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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* PAUL PALLATH<sup>1</sup>

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Appeal 2019-001218  
Application 14/483,411  
Technology Center 2100

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Before ROBERT E. NAPPI, JAMES R. HUGHES and SCOTT E. BAIN,  
*Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1 through 3, 5 through 10, 12 through 17, 19 and 20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). According to Appellant, SAP SE. is the real party in interest. Appeal Br. 3.

## INVENTION

The invention is directed to a technique for automated generation of insights for events of interest from a data set of events, such as sports events, and business scenarios. Spec. ¶¶ 1, 17, and 18. Claim 1 is reproduced below.

1. A non-transitory computer-readable medium to store instructions, which when executed by a computer, cause the computer to perform operations comprising:
  - establish a connection from a data analytics application to an in-memory database via an in-memory database service;
  - receive a dataset for an event of interest wherein the dataset represents plurality of occurrences of events comprising data corresponding to features, and the dataset is stored in the in-memory database, and the dataset is a filtered dataset retrieved from a time series data aggregated from disparate databases:
    - determine plurality of event frame sizes to generate insights on the dataset, wherein each event frame size corresponds to aggregated data corresponding to the features within the event frame size;
    - extract features from the plurality of occurrences of events corresponding to the plurality of event frame sizes, wherein the extracted features are represented as feature abbreviations corresponding to a context, and the features and feature abbreviations are stored in a dictionary table;
    - identify frequent feature abbreviations from among the feature abbreviations corresponding to the context, wherein the frequent feature abbreviations are based on frequency of occurrence above a computed minimum support value;
    - generate rules based on the identified feature abbreviations;
    - associate weights variably to the feature abbreviations, wherein the association of weights is based on frequency of occurrence of feature abbreviations in the rules; and
    - display the features corresponding to feature abbreviations proportional to the weights of the feature

abbreviations as insights on the dataset in graphical representations in a user interface, wherein a displayed feature corresponding to a feature abbreviation with a highest weight corresponds to a probability of occurrence of the event of interest.

#### EXAMINER’S REJECTION<sup>2</sup>

The Examiner rejected claims 1 through 3, 5 through 10, 12 through 17, 19 and 20 under 35 U.S.C. § 101 for being directed to patent-ineligible subject matter. Non-Final Act. 3–6.

#### ANALYSIS

We have reviewed Appellant’s arguments in the Briefs, the Examiner’s rejections, and the Examiner’s response to Appellant’s arguments. Appellant’s arguments have not persuaded us of error in the Examiner’s rejection claims 1 through 3, 5 through 10, 12 through 17, 19 and 20 under 35 U.S.C. § 101. “Patent eligibility under [] § 101 is a question of law that may contain underlying issues of fact.” *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1342 (Fed. Cir. 2018) (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018)). “We review the district court’s ultimate conclusion on patent eligibility de novo.” *Id.*; *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1331 (Fed. Cir. 2010) (“Whether a claim is drawn to patent-eligible subject matter is an issue of law that we review de novo.”)

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<sup>2</sup> Throughout this Decision we refer to the Appeal Brief filed May 7, 2018 (“Appeal Br.”); Non-Final Office Action mailed November 13, 2017 (“Non-Final Act.”); and the Examiner’s Answer mailed September 21, 2018 (“Ans.”)

*35 U.S.C. § 101 Rejection*

PRINCIPLES OF LAW

Patent-eligible subject matter is defined in 35 U.S.C. § 101 of the Patent Act, which recites:

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.

There are, however, three judicially created exceptions to the broad categories of patent-eligible subject matter in 35 U.S.C. § 101: “[l]aws of nature, natural phenomena, and abstract ideas.” *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Alice*, 573 U.S. at 217–18 (citing *Mayo*, 566 U.S. at 75–77). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”)

Concepts determined to be abstract ideas, and, thus, patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611);

mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a

patent-eligible application.” *Alice*, 573 U.S. at 221 (citation omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The United States Patent and Trademark Office “USPTO” published revised guidance on the application of § 101. USPTO’s *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Memorandum”). Under that guidance, we first determine whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING PROCEDURE (“MPEP”) § 2106.05(a)–(c), (e)–(h) (9<sup>th</sup> Ed., Rev. 08.2017, Jan. 2018)).

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:

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

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

*See Memorandum.*

#### DISCUSSION

The Examiner determines the claims are not patent eligible because they are directed to a judicial exception without reciting significantly more. Non-Final Act. 3–5. Specifically, the Examiner determines the claims are directed to collecting a data set related to an event, analyzing it and displaying insights about the dataset, which is similar to concepts found abstract in *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016) and *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017). Non-Final Act. 3–4, Ans. 4–6. Further, the Examiner finds that the additional limitations of the claims recite generic computer components and functions that are well understood routine and conventional and thus do not amount to significantly more than the abstract idea. Non-Final Act. 4–5.

Appellant argues the claims are directed to an improvement in existing computer technologies and are patent eligible. Appeal Br. 8–9, 12–13 (citing *Enfish, LLC v Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016), and *Trading Techs Int’l, Inc. v. IBG LLC*, 921 F.3d 1378 (Fed. Cir. 2019)). Appellant asserts that the claims are an improvement to a computer technology as they recite an improvement to: a) data analysis of time series data, that can be as large as terabytes or petabytes of data, and displaying insights; and b) because the invention addresses the data latency caused by the dataset being retrieved from a time series data aggregated from disparate

databases. Appeal Br. 9–10, 12. Further, Appellant argues that the claims do not preempt all activity in the context of generating insights. Appeal Br. 10. Additionally, Appellant argues the claims are different from those at issue in *Electric Power Group* as the claims recite “new techniques for analyzing.” Appeal Br. 11. Similarly, Appellant asserts that the claims are unlike the claims in *Intellectual Ventures* as the claims recite sufficient detail as to how generation of insights is performed. Appeal Br. 10–11. Additionally, Appellant argues the claims are different from *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011), as it is impossible to aggregate terabytes or petabytes of data in the human mind using pen and paper. Appeal Br. 12. Appellant argues the claims are like those at issue in *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), and are patent eligible as the recited rules “represent part of solving a technical problem of taking ‘terabytes or petabytes’ that ‘appeared as overload is now transformed to a useful insight identifying a new pattern of behavior.’” Appeal Br. 14.

#### *The Judicial Exception*

We are not persuaded of error by Appellant’s arguments and concur with the Examiner that representative claim 1 sets forth a mental process of collecting information, analyzing it and displaying the results.

Claim 1 recites computer implemented steps of receiving a dataset for an event of interest (a data gathering or observation element), determining an event frame size, extracting features from the plurality of occurrences corresponding to the frame sizes, identifying frequent feature abbreviations, generating rules based upon the feature aberrations and associating weights to features (data analysis/organization or evaluation elements), and

displaying the features corresponding to the feature abbreviations proportional to the weights (steps to communicate the result of the analysis). We consider these limitations to recite an abstract mental process. These steps can be performed in the human mind as they are merely gathering data, analyzing the data and displaying the results, a concept similar to that at issue in *Electric Power Group*. See also *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1067 (Fed. Cir. 2011) (claim to collecting and comparing known information determined to be steps that can be practically performed in the human mind); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (“The concept of data collection, recognition, and storage is undisputedly well-known. Indeed, humans have always performed these functions.”). See also October 2019 Update: Subject Matter Eligibility 7 (discussing *Electric Power Group* and mental processes), available at [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf). The fact that the data comes from databases, does not preclude a determination that the claim recites a mental process. See, e.g., *Voter Verified, Inc. v. Election Sys. & Software LLC*, 887 F.3d 1376, 1385 (Fed. Cir. 2018) (explaining that the claimed steps of voting, verifying the vote, and submitting the vote for tabulation are human cognitive actions that humans have performed for hundreds of years despite the fact that the steps in the claim were performed on a computer). We note Appellant’s Specification ¶ 22, identifies that the determination of the frame size can be performed by a user and thus a mental process.

The claims at issue in *Electric Power Group* recited several steps of receiving data from various sources, detecting and analyzing the data and

displaying the data. *Elec. Power Grp.*, 830 F.3d at 1351–52. The court stated “we have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.” *Id.* at 1353. Here the claims do not recite the content of the information by its subject, but rather in the form of the dataset, representing a plurality of occurrences of events retrieved from time series data. Thus, we concur with the Examiner and consider representative claim 1 to recite an abstract concept.

*Integration of the Judicial Exception into a Practical Application*

The Examiner finds that the additional claim limitations do not recite an improvement to a technical field or a technology. Non-Final Act. 4–5, Ans. 4, 6–7. Further, the Examiner finds that “the additional elements included, e.g., computer, memory, database, processor, display, etc., are general purpose computing components for implementing the judiciary [*sic*] exception on computers. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology.” Ans. 4.

We are not persuaded of error by Appellant’s arguments. As discussed above, we concur with the Examiner that representative claim 1 recites an abstract idea. Further, we do not consider the claim to be drawn to a practical application of the abstract idea as we do not find that the claim recites an improvement to the functioning of the computer or other technology or otherwise tied to technology.

We are not persuaded of error by Appellant’s argument, which relies upon *Enfish* and asserts the claim is directed to improving computer

technology or other technology. Appellant's Specification identifies the invention is directed to a technique for automated generation of insights for events of interest from a data set of events, such as sports events, and business scenarios. Spec. ¶¶ 1, 17, and 18. The Specification does not identify that the method changes the operation of a computer to improve the function of the computer, but rather to improve the analysis of data to derive useful insights. *Id.* ¶¶ 1, 42. Thus, the claim, when interpreted in light of the Specification, merely recites use of a computer as a tool to implement a concept of collecting information, analyzing it and displaying the results, a mental process (an abstract idea). *See, e.g., RecogniCorp LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) ("Unlike *Enfish*, [the claim] does not claim a software method that improves the functioning of a computer . . . [but] claims a 'process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool.'") (Citation omitted).

We are not persuaded by Appellant's argument that the invention involves data in the size range of terabytes or petabytes, and, cannot be accomplished by the human mind using pen and paper. Appeal Br. 8. Initially, we do not find that representative claim 1 is limited to only data in this size range. Further, as stated by the Examiner:

the size does not make a claimed invention patent eligible, if the method or process can be performed by human using paper and pen. The method & process proposed in the invention claimed can be performed by human, only possibly slower than computer. Given enough time & man power, the task can be completed by human, hence the invention claimed us directed to an abstract idea.

Ans. 9. We concur, improved efficiency inherent with applying an

abstract idea on a computer does not provide an inventive concept.

*Intellectual Ventures* 850 F.3d at 1367 (citing *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) and *Alice*).

Similarly, we are not persuaded by Appellant’s arguments that representative claim 1 is directed to an improvement in a graphical user interface. Ans. 12–13 (citing *Trading Techs.*). While representative claim 1 does recite an interface it only identifies it as being used to display features as insights to the data set. Our reviewing court found claims including user interfaces to be directed to abstract concepts in *Intellectual Ventures I LLC v. Capital One Bank*, 792 F.3d 1363, 1369 (Fed. Cir. 2015) and *FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (“[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.”) (Citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014)). Further, the claims’ recitation of an interface is unlike the claimed user interface in *Core Wireless Licensing S.A.R.L. v. LG Electronics Inc.*, 880 F.3d 1356 (Fed. Cir. 2018). In *Core Wireless* the court held that claims which recited an interface were patent eligible as the claims recited specific limitations of the interface such as: an application summary that can be reached through a menu, the data being in a list and being selectable to launch an application, and additional limitations directed to the actual user interface displayed and how it functions. *Core Wireless*, 880 F.3d at 1363. The court found that the claims were directed to an improved user interface and not the abstract concept of an index as the claim “limitations disclose a specific manner of displaying a limited set of

information to the user, rather than using conventional user interface methods to display a generic index on a computer.” *Id. See also Trading Techs. Int’l Inc. v. CQG, Inc.*, 675 F. App’x 1001 (Fed. Cir. 2017) (nonprecedential) (holding that a user interface with a prescribed functionality directly related the interface’s structure that is addressed to and resolves a problem in the art is patent eligible). Furthermore, “merely selecting information, by content or source, for collection, analysis, and display” has been found not to provide significantly more for purposes of finding patent eligibility. *Electric Power Group*, 830 F.3d at 1355.

Here the claim does not recite any specific manner of displaying the data or functionality of the interface, rather the claim just recites displaying data (features) proportional to the weight as insights (Appellant’s Specification describes this as using different font sizes ¶ 32 and Figure 8). Thus, Appellant’s arguments have not persuaded us that the claims recite an improvement in the ability of the computer to display information and interact with the user.

Appellant’s argument directed to the invention being rooted in computer technology as it deals with latency issues is not persuasive of error. Appeal Br. 13 (citing *DDR*). Initially, we note that the argument is not based upon evidence, Appellant’s Specification does not discuss latency and as such it is unclear how latency fits into the claimed invention. Further, we do not find that the claim is necessarily rooted in computer technology as were the claims in *DDR Holdings*. In *DDR Holdings*, the claimed invention created a hybrid web page that combined advantageous elements from two web pages, bypassing the expected manner of sending a visitor to another party’s web page, in order to solve the internet-centric problem of retaining

website visitors. *DDR Holdings*, 773 F.3d at 1257–59. Unlike *DDR Holdings*, the claim does not overcome a problem specifically arising in the realm of computer networks, here as discussed above the problem to be solved is to improve the analysis of data to derive useful insights. Thus, the problem addressed in claim 1 is not related to a computer or to another technology, but instead to “the performance of some business practice known from the pre-Internet world along with the requirement to perform it” via computer and Internet which the *DDR* court distinguished as not involving solutions necessarily rooted in computer technology. *DDR Holdings*, 773 F.3d at 1257.

Further, we are not persuaded that the claimed application of rules based upon identified features recites significantly more and draws the claim to patent eligible subject matter. In *McRO*, the court reviewed claims which use “a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated characters.” *McRO*, 837 F.3d at 1315. The court found that the claims did not “simply use a computer as a tool to automate conventional activity,” but instead used the computer to “perform a distinct process” that is carried out in a different way than the prior non-computer method to improve the technology of (3-D animation techniques). *See McRO*, 837 F.3d at 1314–16. Here claim 1 recites “generat[ing] rules based on the identified feature abbreviations” the claim does not set forth the rules applied, and Appellant’s Specification identifies that they are generated using algorithms such as the Apriori algorithm, a known data mining algorithm. Specification ¶¶ 26–27. Thus, the claim generically recites rules and there is no evidence that the claim performs a distinct process that is

carried out in a different way than the prior non-computer method. Thus, we conclude representative claim 1 does not recite a practical application of the judicial exception.

*Significantly More than the Abstract Idea*

Under the Memorandum, 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.

Representative claim 1 recites the additional elements of a computer, establishing a connection between an application and an in-memory database and a user interface. Appellant’s Specification describes the computer and data sources in general terms and does not describe a particular computer or specific source of data. Specification ¶¶ 44, 45. Further, the limitation of “establishing a connection” (step of accessing data which is also conventional to computer technology MPEP § 2106.05(d) II (iv)) and the limitations of “display[ing] the features . . . in a user interface” as describe above are conventional features of a computer system. Thus, we concur with the Examiner that the additional elements recite well known elements.

Further, with regard to Appellant’s preemption argument, on page 10 of the Appeal Brief, our reviewing court has said “[w]here a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, . . . , preemption concerns are fully addressed and made moot.”

*Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). Thus, Appellant's arguments are not persuasive of error in the Examiner's determination that the claims do not recite significantly more than the abstract idea.

In summary, Appellant's arguments have not persuaded us of error in the Examiner's determination that representative claim 1 recites an abstract idea; a method of collecting/gathering information, analyzing it and displaying the results (mental processes). Further, Appellant's arguments have not persuaded us that the Examiner erred in finding that the claim is not: directed to an improvement in the functioning of the computer or to other technology or other technical field; directed to a particular machine; directed to performing or affecting a transformation of an article to a different state or thing; directed to using a judicial exception in some meaningful way beyond linking the exception to a particular technological environment such that the claim as a whole is more than a drafting effort to monopolize the judicial exception. For these reasons, we are unpersuaded that the claim recites additional elements that integrate the judicial exception into a practical application. *See* Memorandum, 84 Fed. Reg. at 54. Accordingly, we sustain the Examiner's rejection of claim 1, and claims 2, 3, 5 through 10, 12 through 17, 19 and 20 grouped with claim 1, under 35 U.S.C. § 101 as being directed to a patent-ineligible abstract idea, that is not integrated into a practical application, and does not include an inventive concept.

## CONCLUSION

We affirm the Examiner's rejection of claims 1 through 3, 5 through 10, 12 through 17, 19 and 20, under 35 U.S.C. § 101.

In summary:

<b>Claim Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/ Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-3, 5-10, 12-17, 19, 20	101	Eligibility	1-3, 5-10, 12-17, 19, 20	

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

**AFFIRMED**