# UNITED STATES PATENT AND TRADEMARK OFFICE

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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* BENNY KIMELFELD and DAVID P. WOODRUFF[1]

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Appeal 2017-008135
Application 13/901,165
Technology Center 3600

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Before CAROLYN D. THOMAS, BRADLEY W. BAUMEISTER, and
NABEEL U. KHAN, *Administrative Patent Judges.*

BAUMEISTER, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's

Final Rejection of claims 1–16. App. Br. 2.[2] These claims stand rejected

under 35 U.S.C. § 101 as being directed to patent ineligible subject matter.[3]

Final Act. 2–5. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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[1] Appellants list International Business Machines Corporation as the real
party in interest. Appeal Brief 2, filed November 23, 2016 ("App. Br.").
[2] Rather than repeat the Examiner's positions and Appellants' arguments in
their entirety, we refer to the above-mentioned Appeal Brief, as well as the
following documents, for their respective details: the Final Action mailed
July 21, 2016 ("Final Act."); the Examiner's Answer mailed March 9, 2017
("Ans."); and the Reply Brief filed April 17, 2017 ("Reply Br.").
[3] In copending Application No. 14/022,672, the Examiner provisionally
rejected claims 1–4 under the judicially created doctrine of nonstatutory
double patenting as being unpatenable over claims 1–4 of the present case.

STATEMENT OF THE CASE

Appellants describe the present invention as being "a technique to collect data (for a particular entity) from various computers and summarize the data at a server" (Spec. ¶ 27) for "estimating a large dataset, and more specifically, to estimating a maximum total sales value over streaming bids" (*id.* ¶ 1). The invention's software application performs this estimation by incorporating an error function $\varepsilon$ that represents a percentage of unconsidered data. *Id.* ¶¶ 28, 32. The algorithm of the invention reduces the amount of computer memory needed to estimate the total maximum value for all the items. *Id.* ¶ 74.

Independent claim 1, reproduced below with added emphasis, illustrates the appealed claims:

> 1. A method of computing an estimation of maximum total value over items, comprising:
>
> receiving, by a computer from sensors, items with associated item values on the items received;
>
> individually designating, by the computer, each item having an associated value as an item value pair;
>
> establishing, by the computer, value ranges to place item value pairs, wherein the value ranges are distinct and the value ranges are respectively designated from a first value range through a last value range, where the first value range is a lowest value range, the last value range is a highest value range, and other value ranges are in between the first value range and the last value range;

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The Examiner should consider whether a similar rejection is needed in the present case.

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performing, by the computer, an iteration comprising:

respectively adding each of the item value pairs into the value ranges according to each of the associated values for the item value pairs;

removing repeated item value pairs associated with a same item that are in same ones of the value ranges;

*selecting a number of the item value pairs, for the items, to remove from each of the value ranges, the number based on an error factor that reduces an amount of memory utilized,* wherein there are millions of the items received from the one or more sensors;

computing an estimate of the total maximum value for the item value pairs in all of the value ranges based on summation of all the value ranges and a scale factor, wherein there is a tradeoff for the estimate of the total maximum value in which a larger error factor reduces the amount of memory utilized in the computing while a smaller error factor provides more accuracy; and

when the receiving from a sensor is blocked due to an obstacle, providing the maximum total value across the sensors.

## PRINCIPLES OF LAW

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

In determining whether the claims set forth patent eligible subject matter under 35 U.S.C. § 101, we first must determine whether the claims at issue are directed to laws of nature, natural phenomena, or abstract ideas. *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 714 (Fed. Cir. 2014). In considering whether a claim is directed to an abstract idea, we acknowledge,

as did the Supreme Court, that "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012). We therefore look to whether the claims focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

If the claims are directed to an abstract idea, we then must consider whether the claim contains an element or a combination of elements that is sufficient to transform the nature of the claim into a patent-eligible application. *Ultramercial*, 772 F.3d at 714; *Alice Corp. Pty. Ltd. v. CLS Bank Int'l.*, 134 S. Ct. 2347, 2355 (2014).

> In applying step two of the *Alice* analysis, we must "determine whether the claims do significantly more than simply describe [the] abstract method" and thus transform the abstract idea into patentable subject matter. We look to see whether there are any "additional features" in the claims that constitute an "inventive concept," thereby rendering the claims eligible for patenting even if they are directed to an abstract idea. Those "additional features" must be more than "well-understood, routine, conventional activity."

*Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1328 (Fed. Cir. 2017) (citations omitted).

"[C]laims [that] merely require generic computer implementation[] fail to transform [an] abstract idea into a patent-eligible invention." *Id.* (alteration in original) (quoting *Alice*, 134 S. Ct. at 2357).

CONTENTIONS AND ANALYSIS

The Examiner finds that the appealed claims recite "the [abstract] concept of computing an estimation of maximum total sales over streaming items[, which] would be directed towards methods of organizing human activities." Final Act. 3–4 (citing *Cyberfone Systems, LLC v. CNN Interactive Group, Inc.*, 558 F. App'x 988 (Fed. Cir. 2014); *Digitech Image Tech., LLC v. Electronics for Imaging, Inc.* 758 F.3d 1344 (Fed. Cir. 2014)).

The Examiner further explains

> the claims are directed to establishing value ranges to place item value pairs and performing an iteration [that] includes adding item value pairs into the value ranges, removing repeated item value pairs . . . selecting a number of the item value pairs to remove, the number based on an error factor that reduces an amount of memory utilized and computing an estimate of the total maximum value. While Appellant[s'] arguments focus on the reduction in memory, the claims present a method where item value pairs are removed from the value ranges based on an error factor. While this removal of data from the computation would inherently reduce the amount of memory used[,] it is not tied to the technology in a way to suggest it would improve the functioning of the computer. Simply removing duplicate values and selecting other values to remove is not considered significantly more. While the claim states the number of item value pairs that are removed is based on an error factor[, i]t is not clear how this is tied to an improvement in the computer or technology.

Ans. 2.

The Examiner then reiterates,

> Appellant's claims do not yield a technological improvement or trigger any consequential change in a computer or its memory whatsoever, but instead the claims are directed to an algorithm that computes an estimate of a maximum value, which admittedly fulfills the preamble's stated pursuit of ". . . *computing an estimation of maximum total value over items,*" but

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which nevertheless does nothing to modify, change, reconfigure,
or improve the computer or its memory.

Ans. 3–4.

Appellants contend that their claims "(1) provide improvements to the
functioning of the computer itself, (2) provide improvements to another
technology or technical field, and (3) provide 'significantly more.'" Reply
Br. 5. More specifically, Appellants contend that "[r]educing 'an amount of
memory utilized' by the computer is a concept inextricably tied to computer
technology and distinct from the types of concepts found by the courts to be
abstract." App. Br. 7. Appellants further argue that "[t]he claims in the
instant case are analogous to *DDR Holdings, LLC* in that 'the claimed
solution is necessarily rooted in computer technology in order to overcome a
problem specifically arising in the realm of computer networks.'" App.
Br. 7 (citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257
(Fed. Cir. 2014)).

We agree with the Examiner that the claims are directed to an abstract
idea of computing an estimation of maximum total sales, which would be
directed towards methods of organizing human activities. Furthermore, the
claims do not contain an element or a combination of elements that is
sufficient to transform the nature of the claim into a patent-eligible
application. The subject matter of claim 1 is directed to a method of
bookkeeping or accounting, which may be characterized either as a
fundamental economic practice or a method of organizing human activity.
The fact that this method is performed on a computer for millions of entries
does not add significantly more to the abstract idea. Such an application
merely uses generic computers to perform their conventional computing
functions.

Regarding claim 1's additional limitation of removing value pairs based on an error factor that reduces an amount of memory utilized, this subject matter may be characterized as an algorithm for generating an approximated solution or a model for a problem where a more accurate solution would require more complex or time-consuming mathematical calculations. The creation of mathematical models for approximating solutions is exactly the type of abstract idea that mathematicians, physicists, and engineers have undertaken since the beginning of those fields of study.

The fact that a problem can be solved with a mathematical model or algorithm that requires less of a computer's memory than solving a problem with a more accurate algorithm does not mean that the algorithm is rooted in computer technology or that the algorithm overcomes a problem specifically arising in the realm of computer networks. It merely means that Appellants discovered a mathematical algorithm that uses computer memory in a conventional manner, but uses a relatively smaller amount of it. *See Parker v. Flook,* 437 U.S. 584, 595 (1978) ("If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.") (internal quotations omitted); *see also Digitech Image Tech. LLC v. Electronics for Imaging, Inc.,* 758 F.3d 1344, 1350 (Fed. Cir. 2014) (finding "a process of organizing information through mathematical correlations and is not tied to a specific structure or machine" to be an abstract idea.).

Appellants next argue that "[t]he claims provide improvements to sensors, network traffic monitoring, and routers." App. Br. 6. This argument is unpersuasive because these features upon which applicant relies are not recited in the rejected claims.

It is worth noting the reasoning that the *Alice* Court relied upon in finding unpatentable the claims at issue in that case:

> Considered "as an ordered combination," the computer components of petitioner's method "ad[d] nothing . . . that is not already present when the steps are considered separately." Viewed as a whole, petitioner's method claims simply recite the concept of intermediated settlement as performed by a generic computer. The method claims do not, for example, purport to improve the functioning of the computer itself. See *ibid.* ("There is no specific or limiting recitation of . . . improved computer technology . . ."). Nor do [the claims] effect an improvement in any other technology or technical field. Instead, the claims at issue amount to "nothing significantly more" than an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer.

*Alice*, 134 S. Ct. at 2359–60 (citations omitted).

Furthermore, "[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].'" *Alice*, 134 S. Ct. at 2357 (brackets in original) (quoting *Mayo*, 132 S. Ct. at 1297). The prohibition against patenting an abstract idea "cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant post-solution activity." *Bilski v. Kappos*, 561 U.S. 593, 610-11 (2010) (citation and internal quotation marks omitted). The recitations in claim 1 pertaining to "a computer" are analogous to the recitation of a conventional "computer" discussed in *Alice*.

As recognized by the Supreme Court, "the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *See Alice*, 134 S. Ct. at 2359 (concluding claims "simply instruct[ing] the practitioner to implement the abstract idea of

intermediated settlement on a generic computer" not patent eligible); *see also Ultramercial*, 772 F.3d at 715–16 (claims merely reciting abstract idea of using advertising as currency as applied to particular technological environment of the Internet not patent eligible). Limiting such an abstract concept of "computing an estimation of maximum total sales" to generic components, such as a computer, does not make the abstract concept patent-eligible under 35 U.S.C. § 101.

For the foregoing reasons, Appellants have not persuaded us of error in the Examiner's rejection of claims 1–16 as being directed to patent-ineligible subject matter.[4] Accordingly, we sustain the Examiner's rejection under 35 U.S.C. § 101 of claims 1–16.

## DECISION

The Examiner's decision rejecting claims 1–16 is affirmed.

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

## AFFIRMED

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[4] Appellants argue claims 1–16 together as a group. App. Br. 5, 6, 8.