurality of algorithms to predict performance of online advertisement placements in an ad exchange;” (2) “tracking respective performance of each of the plurality of algorithms under a variety of market conditions for each of the advertisement placements, including analyzing an extent to which each algorithm reflects actual economic performance;” (3) “tracking current market conditions;” and (4) “selecting an algorithm of the plurality of algorithms for predicting performance of each of the respective advertisement placements based on a comparison of relative performances of the plurality of algorithms under the current market conditions.”

According to the Examiner, nowhere in the cited paragraphs 130, 160, 180, and 186 of Appellant’s Specification “are there actual algorithms for ‘*predict[ing] performance of ad placements*’; ‘*analyzing the extent of performance*’; or how to ‘*selecting algorithms based on comparisons*’.” Non-Final Act. 6.

We do not agree. The “*written description*” requirement is separate and distinct from the “*enablement*” requirement under 35 U.S.C. § 112, first paragraph. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). For example, to comply with the *enablement*

requirement under 35 U.S.C. § 112, first paragraph, Appellant's Specification must adequately teach how to make and how to use a claimed invention throughout its scope, without undue experimentation. *Plant Genetic Sys., N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1339 (Fed. Cir. 2003). Naturally, the Specification must teach those of skill in the art "how to make and how to use the invention as broadly as it is claimed." *In re Vaeck*, 947 F.2d 488, 496 (Fed. Cir. 1991).

In contrast to the *enablement* requirement, the *written description* requirement under 35 U.S.C. § 112, first paragraph only requires Appellant to "reasonably convey[] to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad*, 598 F.3d at 1351. "[T]he level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology." *Id.* However, "the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue." *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000). In some cases, "drawings alone may provide a 'written description' of an invention as required by § 112." *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1565 (Fed. Cir. 1991). Regardless, the disclosure must convey with reasonable clarity to those skilled in the art that the inventor was in possession of the invention. *Id.* at 1563–1564.

Here, Appellant has shown that there is sufficient structure and description in the Specification as filed. For example, Figure 21 shows *verbatim* support that the inventor had possession of the claimed (1) "applying a plurality of algorithms to predict performance of online

advertisement placements in an ad exchange;” (2) “tracking respective performance of each of the plurality of algorithms under a variety of market conditions . . . including analyzing an extent to which each algorithm reflects actual economic performance;” (3) “tracking current market conditions;” and (4) “selecting an algorithm of the plurality of algorithms for predicting performance . . . based on a comparison of relative performances of the plurality of algorithms under the current market conditions.” Spec. ¶ 174. Likewise, Figures 1A–1B and 4 show Appellant’s real-time bidding system 100, including bidding machine facility 142 and learning machine facility 138 used to “select from an open list of multiple, competing algorithms” and a plurality of valuation algorithms 140 used to select an advertisement. Spec. ¶ 67, 71. According to Appellant, these algorithms are “machine learning algorithms,” including, for example: “Naïve Bayes, Bayes Net, Support Vector Machines, Logistic Regression, Neural Networks, and Decision Trees.” Spec. ¶ 122. “[T]he learning machine facility 138 [shown in Figures 1A–1B] may utilize various types of algorithms to refine the economic valuation models of the real-time bidding machine facility 142” and “may include, without any limitations, decision tree learning, association rule learning, artificial neural networks, genetic programming, inductive logic programming, support vector machines, clustering, Bayesian networks, and reinforcement learning.” Spec. ¶ 163; *see also* Spec. ¶ 189. Appellant has even acknowledged that these algorithms and “tools for evaluating competing algorithms and models” are “known to a person of ordinary skill in the art.” Spec. ¶¶ 127, 180, 186, 189–190.

Because Appellant has reasonably convey[ed] to those skilled in the art that the inventor had possession of the claimed subject matter as of the

filing date, we do not sustain the § 112(a) rejection of claims 1–7 and 23–25 for failure to comply with the “written description” requirement.

## II. 35 U.S.C. § 101

In rejecting claims 1–7 and 23–25 under 35 U.S.C. § 101, the Examiner determines these claims recite limitations that are analogous or similar to concepts identified as abstract ideas by the court, such as: (1) “collecting information, analyzing it, and displaying certain results of the collection and analysis” as discussed in *Electric Power Group*, (2) “collecting and comparing known information” as discussed in *Classen*, and (3) mental processes and automation as discussed in *Synopsis*. Ans. 7–8 (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016); *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011); and *Synopsis v. Mentor Graphics*, 839 F.3d 1138, 1146 (Fed. Cir. 2016) (holding that “analyzing information by steps people [can] go through in their minds, or by mathematical algorithms, without more . . . [are] mental processes within the abstract-idea category.”)).

The Examiner then determines additional elements (i.e., “one or more processors” and “a plurality of algorithms”), when analyzed individually and as an ordered combination, do not amount to significantly more than the abstract idea because these additional elements (1) “are used merely to generally link the use of the judicial exception to a particular technological environment”; and (2) “are merely insignificant extra-solution activity.” Non-Final Act. 7–8.

*Legal Framework*

To determine whether claims are patent eligible under § 101, we apply the Supreme Court’s two-step framework articulated in *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014). First, we determine whether the claims are directed to a patent-ineligible concept: laws of nature, natural phenomena, and abstract ideas. *Id.* at 216. If so, we then proceed to the second step to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* at 217. In other words, the second step is to “search for an ‘inventive concept’—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* at 218 (alteration in original, internal quotation marks omitted).

The Federal Circuit has described the *Alice* step-one inquiry as looking at the “focus” of the claims, their “character as a whole,” and the *Alice* step-two inquiry as looking more precisely at what the claim elements add—whether they identify an “inventive concept” in the application of the ineligible matter to which the claim is directed. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

In an effort to achieve clarity and consistency in how the U.S. Patent and Trademark Office (the “Office”) applies the Supreme Court’s two-step framework, the Office has published revised guidance interpreting governing case law and establishing a prosecution framework for all patent-eligibility

analysis under *Alice* and § 101 effective as of January 7, 2019. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50–57 (Jan. 7, 2019) (“2019 Revised Guidance”).

*2019 Revised Guidance*

Under the 2019 Revised Guidance, we first look under *Alice* step 1 or “Step 2A” to whether the claim recites:

- (1) Prong One: any judicial exceptions, including certain groupings of abstract ideas (i.e., [i] mathematical concepts, [ii] mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion), or [iii] certain methods of organizing human activity such as a fundamental economic practice or managing personal behavior or relationships or interactions between people); and
- (2) Prong Two: additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examining Procedure (“MPEP”) §§ 2106.05(a)–(c), (e)–(h)).<sup>3</sup>

*See* 2019 Revised Guidance, 84 Fed. Reg. at 51–52, 55, Revised Step 2A, Prong One (Abstract Idea) and Prong Two (Integration into A Practical Application). Only if a claim: (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, do we then evaluate whether the claim provides an “inventive concept” under *Alice* step 2 or “Step 2B.” *See* 2019 Revised Guidance at 56; *Alice*, 573 U.S. at 217–18. For example, we look to whether the claim:

- 1) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or

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<sup>3</sup> All references to the MPEP are to the Ninth Edition, Revision 08.2017 (rev. Jan. 2018).

- 2) simply appends well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

*See* 2019 Revised Guidance, 84 Fed. Reg. at 56.

In the briefing, Appellant and Examiner refer to prior USPTO guidance regarding § 101, including, for example: *2014 Interim Guidance on Patent Subject Matter Eligibility*, 79 Fed. Reg. 74,618 (“the 2014 Interim Guidance”). Non-Final Act. 9; Appeal Br. 12. However, the 2014 Interim Guidance as well as other guidance, including: (1) *July 2015 Update on Subject Matter Eligibility*, 80 Fed. Reg. 45,429 (July 30, 2015) (“the 2015 Update”); (2) *May 2016 Subject Matter Eligibility Update*, 81 Fed. Reg. 27,381 (May 6, 2016); and (3) *Memorandum on Subject Matter Eligibility Decisions* dated Nov. 2, 2016, have been superseded by the 2019 Revised Guidance. *See* 2019 Revised Guidance, 84 Fed. Reg. at 52. As such, our analysis will not address the sufficiency of the Examiner’s rejection against the cited prior guidance. Rather, our analysis will comport with the 2019 Revised Guidance, and we will review patent eligibility under § 101 *de novo* as discussed below. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012).

*Alice/Mayo—Step 1 (Abstract Idea)*

*Step 2A—Prongs 1 and 2 identified in the Revised Guidance*

Step 2A—Prong 1

Appellant argues (1) the Examiner mischaracterizes the claims because “almost any patent [if looked] from far enough away, it could arguably claim an abstract idea,” for example: “Alexander Graham Bell’s patent could be said to claim the abstract idea of oral communication”; and

(2) “the pending claims can be distinguishable over each of *Classen*, *Electric Power Group*, and *Synops[y]s*” for several reasons, including:

- (i) “Appellant[’s] claim 1 recites a specific, tangible application of [] tracked information” and such information is not “known information” that is collected and compared in *Classen*;
- (ii) “Claim 1 recites a concrete solution to that problem [how to predict performance of ad placements in real-time so that a bid amount can be recommended to an ad exchange]—a) a plurality of algorithms are applied to predict the performance of online ad placements, b) the performance of the algorithms is tracked under a variety of market conditions for each of the advertisement placements, c) current market conditions are also tracked, and d) an algorithm from the plurality is then selected based on a comparison of relative performances of the plurality of algorithms under the current market conditions” and such steps are different from *Electric Power Group*; and
- (iii) “the present claims specifically recite that a plurality of algorithms are applied to predict the performance of online ad placements, which is tracked under a variety of market conditions for each of the advertisement placements” and such a process cannot be performed mentally with pencil and paper.

Appeal Br. 12–18 (emphasis omitted).

We are persuaded by Appellant’s arguments only in part. Under the “mental processes” doctrine, a patent claim that can be performed solely in a person’s mind is considered an “abstract idea” and, as such, is patent-ineligible under § 101. For example, in *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972), the Supreme Court held a number-conversion method using a mathematical algorithm is patent-ineligible under § 101 because the conversion “can be done mentally” and “without a computer.” *See Benson*, 409 U.S. at 67. These “mental processes—or processes of human

thinking—standing alone are not patentable even if they have practical application.” *In re Comiskey*, 554 F.3d 967, 979 (Fed. Cir. 2009). Similarly, in *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372 (Fed. Cir. 2011), the Federal Circuit held *CyberSource*’s method claim for detecting fraud in credit card transactions conducted over the Internet between consumer and merchant is drawn to an unpatentable “mental process” because “[a]ll of [its] method steps can be performed in the human mind, or by a human using a pen and paper” and do not require a computer. However, the Federal Circuit also held that method claims “for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals” are patent-eligible under § 101 because “the methods [] could not be performed without the use of a GPS receiver.” *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1331–32 (Fed. Cir. 2010).

As is commonly known to those skilled in the art, an algorithm is “a finite sequence of steps for solving a logical or mathematical problem or performing a task.” Microsoft Computer Dictionary 23 (5th ed. 2002). Such an algorithm may be expressed in any understandable terms including as a mathematical formula, in prose, in a flow chart, or “in any other manner that provides sufficient structure.” *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008). According to Appellant, these “algorithms may include, without any limitations, decision tree learning, association rule learning, artificial neural networks, genetic programming, inductive logic programming, support vector machines, clustering, Bayesian networks, and reinforcement learning.” Spec. ¶¶ 122, 163.

Contrary to the Examiner’s characterization, we do not discern how “a plurality of algorithms” recited in Appellant’s claim 1 can be performed

solely in a person’s mind, especially when each of these algorithms is tracked differently under a variety of market conditions to reflect actual economic performance and a particular algorithm is selected among these algorithms based on a comparison of relative performances of these algorithms under the current market conditions.

We note, however, Appellant has acknowledged these algorithms and “tools for evaluating competing algorithms and models” are “known to a person of ordinary skill in the art” (Spec. ¶¶ 127, 180, 186, 189–190) and are only used in the context of Appellant’s “presenting advertisements to digital media users.” In particular, Appellant’s Specification and claim describe “methods and systems for applying a plurality of algorithms to predict performance of online advertising placements” based on a variety of market conditions, including, for example: “advertiser data, historic event data, user data, real-time event data, contextual data, and third-party commercial data.” Spec. ¶¶ 2–3, 5, Abstract. For example, Appellant’s claim 1 recites a “computer implemented method for real-time advertisement bidding in an ad exchange” equipped with “one or more processors” for:

- [1] applying a plurality of algorithms to predict performance of online advertisement placements in an ad exchange;
- [2] tracking respective performance of each of the plurality of algorithms under a variety of market conditions for each of the advertisement placements, including analyzing an extent to which each algorithm reflects actual economic performance;
- [3] tracking current market conditions;
- [4] selecting an algorithm of the plurality of algorithms for predicting performance of each of the respective advertisement placements based on a comparison of relative performances of

the plurality of algorithms under the current market conditions;  
and

[5] automatically selecting and presenting to the ad exchange, on behalf of an advertiser desirous of placing an advertisement, a recommended bid amount for at least one of the advertisement placements based on at least whether available funds exist in a budget for the advertiser for the at least one of the advertisement placements and on a predicted performance determined by the selected algorithm for the at least one of the advertisement placements.

Appeal Br. 31 (Claims App.) (bracketing added).

These limitations of Appellant's claim 1, under their broadest reasonable interpretation, recite a method of bidding an advertisement in an ad exchange of an advertising agency by way of an algorithm selected from a plurality of algorithms to predict performance of online advertisement placements in an ad exchange, which is a known promotional and financial activity and a fundamental economic practice in our system of commerce. Spec. ¶¶ 2–5; Figures 1A–1B, 13.

Such activities are squarely within the realm of abstract ideas, like (1) the risk hedging in *Bilski v. Kappos*, 561 U.S. 593 (2010); (2) the intermediated settlement in *Alice*, 573 U.S. at 220; (3) verifying credit card transactions in *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011); (4) guaranteeing transactions in *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1354 (Fed. Cir. 2014); (5) distributing products over the Internet in *Ulramercial, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014); (6) determining a price of a product offered to a purchasing organization in *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306 (Fed. Cir. 2015); and (7) pricing a product for sale in *OIP Techs., Inc. v.*

*Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015). Bidding for an advertisement in an ad exchange regardless of how that advertisement is selected and placed, whether in person or online, is a basic building block of a market economy and, like risk hedging and intermediated settlement, is an “abstract idea” beyond the scope of § 101. *See Alice*, 573 U.S. at 220.

We, therefore, conclude limitations (1)–(5) in Appellant’s claim 1 recite nothing more than bidding for an advertisement placement in an ad exchange, which is “a fundamental economic practice” as identified in the Revised Guidance, and, thus, an abstract idea. *See* 2019 Revised Guidance (*Revised Step 2A, Prong One*), 84 Fed. Reg. at 52, 54.

Step 2A—Prong 2 (Integration into Practical Application)

Under *Revised Step 2A, Prong Two* of the Revised Guidance, we must determine if the claims (i.e., additional limitations beyond the judicial exception) integrate the judicial exception into a practical application. However, we discern no additional element (or combination of elements) recited in Appellant’s claim 1 and its dependent claims 2–7 and 23–25 that integrates the judicial exception into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55 (“Prong Two”).

For example, Appellant’s additional elements (i.e., processor and “a plurality of algorithms”) recited in claim 1 do not (1) improve the functioning of a computer or other technology, (2) are not applied with any particular machine (except for generic computer components), (3) do not effect a transformation of a particular article to a different state, and (4) are not applied in any meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the

claim as a whole is more than a drafting effort designed to monopolize the exception. *See* MPEP §§ 2106.05(a)–(c), (e)–(h).

Appellant argues “claim 1 recites a method in which a plurality of predictive algorithms is used in an online advertisement system, to predict the performance of online advertisement placements” and provide “[a solution that is] necessarily rooted in computer technology” because (1) the claim relates to “a specialized computing system [as shown in Figure 1A]” using “a plurality of predictive algorithms” and (2) “the solution is used ‘in order to overcome a problem specifically arising in the realm of computer networks’” similar to the claims in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014). Appeal Br. 18–19. In addition, Appellant also argues “the present claims provide a significant improvement to technologies or computers themselves” and “provide[] a transformation of data (from market conditions to predicted performance to a recommended bid amount in an online ad exchange)” which meets the “machine or transformation [MoT]” test. Appeal Br. 19–20.

We do not agree. First, as recognized by the Federal Circuit in *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014), *Bilski*’s “machine-or-transformation” (MoT) test can provide a “‘useful clue’” in the second step of the *Alice* framework. *See In re Bilski*,<sup>4</sup> 545 F.3d 943, 954

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<sup>4</sup> In *In re Bilski*, the Federal Circuit adopted a “machine-or-transformation” (MoT) test to determine whether a process claim is eligible under 35 U.S.C. § 101. However, the Supreme Court held, in *Bilski v. Kappos*, 561 U.S. 593, 604 (2010), that the “MoT” test, while a “useful and important clue,” is no longer the sole test for determining the patent-eligibility of process claims under § 101. Since *Bilski v. Kappos*, the Supreme Court has created a two-step framework in *Alice*, 573 U.S. at 215 to address whether a claim falls outside of § 101, which we discuss *infra*.

(Fed. Cir. 2008) (en banc). Under *Bilski's* MoT test, a claimed process can be considered patent-eligible under § 101 if: (1) “it is tied to a particular machine or apparatus”; or (2) “it transforms a particular article into a different state or thing.” *Bilski*, 545 F.3d at 954 (citing *Gottschalk*, 409 U.S. at 70, 93 S. Ct. 253). However, Appellant’s predicting performance of online advertisement placements in an ad exchange recited in claim 1 is neither sufficiently “tied to a particular machine or apparatus” nor involved in any type of transformation of any particular article.<sup>5</sup>

Second, we note Appellant’s claims 1–7 and 23–25 are neither deeply rooted in computer technology as outlined in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014), nor do they seek to improve any type of computer capabilities, such as a “self-referential table for a computer database” outlined in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336–37 (Fed. Cir. 2016). As recognized by the Examiner, “‘*applying undisclosed plurality of algorithms*’ does not provide a practitioner with a ‘concrete solution’ for ultimately practicing the steps of *predicting ad placement performance . . . which are necessary for automatically selecting and presenting to the ad exchange a recommended bid.*” Ans. 6. There is no support from Appellant’s Specification for any feature of the so-called “plurality of algorithms” that would improve any existing computer technology or would overcome any problem arising in the realm of computer networks, as Appellant argues. Appeal Br. 18–19. Instead, Appellant’s claims seek to utilize generic processors as a tool to

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<sup>5</sup> *Alice* also confirmed that if a patent’s systems claims are no different in substance from its method claims, they will rise and fall together. 573 U.S. at 226. The same is true of the *Alice* patent’s media claims. *Id.*

perform the recited abstract idea. Likewise, Appellant’s claims utilize “a plurality of algorithms” and “tools for evaluating competing algorithms and models,” albeit “known to a person of ordinary skill in the art” as acknowledged by Appellant’s Specification (Spec. ¶¶ 127–129, 180, 186, 189–190) but “undisclosed” as characterized by the Examiner (Ans. 6), to predict performance of online advertising placements. Spec. ¶ 5.

Contrary to Appellant’s argument, using these known, but “undisclosed” algorithms to predict performance of online advertising placements recited in claim 1, does not provide any “technical solution to a technical problem” as contemplated by the Federal Circuit in *DDR* (see MPEP § 2106.05(a)), and is insufficient to show “integration into a practical application.” See MPEP § 2106.05(f). Instead, these generic computer components are simply the “automation of the fundamental economic concept.” *OIP Techs.*, 788 F.3d at 1362–63. “[M]erely requir[ing] generic computer implementation,” “does not move into [§] 101 eligibility territory.” *buySAFE*, 765 F.3d at 1354 (second alteration in original).

A claim for a new abstract idea is still an abstract idea. See *Synopsis, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). “No matter how much of an advance in the finance field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm.” See *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018).

For these reasons, we are not persuaded that Appellant’s “additional elements” recited in claims 1–7 and 23–25 integrate the abstract idea into a practical application.

*Alice/Mayo—Step 2 (Inventive Concept)*  
*Step 2B identified in the Revised Guidance*

Under the 2019 Revised Guidance, only if a claim: (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, do we then look to whether the claim adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or, simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. *See* 2019 Revised Guidance, 84 Fed. Reg. at 56. However, we find no element or combination of elements recited in Appellant’s claims 1–7 and 23–25 that contain any “inventive concept” or add anything “significantly more” to transform the abstract concept into a patent-eligible application. *Alice*, 573 U.S. 208 at 221.

Appellant does not identify any specific limitation of claim 1 beyond the judicial exception that is not “well-understood, routine, conventional” activity in the field” as per MPEP § 2106.05(d). Instead, Appellant argues “the claimed technique . . . facilitates the ability to predict performance of a variety of advertisement placements” and then “automatically selects and presents to an ad exchange, a recommended bid amount for at least one of the advertisement placements” and, as such, “the claim[ed] elements do not amount to ‘merely insignificant extra-solution activity.’” Appeal Br. 20–21.

We do not agree. As previously discussed, utilizing generic computer components (e.g., processors and “algorithms”) does not alone transform an otherwise abstract idea into patent-eligible subject matter. As our reviewing court has observed, “after *Alice*, there can remain no doubt: recitation of

generic computer limitations does not make an otherwise ineligible claim patent-eligible.” *DDR*, 773 F.3d at 1256 (citing *Alice*, 573 U.S. at 222).

### *Preemption*

Lastly, Appellant argues the claims do not seek to “tie up or pre-empt others from using any presumed abstract idea” but does not explain why. Appeal Br. 21.

We do not agree. The lack of preemption is a necessary clue for patent eligibility, but it is not sufficient for patent eligibility. As the *McRO* court explicitly recognized, “the absence of complete preemption does not demonstrate patent eligibility.” *See McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1315 (Fed. Cir. 2016) (quoting *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015)). Furthermore, “[w]here a patent’s claims are deemed only to disclose patent ineligible subject matter” under the *Alice/Mayo* framework, “preemption concerns are fully addressed and made moot.” *Ariosa*, 788 F.3d at 1379.

Because Appellant’s independent claim 1 is directed to a patent-ineligible abstract concept and does not recite an “inventive concept” or provide a solution to a technical problem under the second step of the *Alice* analysis, we sustain the Examiner’s § 101 rejection of independent claim 1 and its dependent claims 2–7 and 23–25 not separately argued.

### III. 35 U.S.C. § 103(a)

In support of the § 103(a) rejection of claims 1–4, 24, and 25, the Examiner finds Galperin and Scholl teaches all limitations of Appellant’s invention. For example, the Examiner finds Galperin teaches most aspects of Appellant’s invention, including: (1) “applying a plurality of algorithms

to predict performance of online advertisement placements in an ad exchange;” (2) “tracking respective performance of each of the plurality of algorithms under a variety of market conditions . . .” (3) “tracking current market conditions;” (4) “selecting an algorithm of the plurality of algorithms . . . based on a comparison of relative performances of the plurality of algorithms under the current market conditions.” Non-Final Act. 10–12 (citing Galperin 25:15–30, 33:15–25, Fig. 7).

To support the conclusion of obviousness, the Examiner relies on Scholl for teaching the last step of claim 1’s “automatically selecting and presenting to the ad exchange . . . a recommended bid amount for at least one of the advertisement placements based on at least [1] whether available funds exist in a budget . . . [2] a predicted performance determined by the selected algorithm for the at least one of the advertisement placements.” Non-Final Act. 12–13 (citing Scholl 7:1–32, 8:55–60).

Appellant acknowledges Galperin teaches “strategies for conducting an advertisement campaign using a cost-per-transaction (CPT) pricing model in which an advertiser is charged when an end-user takes some express action in response to viewing the ad,” including (1) “computing an expected value, ranking the ad with respect to other ads, pricing the ad, and tracking performance” and (2) “compar[ing] the performance of different [cost-per-transaction (CPT)] models in parallel, particularly for click-through rate (CTR), and [] select[ing] the model that appears to be doing the best job at modeling the performance of the ad.” Appeal Br. 23–24 (citing Galperin 6:64–7:2, 25:15–28).

However, Appellant argues: (1) “there is no disclosure or suggestion anywhere in this reference that each of these models can or should be

tracked under a variety of market conditions **and** for each of the ad placements, as specifically recited in present claim 1” and (2) “there is no teaching that **current market conditions** can or should be tracked, and likewise, that an algorithm is selected based on a comparison of relative performances of the plurality of algorithms under the current market conditions.” Appeal Br. 24.

Appellant also argues “Scholl cannot overcome these deficiencies of Galperin” because (1) “Scholl does not teach an ad exchange and, therefore cannot disclose ‘selecting and presenting to an ad exchange’” as recited in claim 1; (2) “Scholl only teaches a search engine determining whether or not to accept a bid” and not “selecting . . . a recommended bid amount” as recited in claim 1; and (3) “Scholl still does not disclose selecting one of the factors based on a comparison of relative performances of the factors.” Appeal Br. 25–27 (citing Scholl 3:6–18).

Appellant’s arguments are not persuasive. Instead, we find the Examiner has provided a comprehensive response to Appellant’s arguments supported by evidence. Ans. 7–9. As such, we adopt the Examiner’s findings and explanations provided therein, as discussed below. *Id.* For additional emphasis, we note claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under the broadest reasonable interpretation, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

The term “market conditions” is not expressly defined in Appellant’s claims or Specification. However, the term “market conditions” is described broadly as “given certain conditions” that may include, for example: “advertiser data, historic event data, user data, real-time event data, contextual data, and third-party commercial data.” Spec. ¶¶ 2–3, 5, Abstract. According to Appellant’s Specification, “historic event data” may include, for example: “weather data, events data, local news data, or some other type of data” such as “response rates to certain types of advertisements [that] may be correlated to stock market movements.” Spec. ¶ 58. Likewise, real-time data may include “information about the Internet Protocol (IP) address, context of an ad and/or ad placement, a user’s history, geo-location information of the user, social behavior, inferred demographics or some other type of data.” Spec. ¶ 67. Similarly, user’s behavior may include, for example: “log ad impressions, user clicks, and user actions,” i.e., “an advertisement clickthrough [clickrate], [] webpage visit, transaction or purchase, or third party data associated with the user.” Spec. ¶ 98, 108.

Based on Appellant’s Specification, the term “market conditions” can be broadly, but reasonably, interpreted to encompass Galperin’s CTR (click-through rate) or conversion rate, Galperin’s use of different models to compute an estimate of CTR and Galperin’s ad management (AM) functionality 108, shown in Figure 1, used to “compare the performance of the different models and select the model that appears to be doing the best job at modeling the performance of the advertisement.” Galperin 25:15–30.

Because “Galperin who already teaches computation of predicted performance (i.e. analogous to Scholl’s expected value) of ad placement by a specific selected algorithm” in the context of an ad exchange, Scholl is only

relied upon for teaching “automatically selecting and presenting . . . a recommended bid amount . . . based on computation of expected value [predicted performance] and/or budgetary considerations,” as recognized by the Examiner. Ans. 9; *see* Scholl 7:1–32.

For these reasons, we are not persuaded of Examiner error. Accordingly, we sustain the Examiner’s obviousness rejection of independent claim 1 and its dependent claims 2–4, 24, and 25, which Appellant does not argue separately. For the same reasons discussed, we also sustain the Examiner’s obviousness rejection of dependent claims 5, 6, 7, and 23.

#### CONCLUSION

On the record before us, we conclude Appellant has not demonstrated the Examiner erred in rejecting claims 1–7 and 23–25 under 35 U.S.C. § 101 and under 35 U.S.C. § 103(a), but has demonstrated the Examiner erred in rejecting claims 1–7 and 23–25 under 35 U.S.C. § 112, first paragraph.

#### DECISION

As such, we AFFIRM the Examiner’s final rejection of claims 1–7 and 23–25 under 35 U.S.C. § 101 and under 35 U.S.C. § 103(a). However, we REVERSE the Examiner’s final rejection of claims 1–7 and 23–25 under 35 U.S.C. § 112, first paragraph.

Because we have affirmed at least one ground of rejection with respect to each claim on appeal, we affirm the Examiner’s decision rejecting claims 1–7 and 23–25. *See* 37 C.F.R. § 41.50(a)(1).

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-7 and 23-25	101	non-statutory	1-7 and 23-25	
1-7 and 23-25	103	obviousness	1-7 and 23-25	
1-7 and 23-25	112, first paragraph	written description		1-7 and 23-25
<b>Overall Outcome</b>			1-7 and 23-25	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED