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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte BABAK HODJAT and HORMOZ SHAHRZAD

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Appeal 2018-001738
Application 14/259,005
Technology Center 3600

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Before MURRIEL E. CRAWFORD, AMEE A. SHAH, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] seeks our review under 35 U.S.C. § 134 of the Examiner's
final rejection of claims 1–7. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We AFFIRM.

THE INVENTION

Appellant claims a class-based distributed evolutionary algorithm for
asset management and trading. (Spec. ¶ 1, Title).

Claim 1 is representative of the subject matter on appeal.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37
C.F.R. § 1.42. Appellant identifies the real party in interest as Sentient
Technologies (Barbados) Limited. (Appeal Brief 4).

1. A server computer system for use with a plurality of individuals, each individual in the plurality of individuals identifying a plurality of indicators and at least one corresponding action in dependence upon the indicators,

the server computer system being for use further with a plurality of client computers each assigned to a respective class of individuals in the plurality of individuals, each of the classes being associated with a respective subset of indicators in the plurality of indicators, not all of the subsets being the same,

the plurality of individuals including a first subset of individuals all of which are in a first one of the classes of individuals, the server computer comprising:

a memory accessible to the server computer system and storing a server candidate pool having individuals in the plurality of individuals;

a communications port through which the server computer system receives individuals from the client computers, including receiving from client computers assigned to the first class individuals in the first subset of the individuals; and

a processor configured to:

determine whether the first class satisfies a predetermined convergence condition, and if so then to merge the first class with a second one of the classes to derive a merged class, the client computers that were assigned to the first class being re-assigned to the merged class, and

transmit to the client computers for further evaluation, individuals in the first subset of the received individuals;

wherein each individual in the first subset transmitted for further evaluation is transmitted for further evaluation to:

a client computer assigned to the first class,
if the first class did not satisfy the predetermined
convergence condition, and
a client computer assigned to the merged class, if
the first class did satisfy thepredetermined
convergence condition.

THE REJECTION

Claims 1–7 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

ANALYSIS

35 U.S.C. § 101 REJECTION

We will sustain the rejection of claims 1–7 under 35 U.S.C. § 101.

The Supreme Court

set forth a framework for distinguishing patents
that claim laws of nature, natural phenomena, and
abstract ideas from those that claim patent-eligible
applications of those concepts. First, . . . determine
whether the claims at issue are directed to one of
those patent-ineligible concepts. If so, . . . then ask,
"[w]hat else is there in the claims before us?" To
answer that question, . . . 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. [The Court] described
step two of this analysis as a 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 Corp. v. CLS Bank Int'l, 573 U.S. 208, 217–218 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–73 (2012)) (citations omitted, first and third alterations in original).

To perform this test, we must first determine whether the claims at issue are directed to a patent-ineligible concept. The Federal Circuit has explained that "the 'directed to' inquiry applies a stage-one filter to claims, considered in light of the [S]pecification, based on whether 'their character as a whole is directed to excluded subject matter.'" *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)). It asks whether the focus of the claims is on a specific improvement in relevant technology or on a process that itself qualifies as an "abstract idea" for which computers are invoked merely as a tool. *See id.* at 1335–36.

In so doing we apply a "directed to" two prong test: 1) evaluate whether the claim recites a judicial exception, and 2) if the claim recites a judicial exception, evaluate whether the judicial exception is integrated into a practical application. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) ("*Guidance*").

The Examiner determines that the claims are directed to "determining if the received individual satisfies a condition (i.e. rule) and merge the individual to derive a merged class (i.e. identify option) and transmit the individual for further evaluation (identify option)" which is similar to other concepts that have been found by the courts to be abstract in nature such as comparing new and stored information and using rules to identify options. (Final Act. 3–4). The Examiner explains that claim 1 describes a concept of collecting information, analyzing it, and displaying certain results of the

collection and analysis, which is similar to the concept found to be abstract by the courts. (Ans. 4). The Examiner finds claim 1 recites limitations in addition to the abstract idea, i.e., the server computer system, a plurality of client computers, a memory accessible to the server computer system, and a processor. These are all recited at a high level of generality and their broadest reasonable interpretation comprises a microprocessor, memory, and other computer related components, which are simply performing their routine, well-understood, and conventional functions similar to what has been found by the courts not to be adding significantly more to the underlying abstract idea. (Final Act. 4).

The Specification discloses that a genetic algorithm is a way to find an optimum solution to a problem, using techniques that attempt to emulate Darwinian evolution. To perform a genetic algorithm, it is provided with a target problem, an environment and a fitness function by which the genetic algorithm quantifies how good a particular solution is at negotiating the environment. (Spec. ¶ 4). Genetic algorithms are used to categorize a stock as following or not following a trend. (Spec. ¶ 3). A gene may be defined by a set of rules governing its behavior within the environment. A rule is a list of conditions followed by an action to be performed in the environment. A fitness function may be defined by the degree to which an evolving rule set is successfully negotiating the environment. A fitness function is thus used for evaluating the fitness of each gene in the environment. A reproduction function generates new genes by mixing rules with the fittest of the parent genes. In each generation, a new population of genes is created. (Spec. ¶ 4).

At the start of the process of the invention, genes constituting the initial population are created randomly by putting together the building blocks that form a gene or rule. The memory in each client computer is operative to store a multitude of solutions or "individuals", each characterized by a set of conditions. (Spec. ¶ 6). Each client computer is assigned to one of a multitude of classes and each class is associated with and represented by a subset of indicators that are used by client members to create new genes or rules.

The invention is a method of solving a computational problem, which is done by storing a multitude of genetic algorithms characterized by a number of conditions, a subset of indicators, and a gene class. Data associated with the gene is periodically received and the performance characteristics of each gene are evaluated by comparing a solution or individual provided by the gene with periodically received data associated with that gene. (Spec. ¶ 11). Two or more classes are merged to generate a new class of genes represented by a subset of indicators that are used by the client members of the class to created new genes. (Spec. ¶ 27).

This disclosure makes it clear that the invention is directed to collecting and analyzing data. As such, the Specification supports the Examiner's determination that the claims are directed to the concept of collecting information, analyzing it, and displaying certain results of the collection and analysis.

Consistent with this disclosure, claim 1 recites a processor configured to analyze data to "determine whether the first class satisfies a predetermined convergence condition, and if so then to merge the first class with a second one of the classes to derive a merged class," transmit "to the

client computer[] . . . individuals in the first subset of . . . individuals," transmit individual for evaluation to "a client computer assigned to the first class, if the first class did not satisfy the predetermined . . . condition," and "a client computer assigned to the merged class, if the first class did satisfy the predetermined convergence condition."

We thus agree with the Examiner's findings that the claims are directed to collecting information, analyzing it, and displaying certain results. The steps of claim 1, for example, constitute "analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016); s*ee also buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (claims directed to certain arrangements involving contractual relations are directed to abstract ideas). Thus, we find that the claims recite a system that performs evaluation and judgement of whether a particular individual or algorithmic solution satisfies a predetermined convergence condition and as such is a mental process. *Guidance*, 84 Fed. Reg. at 52.

Turning to the second prong of the "directed to test", claim 1 requires a "server computer system" and "client computers." These recitations do not impose "a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception." *Guidance*, 84 Fed. Reg. at 53. We find no indication in the Specification, nor does Appellant directs us to any indication, that the operations recited in independent claim 1 invoke any inventive programming, require any specialized computer hardware or other inventive

computer components, i.e., a particular machine, or that the claimed invention is implemented using other than generic computer components to perform generic computer functions. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014) ("[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible.").

We also find no indication in the Specification that the claimed invention effects a transformation or reduction of a particular article to a different state or thing. Nor do we find anything of record, short of attorney argument, that attributes any improvement in computer technology and/or functionality to the claimed invention or that otherwise indicates that the claimed invention integrates the abstract idea into a "practical application," as that phrase is used in the Guidance. *See Guidance*, 84 Fed. Reg. at 55.

In this regard, the recitation does not effect an improvement in the functioning of a server computer system, client computers or other technology, does not recite a particular machine or manufacture that is integral to the claims, and does not transform or reduce a particular article to a different state or thing. *Id.* Thus, claim 1 is directed to a judicial exception that is not integrated into a practical application and thus is directed to an "abstract idea."

Turning to the second step of the *Alice* analysis, because we find that the claims are directed to abstract ideas/judicial exceptions, the claims must include an "inventive concept" in order to be patent-eligible, i.e., there must be an element or combination of elements that is sufficient to ensure that the claim in practice amounts to significantly more than the abstract idea itself. *See Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

The introduction of a computer into the claims does not alter the analysis at *Alice* step two.

> [T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea "while adding the words 'apply it'" is not enough for patent eligibility. Nor is limiting the use of an abstract idea "'to a particular technological environment.'" Stating an abstract idea while adding the words "apply it with a computer" simply combines those two steps, with the same deficient result. Thus, if a patent's recitation of a computer amounts to a mere instruction to "implemen[t]" an abstract idea "on ... a computer," that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our § 101 jurisprudence. Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of "additional featur[e]" that provides any "practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself."

Alice, 573 U.S. at 223 (alterations in original) (citations omitted).

Instead, "the relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea . . . on a generic computer." *Id.* at 225. They do not.

Taking the claim elements separately, the function performed by the computer system at each step of the process is purely conventional. Using a computer to retrieve, select, and apply decision criteria to data and modify the data as a result amounts to electronic data query and retrieval—one of the most basic functions of a computer. All of these computer functions are well-understood, routine, conventional activities previously known to the

trading industry. *See Elec. Power Grp.*, 830 F.3d at 1354*; see also In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) ("Absent a possible narrower construction of the terms 'processing,' 'receiving,' and 'storing,' . . . those functions can be achieved by any general purpose computer without special programming"). In short, each step does no more than require a generic computer to perform generic computer functions. As to the data operated upon, "even if a process of collecting and analyzing information is 'limited to particular content' or a particular 'source,' that limitation does not make the collection and analysis other than abstract." *SAP Am. Inc. v. InvestPic, LLC*, 890 F.3d 1016, 1022 (Fed. Cir. 2018).

Considered as an ordered combination, the computer components of Appellant's claims add nothing that is not already present when the steps are considered separately. In this regard, the combination of a server computer system that communicates with client computers is well-understood, conventional and routine. The sequence of data reception-analysis-access/display is equally generic and conventional or otherwise held to be abstract. *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (sequence of receiving, selecting, offering for exchange, display, allowing access, and receiving payment recited an abstraction), *Inventor Holdings, LLC v. Bed Bath & Beyond, Inc.*, 876 F.3d 1372, 1378 (Fed. Cir. 2017) (holding that sequence of data retrieval, analysis, modification, generation, display, and transmission was abstract), *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (holding sequence of processing, routing, controlling, and monitoring was abstract). The ordering of the steps is, therefore, ordinary and conventional.

Claim 1 does not, for example, purport to improve the functioning of the server computer system itself or of the client computers. As we stated above, claim 1 does not effect an improvement in any other technology or technical field. The Specification spells out different generic equipment and parameters that might be applied using this concept and the particular steps such conventional processing would entail based on the concept of information access under different scenarios. (*See, e.g.*, Spec. ¶ 27). Thus, the recitations in claim 1 amount to nothing significantly more than instructions to apply the abstract idea of information access using some unspecified, generic computer. Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 226.

We have reviewed all the arguments (Appeal Br. 5–8; Reply Br. 4–16) Appellant has submitted concerning the patent eligibility of the claims before us that stand rejected under 35 U.S.C. § 101. We find that our analysis above substantially covers the substance of all the arguments, which have been made. But, for purposes of completeness, we will address various arguments in order to make individual rebuttals of same.

At the outset, we do not agree with Appellant's characterization of the invention as one that addresses the problem of too much data and too many candidate individuals. In making this argument, Appellant states that the invention drastically reduces the amount of data, which can be massive, that must be transmitted to the client computers for their use in performing the evaluations. (Appeal Brief 6–7). However, this characterization is not commensurate in scope with the recitations of claim 1. Claim 1 does not recite a massive amount of data or too much data and too many candidate

individuals. Instead, claim 1 recites a "plurality of individuals" or solutions. As a plurality can be interpreted as more than one individual, claim 1 is broad enough to include a system for use with two individuals, which is not a massive amount of data. Appellant argues that the embodiments of the invention can operate in an environment in which there is a substantial amount of data, so much in fact, that it is impossible to test an individual on all the available data sample. However, this is not what is claimed.

We are not persuaded of error on the part of the Examiner by Appellant's argument that the claims, like the claims in *Enfish*, improve the computer system in general. (Appeal Brief 11). Appellant argues that the invention is directed to a server computer system which is arranged relative to client computer systems so that it groups individuals into indicator-defined classes, receives individuals from client computer systems, decides whether to merge classes, and sends the individual back for further testing to client computer systems with in the same class or the merged class. *Id*. However, claim 1 differs from those found patent eligible in *Enfish*, where the claims were "specifically directed to a *self-referential* table for a computer database." *Enfish*, 822 F.3d at 1337. The claims thus were "directed to a specific improvement to the way computers operate" rather than an abstract idea implemented on a computer. *Id*. at 1336. Here, by contrast, the claims are not directed to an improvement to the way computers operate.

We agree with the Examiner's response to this argument found on pages 9–12 of the Answer and adopt the response as our own. Specifically, we agree that the improvements of claim 1 are in the area of genetic algorithms and do not carry over to the computer functionality. Though the

claims may accelerate and simplify the process of analyzing data, our reviewing court has held that speed and accuracy increases stemming from the ordinary capabilities of a general purpose computer "do[] not materially alter the patent eligibility of the claimed subject matter." *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

We are not persuaded of error on the part of the Examiner by Appellant's argument that the steps of the claimed invention never were and never could be purely mental steps because claim 1, for example, recites numerous features that are not a familiar part of the conscious process that can be performed in a person's head. Appellant directs our attention to the recitation of a plurality of client computers, a communication port, a server computer system, and the transmission to client computers. However, these elements were analyzed by the Examiner when determining whether the claims were directed to significantly more than the abstract idea and were not determines to be directed to the abstract idea of a mental process.

Appellant's argument that portions of claim 1 are not recitations of generic computer and network Internet components is unpersuasive. Appellant directs our attention to the recitations of the client computers and the steps that determine whether a first class satisfies a predetermined convergence condition and if so merging the first class with a second one to derive a merged class and transmitting individuals to the client computers for further evaluation. (Appeal Brief 19). We agree with the Examiner's response to this argument found on pages 13–14 of the Answer and adopt this response as our own. In particular, we agree that these recitations relate to collecting information, analyzing it, and displaying certain results, and as

such relate to the abstract idea itself. And as we found above, the recitation of the client computers, which is not part of the abstract idea, is a recitation of generic computer components. In the same vein, we do not agree with Appellant that the way the computer decides which client computers are to receive particular individuals for further evaluation cannot be said to be conventional or generic and provides an inventive concept. (Appeal Brief 20). The exact way the computer performs these functions is part of the abstract idea of collecting information, analyzing it, and displaying certain results, and thus cannot provide the inventive concept. Appellant's argument relies on the ineligible concept itself to establish that the claims recite an inventive concept. But "[i]t has been clear since *Alice* that a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept." *BSG Tech LLC v BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). Moreover, "[n]o 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." *SAP Am., Inc.*, 898 F.3d at 1163; *see also id.* at 1168.

We are not persuaded of error on the part of the Examiner by Appellant's argument that the claimed invention involves a specific novel and unconventional method and reduces massive data flow among computers. (Reply Br. 5). As we discussed above, claim 1 does not recite a method in which massive data flow occurs because claim 1 only recites a plurality of individuals which is broad enough to cover just two individuals. In addition, to the extent Appellant maintains that the limitations of claim 1

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necessarily amount to "significantly more" than an abstract idea because the claimed apparatus is allegedly patentable over the prior art, Appellant misapprehends the controlling precedent. Although the second step in the *Alice/Mayo* framework is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or non-obviousness, but rather, a search for "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*, 573 U.S. at 217–18 (alteration in original). A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90.

In view of the foregoing, we will sustain this rejection as it is directed to claim 1. We will also sustain the rejection as it is directed to the remaining claims because the Appellant has not argued the separate eligibility of these claims.

DOUBLE PATENTING REJECTION

We do not reach this rejection because the Appellant filed a terminal disclaimer on December 6, 2017, which was accepted by the Examiner on December 15, 2017. Therefore, this rejection is moot.

CONCLUSIONS OF LAW

We conclude the Examiner did not err in rejecting claims 1–7 under 35 U.S.C. § 101.

DECISION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–7	101	Eligibility	1–7	

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