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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* MICAH ASCANO

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Appeal 2018-003330  
Application 14/244,477<sup>1</sup>  
Technology Center 3600

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Before ELENI MANTIS MERCADER, NORMAN H. BEAMER, and  
ADAM J. PYONIN, *Administrative Patent Judges*.

BEAMER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's Non-Final Rejection of claims 1–9, 11–16, and 18–22. We have jurisdiction over the pending rejected claims under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> Appellant identifies the inventor Micah Ascano as the real party in interest. (App. Br. 2.)

## THE INVENTION

Appellant's disclosed and claimed invention is directed to monitoring a process of performing professional services, in which data, representing measured values of a parameter of the process, are plotted as a time series with respect to control limits computed from historical variation in the process. (Abstract.)

Independent claim 1, reproduced below, is illustrative of the subject matter on appeal:

1. A method of monitoring performance of professional services, the method comprising:
  - with at least one processor:
    - accessing a plurality of first values representing a prediction of values of a parameter of a process;
    - accessing a plurality of second values representing measured values of the parameter of the process;
    - computing a plurality of third values representing a proportional difference between the plurality of second values and respective ones of the plurality of first values;
    - computing a center line, an upper limit, and a lower limit based on statistical variation of at least a portion of the plurality of third values;
    - determining that one of the plurality of third values is outside of a range between the upper limit and the lower limit;
    - alerting a manager that the one of the plurality of third values is outside of the range;
    - determining that a pattern in the plurality of third values exists based at least in part on a plurality of consecutive values of the plurality of values being on a same side of the center line; and
    - adjusting the center line, the upper limit, and the lower limit based at least in part on determining that the pattern exists.

## REJECTIONS

The Examiner rejected claims 1–9, 11–16, and 18–22 under 35 U.S.C. § 101 as being directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. (Non-Final Act. 3.)

The Examiner rejected claims 1, 6–9, 11–16, 18–20, and 22 under 35 U.S.C. § 103 as being unpatentable over Cusson et al. (US 6,424,876 B1, iss. July 23, 2002) (hereinafter “Cusson”), and Lin et al. (US 2005/0038543 A1, pub. Feb. 17, 2005) (hereinafter “Lin”). (Non-Final Act. 6.)

The Examiner rejected claims 2–5 under 35 U.S.C. § 103 as being unpatentable over Cusson, Lin, and Lon Roberts, SPC FOR RIGHT-BRAIN THINKERS, PROCESS CONTROL OVER NON-STATISTICIANS, ISBN 0-87389-663-7, ASQ Quality Press (2006) (“Roberts”). (Non-Final Act. 16.)

The Examiner rejected claim 21 under 35 U.S.C. § 103 as being unpatentable over Cusson, Lin, and Richard Luecke, SCUTTLE YOUR SHIPS BEFORE ADVANCING: AND OTHER LESSONS FROM HISTORY ON LEADERSHIP AND CHANGE FOR TODAY’S MANAGERS, ISBN 0-19-508408-X, Oxford Univ. Press (1994) (“Luecke”). (Non-Final Act. 18.)

## ISSUES ON APPEAL

Appellant’s arguments in the Appeal and Reply Briefs present the following issues:<sup>2</sup>

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<sup>2</sup> Rather than reiterate the arguments of Appellant and the positions of the Examiner, we refer to the Appeal Brief (filed Oct. 13, 2017); the Reply Brief (filed Feb. 6, 2018); the Non-Final Office Action (mailed April 14, 2017); and the Examiner’s Answer (mailed Dec. 6, 2017), for the respective details.

*Issue One:* Whether the Examiner erred in finding claims 1–9, 11–16, and 18–22 are directed to non-statutory subject matter. (App. Br. 6–18; Reply Br. 4–9.)

*Issue Two:* Whether the Examiner erred in finding the combination of Cusson and Lin teaches or suggests the independent claim 1 limitations,

accessing a plurality of first values representing a prediction of values of a parameter of a process,

computing a plurality of third values representing a proportional difference between the plurality of second values and respective ones of the plurality of first values,

and

computing a center line, an upper limit, and a lower limit based on statistical variation of at least a portion of the plurality of third values,

and the commensurate limitations recited in independent claims 16 and 19. (App. Br. 18–21; Reply Br. 9–11.)

*Issue Three:* Whether the Examiner erred in finding the combination of Cusson and Lin teaches or suggests the limitation “the graphical depiction is displayed while the process is ongoing,” as recited in independent claim 9. (App. Br. 22.)

*Issue Four:* Whether the Examiner erred in finding the combination of Cusson, Lin, and Luecke teaches or suggests the limitation “determining that a worker is not trained to perform a task being assigned to the worker in response to determining that one of the plurality of third values is outside of the range,” as recited in dependent claim 21. (App. Br. 23–24.)

## ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. Arguments Appellant could have made but chose not to make are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). Except where noted, we adopt the Examiner’s findings and conclusions as our own, and we add the following primarily for emphasis.

### *First Issue*

The Examiner determines the claims are patent ineligible under 35 U.S.C. § 101, because the exemplary claim 1 “is directed to applying statistical process controls to data, which is an abstract idea.” (Non-Final Act. 3.) Particularly, the Examiner finds:

*the pending claims receive data* (e.g., a plurality of first values representing a prediction of values of a parameter of a process, a plurality of second values representing measured values of the parameter of the process, etc.), *analyze that data* (e.g., compute a plurality of third values representing a proportional difference between the plurality of second values and respective ones of the plurality of first values, computing a center line, an upper limit, and a lower limit based on statistical variation of at least a portion of the plurality of third values, determining that one of the plurality of third values is outside of a range between the upper limit and the lower limit, determining that a pattern in the plurality of third values exists based at least in part on a plurality of consecutive values of the plurality of values being on the same side of the center line, etc.) *and update information based on the analyzed data* (e.g., alerting a manager that one of the plurality of third values is outside of the range, adjusting the center line, the upper limit, and the lower limit based at least in part on determining that the pattern exists, etc.).

(Non-Final Act. 3–4) (emphasis added) (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016)); *see also Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217 (2014) (Describing the two-step

framework “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.”.)

After the mailing of the Answer and the filing of the Briefs in this case, the USPTO published revised guidance on the application of § 101(2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (hereinafter “Memorandum”).) Under the Memorandum, the Office first looks to 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* MPEP § 2106.05(a)–(c), (e)–(h) (9th 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, does the Office then look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that are 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, 84 Fed. Reg. at 56.

We are not persuaded the Examiner’s rejection is in error. We adopt the Examiner’s findings and conclusions as our own, and we add the following primarily for emphasis and clarification with respect to the Memorandum.

Appellant argues “the present claims have been oversimplified in a similar manner to the claims held to be patent-eligible” in *McRo, Inc. v. Bandai Namco Games America*, 837 F.3d 1299 (Fed. Cir. 2016) (App. Br. 10), and similarly argues that “the Office Action fails to consider the claims as a whole.” (App. Br. 12) (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016).)

Appellant further contends that because:

the present claims are directed to optimizing detection and correction of work performance and budget related issues by proportionately comparing measured values to predicted values,

the claims “are patent-eligible because they recite significantly more than an abstract idea.” App. Br. 16 (citing *Enfish*, 822 F.3d at 1335); *see also* App. Br. 16–18 (citing *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).)

We agree with the Examiner that the claimed invention is directed to an abstract idea. (*See* Ans. 3–8.) Under Supreme Court precedent, claims directed purely to an abstract idea, without significantly more, are patent ineligible. As set forth in the Revised Guidance, which extracts and synthesizes key concepts identified by the courts, abstract ideas include (1) mathematical concepts, (2) certain methods of organizing human activity, and (3) mental processes. Among those certain methods of organizing human activity listed in the Revised Guidance are fundamental economic

practices, such as the concept of intermediated settlement in *Alice*, and the concept of hedging in *Bilski v. Kappos*, 561 U.S. 593 (2010). Like those concepts claim 1 recites a fundamental economic practice. Claim 1 also recites mathematical concepts.

Specifically, claim 1 recites operations that would ordinarily take place while reviewing the billing practices of one or more individuals as part of “monitoring performance of professional services” which itself is part of a fundamental economic activity, such as “mitigating risk.” (Memorandum, Section I (Groupings of Abstract Ideas).) Particularly, a review of billing practices would compare a “prediction of values of a parameter of a process” (the predicted or promised number of hours necessary to perform the professional services) to the “measured values of the parameter of the process” (the actual number of hours spent to perform the professional services). As part of this fundamental economic practice, professional services are often delivered on an hourly rate, and the economic links connecting human interactions to hourly billing have long been known as a source of economic dispute.<sup>3</sup>

Additionally, claim 1 recites the mathematical and statistical tools of quantitative analysis as a solution to handling the qualitative issues involved in “monitoring performance of professional services.” Each of the claimed “accessing,” “computing,” “determining,” and “adjusting” steps of claim 1

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<sup>3</sup> See, e.g., Scott Turow, *The Billable Hour Must Die*, ABA J. (2007), [http://www.abajournal.com/magazine/article/the\\_billable\\_hour\\_must\\_die](http://www.abajournal.com/magazine/article/the_billable_hour_must_die) (“As a result of hourly billing, the fee collecting process has grown far more fractious. There are now law firms that specialize in disputing other firms’ bills—and in-house nudniks who demand copious details and then flyspeck them.”)

perform steps of “observation, evaluation, judgment, opinion,” and involve mathematical relationships while performing mathematical calculations. (Memorandum, Section I (Groupings of Abstract Ideas).)<sup>4</sup>

We are unpersuaded by Appellant’s argument that the Examiner has failed to “consider the claims as a whole.” The Examiner finds, and we agree, that:

Appellant’s preferred language of “statistically processing costs associated with each matter and performing actions when a value is outside of a range or a pattern occurs in data by allowing for a manager to be alerted immediately when a value falls outside of a determined range, for example, if an employee bills hours outside of a practical range, where the range is based on the budget and for the range to adjust if a pattern results in consecutive values, which can ensure the range stays valid as improvements in processes and policies occur” [App. Br. 8–9] still describes abstract data collection, evaluation/manipulation, and outputs related to business problems.

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<sup>4</sup> See also *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“The concept of hedging, described in claim 1 and reduced to a mathematical formula in claim 4, is an unpatentable abstract idea”); *Alice*, 573 U.S. at 218 (“These claims are drawn to the abstract idea of intermediated settlement.”); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (claims that “are squarely about creating a contractual relationship—a ‘transaction performance guaranty’” held as “directed to an abstract idea”); *Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (claims reciting “generalized software components arranged to implement an abstract concept [of generating insurance-policy-related tasks based on rules to be completed upon the occurrence of an event] on a computer” not patent eligible); *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1277 (Fed. Cir. 2012) (determining a “‘method for managing a life insurance policy comprising’ seven steps” is abstract).

(Ans. 7) (emphasis added.) Phrasing the performance of the method in the context of Appellant’s disclosure does not alter the abstract nature of the limitations reciting the judicial exception as discussed above.

Appellant further argues that under *Finjan, Inc. v. Blue Coat Systems, Inc.*, 879 F.3d 1299 (Fed. Cir. 2018), that in the analysis “at step one, we must first examine the [ ] patent’s ‘claimed advance’ to determine whether the claims are directed to an abstract idea.” (Reply Br. 5) (quoting *Finjan*, 879 F.3d at 1303.) We find the Examiner’s analysis *supra* satisfies the requirements of *Finjan*.<sup>5</sup>

Appellant points to nothing in the claim or in the disclosure that indicates (1) a particular computer system architecture, (2) non-generic, non-routine, and non-conventional elements are used to perform the method, or (3) any kind of technological improvement. No particular machine is claimed, in that the disclosure refers only to use of “computing devices 114 and 118,” such as a “desktop or laptop computer” or a “personal digital assistant” or “smartphone.” (Spec. ¶¶ 24–25.) With respect to the “processor” of claim 1, the disclosure presents “processing unit 920” but provides no further description. (See Spec. ¶¶ 77, 79, 81, Fig. 9.) Nor does the claim recite an additional element or elements that reflect an improvement in the functioning of a computer, or an improvement to other

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<sup>5</sup> We note that immediately following the portion of *Finjan* quoted by Appellant, *Finjan* then states that “[i]n cases involving software innovations, this inquiry often turns on whether the claims focus on ‘the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Finjan*, 879 F.3d at 1303 (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016)).

technology or technical field. (*See* Ans. 4, 8–10.) Rather, the limitations are part of the abstract idea itself. (*See Alice*, 573 U.S. at 222 (“In holding that the process was patent ineligible, we rejected the argument that ‘implement[ing] a principle in some specific fashion’ will ‘automatically fal[l] within the patentable subject matter of § 101.’”) (alterations in original) (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978))).)

While claim 1 recites “alerting a manager that the one of the plurality of third values is outside of the range,” this claim element adds insignificant extra-solution activity to the judicial exception. (*See also* Memorandum, n.31.) Accordingly, we determine the claim does not integrate the judicial exception into a practical application. *See* Memorandum, Section III(A)(2) (Prong Two: If the Claim Recites a Judicial Exception, Evaluate Whether the Judicial Exception Is Integrated Into a Practical Application). Nor do we find the claim includes a specific limitation or a combination of elements that amounts to significantly more than the judicial exception itself. (*See* Memorandum, Section III(B) (Step 2B: If the Claim Is Directed to a Judicial Exception, Evaluate Whether the Claim Provides an Inventive Concept); *see also Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1359 (Fed. Cir. 2018) (Moore, J., concurring) (“the ‘inventive concept’ cannot be the abstract idea itself”).) The claimed “processor” element is recited as a generic computer component that is well-understood, routine, and conventional. (*See* Ans. 4, 8–10; Spec. ¶¶ 75–83, Fig. 9; *Alice*, 573 U.S. at 212 (“merely requiring generic computer implementation fails to transform [the] abstract idea into a patent-eligible invention”).)

Accordingly, we agree with the Examiner that claim 1 is patent ineligible, as well as independent claims 16 and 19 not separately argued, and all claims dependent therefrom. (*See* App. Br. 18.)

*Second Issue*

In finding that the combination of Cusson and Lin teaches or suggests the claim 1 limitations at issue, the Examiner relies on the disclosure in Cusson of a prior art use of a control chart in which a target for the process being measured is designated by target line, and individual or consecutive measurements deviating from the target by more than a preset number of standard deviations are flagged. The Examiner further relies on a set of normalized mean data on a mean control chart representing data from a plurality of recipes for manufacturing semiconductor wafers. (Non-Final Act. 6–8; Ans. 11–13; Cusson 1:41–53, 4:46–5:5, Fig. 3, *see also* Fig. 1.)

Appellant argues that “[t]he output parameter in *Cusson* of the manufacturing entity merely discusses having a single associated target value. (Cusson, col. 2, lines 33–35). More specifically, *Cusson* discusses a ‘target value’ rather than ‘target values,’ as relied upon in the Examiner’s Answer.” (Reply Br. 10.) Appellant contends “*Cusson* fails to show or suggest that the target represents ‘a prediction’ of that output parameter or that the target line 16 is ‘a prediction of values.’ (Reply Br. 10.) Appellant further contends “*Cusson* does not show or suggest a ‘plurality of second values’ or a ‘plurality of first values.’” (Reply Br. 11.)

We are not persuaded by Appellant’s arguments. While we disagree with the Examiner’s finding that Cusson’s target line “necessarily represents a plurality of values” (Ans. 11), we agree with the Examiner’s finding that that “Cusson’s ‘mean value’ represents the claimed ‘plurality of second

values’ and Cusson’s ‘target’ represents the claimed ‘plurality of predicted values.’” (Ans. 11.)

We note Cusson’s Fig. 3 displays a set of “normalized mean data” in which each data point represents the percentage deviation from the target for an individual wafer manufacture under a particular recipe type. (*See* Cusson equation (1) at 4:38–45.) Each recipe type has its own “target oxide thickness,” corresponding to the plurality of first values. Each value for X-bar represents the average oxide thickness for the individual wafer manufacture, taken from “oxide thickness measurements in the top, bottom, center, left, and right locations” (*see* Cusson 4:26–45), and as such corresponds to the plurality of second values. Further, Cusson teaches both that (1) analysis of “aggregate data,” corresponding to data from multiple recipes, and that (2) analysis of individual recipe data, may result in different rule violations, indicating that the aggregate data relies on targets that at a minimum are tailored for a particular recipe. (*See* Cusson equation (1) at 4:38–45; 4:60–55, Figs. 3–5.)

We further agree with the Examiner’s finding that “[b]y virtue of describing a statistical process control ‘target,’ [in Cusson] such points necessarily represent ‘a prediction of values of the parameter of a process’” (Ans. 11), as the target, being the desired outcome, represents the predicted value if the process proceeds fully as planned.

Accordingly, we sustain the Examiner’s rejection of independent claim 1, as well as independent claims 16 and 19 not separately argued, and dependent claims 2–8, 11–16, 18–20, and 22 not separately argued with particularity. (*See* App. Br. 21, 23.)

*Third Issue*

Appellant argues that combination of *Cusson* and *Lin* fails to teach or suggest the claim 9 limitation at issue because:

*Cusson* is silent as to rendering the normalized mean control chart while the process is ongoing (*Cusson*, col. 2, lines 62 and 63). Rather, *Cusson* merely discusses that “the normalized mean data is included on a mean control chart 150.” (*Cusson*, col. 4, lines 46–49).

(App. Br. 22.) We are not persuaded by Appellant’s arguments. The Examiner finds, and we agree, that “[a] purpose, if not the primary purpose, of such statistical process control techniques [in *Cusson*] is to, e.g., detect process changes or trends that may be corrected by process optimization or redesign” (Ans. 13) (citing *Cusson* 1:20–21), and further that “*Cusson* describes a situation in which the system requires a user to periodically review control charts not less frequently than in eight week intervals.” (Ans. 13) (citing *Cusson* 5:39–48.) We see no error in the Examiner’s detailed findings, and Appellant does not address the Examiner’s findings in the Reply.

Accordingly, we sustain the Examiner’s rejection of dependent claim 9.

#### *Fourth Issue*

Appellant argues that *Luecke* fails to show or suggest the claim 21 limitation at issue, because “*Luecke* fails to show or suggest that a worker is determined to not be trained in response to anything, much less doing so in response to a determination that one of the plurality of third values is outside of the range” (App. Br. 24), although Appellant admits that “*Luecke* discusses that ‘an untrained operator’ can be related to ‘special causes for variations.’” (App. Br. 23.)

We are not persuaded by Appellant’s argument. The Examiner finds, and we agree, that:

Luecke discusses an “untrained operator” in the context of identifying “‘special’ causes for variation” in manufacturing processes represented on control charts. Luecke, at 66-67. In statistical process control, such “variations” are described by measured values falling outside of the expected range of values. As such, Luecke identifies a reason for “variation,” i.e., measured values falling outside of the expected range of values, as “an untrained operator.”

(Ans. 14.) We see no error in the Examiner’s detailed findings, and Appellant does not address the Examiner’s findings in the Reply.

Accordingly, we sustain the Examiner’s rejection of dependent claim 21.

#### CONCLUSION

For the reasons stated above, we affirm:

1. the non-statutory subject matter rejection of claims 1–9, 11–16, and 18–22; and
2. the obviousness rejections of claims 1–9, 11–16, and 18–22.

#### DECISION

The Examiner’s decision rejecting claims 1–9, 11–16, and 18–22 under 35 U.S.C. § 101 is affirmed.

The Examiner’s decision rejecting claims 1–9, 11–16, and 18–22 under 35 U.S.C. § 103 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)(iv).

Appeal 2018-003330  
Application 14/244,477

AFFIRMED