UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

PUREPREDICTIVE, INC.,

Plaintiff,

v.

H2O.AI, INC.,

Defendant.

Case No. 17-cv-03049-WHO

ORDER GRANTING H20.AI, INC.'S MOTION TO DISMISS

Re: Dkt. No. 14

United States District Court
Northern District of California

INTRODUCTION

Plaintiff PUREPREDICTIVE, Inc. ("PPI") brings this action against H20.AI, Inc. ("H20") for direct and induced infringement of U.S. Patent No. 8,880,446 ("the '446 Patent"). H20 moves to dismiss PPI's claims, arguing that the '446 Patent is invalid because its claims are directed to patent-ineligible concepts under 35 U.S.C. § 101. Because PPI's claims are directed to the abstract concept of the manipulation of mathematical functions and make use of computers only as tools, rather than provide a specific improvement on a computer-related technology, I GRANT H20's motion to dismiss the Complaint.

BACKGROUND

I. Factual Background

A. The '446 Patent

The '446 Patent, titled "PREDICTIVE ANALYTICS FACTORY," relates to "an automated factory for predictive analytics." Complaint ("Compl.") Ex. A ("The '446 Patent") at 1:15–16 [Dkt. No. 1-1]. It describes that while "[d]ata analytics models are typically highly tuned and customized for a particular application" requiring "complex manual tools," such customized models are "typically useless or at least inaccurate for other applications and fields." *Id.* at 1:20–

32. On the other hand, "a general purpose analytics framework typically is not specialized enough for most applications without substantial customization." *Id.* at 1:32–34. There is thus a need for "an apparatus, system, method, and computer program product to generate a predictive ensemble in an automated manner . . . regardless of the particular field or application, with little or no input from a user or expert." *Id.* at 1:38–45. The '446 Patent purports to fill this gap.

Claim 14 is representative of the method, and recites the following elements:

> A method for a predictive analysis factory, the method comprising:
> pseudo-randomly generating a plurality of learned functions based on training data without prior knowledge regarding suitability of the generated learned functions for the training data, the training data received for forming a predictive ensemble customized for the training data;
> evaluating the plurality of learned functions using test data to generate evaluation metadata indicating an effectiveness of different learned functions at making predictions based on different subsets of test data; and
> forming the predictive ensemble comprising a subset of multiple learned functions from the plurality of learned functions, the subset of multiple learned functions selected and combined based on the evaluation metadata, the predictive ensemble comprising a rule set synthesized from the evaluation metadata to direct different subsets of the workload data through different learned functions of the multiple learned functions based on the evaluation metadata.

Compl. ¶ 17. Put very simply, the method performs predictive analytics in three steps. First, it receives data and generates "learned functions," or, for example, regressions from that data. *See* '446 Patent at 8:66–9:12. Second, it evaluates the effectiveness of those learned functions at making accurate predictions based on the test data. Finally, it selects the most effective learned functions and creates a rule set for additional data input. These three steps comprise the predictive analytics factory's method. Claim 1 recites a module-based apparatus for this predictive analytics factory, Compl. ¶ 16, Claim 17 recites a computer program product to perform the operations of the predictive analytics factory, Compl. ¶ 18, and Claim 23 recites a predictive analytics ensemble, Compl. ¶ 19.

B. The Parties and Procedural Background

PPI is a technology company that uses artificial intelligence to provide insight into business's data through the use of predictive modeling. Compl. ¶¶ 7–8. It is the owner of the '446 Patent. *Id.* ¶ 11. H20 is an open-source software company that provides a machine learning

platform called "H20 with AutoML," integrated with applications and data products. *Id.* ¶¶ 9, 15. PPI alleges that H20 with AutoML infringes on Claims 1, 14, 17, and 23 of the '446 Patent. *Id.* ¶ 20. H20's website, which includes links to source code documentation, tutorials, videos, examples, and presentations about the platform, reinforces PPI's belief that the platform infringes on its claims. *Id.* ¶¶ 21–36. On May 24, 2017, PPI informed H20 of the '446 Patent and PPI's belief that H20's machine learning platform uses one or more apparatuses, methods, program products, and systems covered by the patent. *Id.* ¶ 14.

PPI filed suit against H20 on May 26, 2017, alleging both direct infringement of the '446 Patent as well as induced infringement of the '446 Patent through the H20 with AutoML platform. H20 now moves to dismiss PPI's Complaint.

LEGAL STANDARD

Under Federal Rule of Procedure 12(b)(6), a district court must dismiss a complaint if it fails to state a claim upon which relief can be granted. To survive a Rule 12(b)(6) motion to dismiss, the plaintiff must allege "enough facts to state a claim to relief that is plausible on its face." *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007). A claim is facially plausible when the plaintiff pleads facts that "allow[] the court to draw the reasonable inference that the defendant is liable for the misconduct alleged." *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (citation omitted). While courts do not require "heightened fact pleading of specifics," a plaintiff must allege facts sufficient to "raise a right to relief above the speculative level." *Twombly*, 550 U.S. at 555, 570. In deciding whether the plaintiff has stated a claim upon which relief can be granted, the court accepts the plaintiff's allegations as true and draws all reasonable inferences in favor of the plaintiff. *See Usher v. City of Los Angeles*, 828 F.2d 556, 561 (9th Cir. 1987). The court is not required to accept as true "allegations that are merely conclusory, unwarranted deductions of fact, or unreasonable inferences." *In re Gilead Scis. Sec. Litig.*, 536 F.3d 1049, 1055 (9th Cir. 2008).

To state a claim for patent infringement, "a patentee need only plead facts sufficient to place the alleged infringer on notice. This requirement ensures that the accused infringer has sufficient knowledge of the facts alleged to enable it to answer the complaint and defend itself."

Phonometrics, Inc. v. Hosp. Franchise Sys., Inc., 203 F.3d 790, 794 (Fed. Cir. 2000). The Federal Circuit has "repeatedly recognized that in many cases it is possible and proper to determine patent eligibility under 35 U.S.C. § 101 on a Rule 12(b)(6) motion." *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1269, 1373 (Fed. Cir. 2016). In such circumstances where it is possible and proper, "claim construction is not an inviolable prerequisite to a validity determination under § 101." *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1273 (Fed. Cir. 2012).

DISCUSSION

Under Section 101 of the Patent Act, "[w]hoever 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 . . . ." 35 U.S.C. § 101. The Supreme Court "has long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014). The reason for the exception is clear enough—"such discoveries are manifestations of . . . nature, free to all men and reserved exclusively to none." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012) (internal quotation marks and citations omitted). The boundaries of the exception, however, are not so clear.

The *Alice* court highlighted "the concern that drives this exclusionary principle as one of pre-emption." *Alice*, 134 S. Ct. at 2354 (noting the delicate balance inherent in promoting progress, the primary object of patent law, and granting a monopoly, the means for accomplishing that goal). In other words, patents that seek to wholly preempt others from using a law of nature or an abstract idea—"the basic tools of scientific and technological work"—are invalid. *Id.* "Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the buildin[g] block[s] of human ingenuity and those that integrate the building blocks into something more, thereby transform[ing] them into a patent-eligible invention." *Id.* (internal quotation marks and citations omitted).

In evaluating whether claims are patent eligible, I must first "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Alice*, 134 S. Ct. at 2355. "[T]he

'directed to' inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether their character as a whole is directed to excluded subject matter." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (internal quotation marks omitted). Although there is no brightline rule for determining whether a claim is directed to an abstract idea, courts have articulated some guiding principles. When evaluating computer-related claims, courts look to whether the claims "improve the functioning of the computer itself," *Alice*, 134 S. Ct. at 2359, or whether "computers are invoked merely as a tool" to implement an abstract process. *Enfish*, 822 F.3d at 1336.

If the claims are directed to a patent-ineligible concept, I must then "consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application." *Id.* at 1334 (internal quotation marks and citations omitted). This step entails the "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." *Alice*, 134 S. Ct. at 2355 (internal quotation marks and citations omitted). "For the role of a computer in a computer-implemented invention to be deemed meaningful in the context of this analysis, it must involve more than performance of well-understood, routine, [and] conventional activities previously known to the industry." *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014). "[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Id.* at 1348. However, "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

I. Whether the Claims Are Directed to Patent-Ineligible Concepts

H20 asserts that PPI's claims are directed to patent-ineligible concepts because they are directed to an abstract mathematical process for testing and refining algorithms, citing several cases in support of its assertion. They characterize PPI's patent as an attempt to monopolize the use of basic mathematical manipulations without reference to any specific implementation,

application, purpose, or use. PPI counters that its claims are not only directed to computer-related technology but also solve a specific problem in and make improvements to computer-related technology. It too offers various cases it claims support its position.

While the Federal Circuit has recognized "that it is not always easy to determine the boundary between abstraction and patent-eligible subject matter," several of its cases have offered guiding principles. *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1347 (Fed. Cir. 2015); *see also Parker v. Flook*, 437 U.S. 584, 589 (1978) ("The line between a patentable 'process' and an unpatentable 'principle' is not always clear."). H20 urges that this case is similar to *Synopsys, Inc. v. Mentor Graphics Corp.*, in which the Federal Circuit addressed whether certain asserted claims were directed to a mental process or to a computer-related technology. 839 F.3d 1138, 1146–51 (Fed. Cir. 2016). The patent at issue related to the logic circuit design process and provided a scheme to translate functional descriptions of logic circuits into hardware component descriptions, without the requirement of certain intermediary steps, through constructs known as control flow graphs and assignment conditions. *Id.* at 1139–40. Explaining that "[t]he § 101 inquiry must focus on the language of the Asserted Claims themselves," the court noted that while "the inventions . . . were intended to be used in conjunction with computer-based designed tools, the [claims] were not confined to that conception" and "[we]re devoid of any reference to a computer or any other physical component." *Id.* at 1147, 1149. The claims, on their face, "d[id] not call for any form of computer implementation of the claimed methods," and the patent holder did not argue that the claims "must be *construed* as requiring a computer to perform the recited steps." *Id.* at 1149.

PPI distinguishes its patent specification and claims from those in *Synopsys*, pointing to various references to computers found in both. Instead, it suggests that I analyze the case under *Enfish*, where the patents at issue were directed to "an innovative logical model for a computer database" with a self-referential property, as opposed to the standard relational model. 822 F.3d at 1330. The Federal Circuit disagreed with the district court that the claims were directed to the abstract idea of "the concept of organizing information using tabular formats." *Id.* at 1337. It explained that "the claims [we]re not simply directed to *any* form of storing tabular data, but

instead are specifically directed to a *self-referential* table for a computer database." *Id.* The self-referential table was "an improvement of an existing technology" in that it offered "increased flexibility, faster search times, and smaller memory requirements." *Id.* The court contrasted this claim to others that simply "recited use of an abstract mathematical formula on any general purpose computer." *Id.* at 1338.

PPI also points to *McRO, Inc. v. Bandai Namco Games America, Inc.*, where the patents related to automating the process of 3-D animation of a character as it speaks. 837 F.3d 1299, 1303 (Fed. Cir. 2016). In examining whether the patent was directed to an abstract idea, the court explained that the computer "perform[e]d a distinct process to automate a task previously performed by humans" but went "beyond merely organizing [existing] information into a new form or carrying out a fundamental economic process." *Id.* at 1314–15 (internal quotation marks omitted). Instead, it "use[d] 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." *Id.* at 1315. Thus, the court concluded that the claim was not directed to an abstract idea. *Id.* at 1316.

FairWarning IP, LLC v. Iatric Systems, Inc. is illustrative of a claim that the Federal Circuit did not consider an improvement of an existing technological process. 839 F.3d 1089 (Fed. Cir. 2016). It involved a patent on an invention that "collect[ed] information regarding accesses of a patient's personal health information, analyze[d] the information according to one of several rules (i.e., related to accesses in excess of a specific volume, accesses during a pre-determined time interval, or accesses by a specific user) to determine if the activity indicate[d] improper access, and provide[d] notification if it determines that improper access has occurred." *Id.* at 1093. The court explained that "analyzing information by steps people go through in their minds, or by mathematical algorithms, without more," are "essentially mental processes within the abstract-idea category." *Id.* Similarly, "merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis." *Id.* Applied to that patent, the court concluded that the claims were "directed to a

combination of these abstract-idea categories," specifically, "collecting and analyzing information to detect misuse and notifying a user when misuse is detected." *Id.* at 1094. Although the claims "us[ed] one of a few possible rules to analyze the audit log data," those rules were nonetheless directed to an abstract idea. *Id.* The mere "use of the computer," rather than "the incorporation of the claimed rules," was not enough to "improve [the] existing technological process." *Id.* The Federal Circuit affirmed the district court's dismissal of the suit on the pleadings. *Id.* at 1097.

Turning to this case, I agree with H20 that PPI's claims are directed to a mental process and the abstract concept of using mathematical algorithms to perform predictive analytics. The method of the predictive analytics factory is directed towards collecting and analyzing information. The first step, generating learned functions or regressions from data—the basic mathematical process of, for example, regression modeling, or running data through an algorithm—is not a patentable concept. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014) ("We know that mathematical algorithms, including those executed on a generic computer, are abstract ideas."). That the "function generator module" described in the '446 Patent "may generate hundreds, thousands, or millions of learned functions, or more," '446 Patent at 9:55–57, does not change this conclusion. While PPI claims that this shows it would be impossible for a human to perform such a task, just because a computer can make calculations more quickly than a human does not render a method patent eligible. *See Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) ("The computer required by some of Bancorp's claims is employed only for its most basic function, the performance of repetitive calculations, and as such does not impose meaningful limits on the scope of those claims."); *Synopsys*, 839 F.3d at 1146 ("Methods which can be performed entirely in the human mind are unpatentable not because there is anything wrong with claiming mental method steps as part of a process containing non-mental steps, but rather because [they] embody the 'basic tools of scientific and technological work' that are free to all men and reserved exclusively to none."). The patent specification's description of this process as a "brute force, trial-and-error approach," reinforces that this process is merely the running of data through a machine. '446 Patent, 10:6–10.

The next steps of the method are similarly abstract. The method takes the learned functions, evaluates their effectiveness, and selects those most effective to create a rule set. These are mathematical processes that not only could be performed by humans but also go to the general abstract concept of predictive analytics rather than any specific application. Again, the patent specification's language reinforces this conclusion; it describes "an apparatus, system, method, and computer program product [that] would comprise a predictive analytics factory configured to generate a predictive ensemble *regardless of the particular field or application*." '446 Patent at 1:41–44 (emphasis added). These claims are similar to those in *Synopsys;* that the claims "were intended to be used in conjunction with computer-based design tools" did not save the broad and abstract language of the asserted claims. *Synopsys*, 839 F.3d at 1149.

If I accept PPI's assertion that the claims are directed to a computer-related technology, PPI still cannot show that its claims improve the functioning of a computer-related technology rather than use computers as a tool. *See Alice*, 134 S. Ct. at 2359; *Enfish*, 822 F.3d at 1336. While PPI points to Claim 17 (which specifically references a "computer program product"), other claims' use of the term "module," and the patent specification's reference to the learned functions comprising "a computer readable code," '446 Patent at 8:50–51, these few passing references to computers only show that the method uses the computer as a tool for automation of its process. *See DDR Holdings*, 773 F.3d at 1256 ("[R]ecitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible. The bare fact that a computer exists in the physical rather than purely conceptual realm is beside the point." (internal quotation marks and citations omitted)).

In *Enfish*, for example, the claims improved upon the standard relational model with a new type of self-referential database, which constituted more than "recited use of an abstract mathematical formula on any general purpose computer." 822 F.3d at 1338. And in *McRo*, the technology went beyond mere "organiz[ation] [of existing] information into a new form or carrying out a fundamental economic process." 837 F.3d at 1314–15. But PPI fails to identify any previously existing technology that its claims improve upon, or that its claims do more than carry out regression analysis and evaluation. Instead, its claims "merely present[] the results of

abstract processes of collecting and analyzing information" and "us[e] one of a few possible rules to analyze the [] data." *FairWarning*, 839 F.3d at 1094.

PPI's claims are directed to the patent-ineligible abstract concept of testing and refining mathematical algorithms. While they may invoke computers as a tool for this process, the claims do not make a specific improvement on an existing computer-related technology. Because PPI's claims are directed to patent-ineligible concepts, I will move on to *Alice*'s step two.

II. Whether the Additional Elements Transform the Nature of the Claim into a Patent-Eligible Application

H20 argues that PPI's claims do not contain an inventive concept sufficient to transform them into a patent-eligible application. PPI counters that its claims contain both an unconventional improvement in its field and an inventive concept through its ordered combination. It likens its claims to those in *DDR Holdings* and *BASCOM*. It describes its claims as aiming to "generate a predictive ensemble in an automated manner" with "little or no input from a user or expert," while still offering customization and finely tuned predictive ensembles. Opp. at 19–20. PPI points out that its ensembles "do not need extensive tuning and customization" and "are applicable regardless of the particular field or application." Opp. at 20 (internal quotation marks omitted). It alleges that this process constitutes an unconventional solution in its field and that its particular arrangement is an improvement to existing technology.

In *DDR Holdings*, the Federal Circuit examined a patent that claimed a technical solution to the "Internet-centric problem" of third-party web merchants luring the host website's visitor traffic away when visitors would click on merchants' advertisements. 773 F.3d at 1248, 1259. The patents disclosed a system that created a new composite webpage displaying the product information from the third-party merchant, but retaining the host website's "look and feel" and allowing the host website to retain its visitor traffic. *Id.* at 1248–49. The court found that the "new, hybrid webpage that merges content" from two sources and creates a "store within a store" was an inventive solution to the problem of customer loss tied specifically to the Internet. *Id.* at 1257–58. The court explicitly "caution[ed], however, that not all claims purporting to address Internet-centric challenges are eligible for patent." *Id.* at 1258.

It is easy to distinguish the present case. For starters, PPI does not claim that its patent is Internet-centric, but instead that its claims are "necessarily rooted in computer technology" and "take place in a technological environment." Opp. at 18. The realm of computer technology or technological environments is far broader than Internet-centric challenges. Moreover, while the claims in *DDR Holdings* were directed to a very specific problem—that allowing third-party advertising on websites resulted in decreased visitor retention—here, PPI's claims address the universal problem in any analytical framework of choosing between a more generally applicable or more specific and customized model. And finally, while the solutions in *DDR Holdings* were specifically engineered to construct a hybrid web page "stor[ing] visually perceptible elements from the identified host website," 773 F.3d at 1257 (internal quotation marks omitted), PPI's solutions remain the abstract mathematical processes of collecting and analyzing data. This is not the unconventional or inventive solution necessary to satisfy the second step of *Alice*.

Nor are PPI's claims like those in *BASCOM*. In that case, the claims at issue were directed to "a content filtering system for filtering content retrieved from an Internet computer network." 827 F.3d at 1348 (internal quotation marks omitted). The filtering system was "located on a remote ISP server that . . . allow[ed] individual network accounts to customize the filtering of Internet traffic associated with the account." *Id.* at 1345. While the Federal Circuit found that the claims were directed to the abstract idea of content filtration, they agreed with the patent holder that they contained the inventive concept of "installation of a filtering tool at a specific location, remote from end-users, with customizable filter features specific to each end user." *Id.* at 1350. But the court again clarified that the "claims d[id] not merely recite the abstract idea of filtering content along with the requirement to perform it on the Internet, or to perform it on a set of generic computer components," because "[s]uch claims would not contain an inventive concept." *Id.*

PPI's claims cannot meet that showing. While the claims in *BASCOM* were specifically tied not only to the Internet but also to the specific function of content filtration as well as concrete locations, PPI's claims "merely recite the abstract idea of" predictive analytics "along with the requirement to perform it on . . . a set of generic computer components." *BASCOM*, 827 F.3d at 1350. PPI's claims do not describe specific system architecture, and references to generic

"modules" do not provide any further specificity. While PPI claims that "the ordered combination of the claims" provides an inventive concept, there is nothing inventive about its particular arrangement. Instead, its claims recite the functional steps for collecting, analyzing, and refining data through mathematical algorithms. As *BASCOM* explained, an inventive concept "must be significantly more than the abstract idea itself." *Id.* at 1349. PPI's technology, while perhaps an effective method, is simply an implementation of the basic concept of predictive analytics on an apparatus, computer program product, or other medium.

Because PPI cannot show an inventive concept sufficient to transform its claims, its claims fail as patent ineligible under Section 101.

CONCLUSION

For the reasons stated above, I GRANT H20's motion to dismiss the Complaint. Amendment would be futile in light of the analysis above; leave to amend was not sought and will not be granted. Judgment shall be entered accordingly.

IT IS SO ORDERED.

Dated: August 29, 2017

William H. Orrick
United States District Judge

United States District Court
Northern District of California