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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD A. ROBB, SRINIVASAN RAJAGOPALAN,
RONALD A. KARWOSKI, and BRIAN J. BARTHOLMAI

Appeal 2017-003001
Application 14/115,688
Technology Center 2600

Before ST. JOHN COURTENAY III, JAMES R. HUGHES, and
SCOTT B. HOWARD, *Administrative Patent Judges*.

HUGHES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner’s final decision rejecting claims 1–16, which constitute all the claims pending in this application. Final Act. 1; App. Br. 4.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ We refer to Appellants’ Specification (“Spec.”) filed Oct. 22, 2015 (claiming benefit of US 61/483,811, filed May 9, 2011 and US 61/518,424, filed May 5, 2011) and Appeal Brief (“Br.”) filed Mar. 8, 2016. We also refer to the Examiner’s Answer (“Ans.”) mailed July 28, 2016, and Final Office Action (Final Rejection) (“Final Act.”) mailed Nov. 12, 2015.

Appellants' Invention

The invention generally relates to methods for analyzing in vivo tissue volumes using medical imaging data, and in particular, computer-readable media executing a method for receiving medical image data including intensity-based tissue texture appearance data representing different tissue types, segmenting (conducting segmentation) to delineate the different tissue types, determining tissue groups by classifying the different tissue types and differentiating the different tissue types using a similarity metric, clustering the intensity-based tissue texture appearance data in the tissue groups utilizing an unsupervised clustering technique, determining an amount of data in each tissue group, and generating a report including a plurality of shapes concurrently, the area of each shape being proportional to the amount of data in a different one of the tissue groups. Spec. ¶¶ 3, 12–14; Abstract.

Representative Claim

Independent claim 1, reproduced below, further illustrates the invention:

1. A non-transitory computer-readable medium having encoded thereon instructions which, when executed by at least one processor, execute a method for generating a report, comprising the steps of:

receiving, from a medical imaging machine, medical image data including intensity-based tissue texture appearance data having a plurality of data types each representative of a different tissue type;

conducting segmentation to delineate the different tissue types;

determining a plurality of tissue groups by classifying the data types and differentiating the tissue types using a similarity metric;

clustering the intensity-based tissue texture appearance data in the tissue groups using an unsupervised clustering technique;

determining an amount of data in each tissue group; and

generating a report including a plurality of shapes concurrently, the area of each shape being proportional to the amount of data in a different one of the tissue groups.

Rejections on Appeal

1. The Examiner rejects claims 1–16 under 35 U.S.C. § 101 as being directed to patent ineligible subject matter.

2. The Examiner rejects claims 1–16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

ISSUES

Based upon our review of the record, Appellants' contentions, and the Examiner's findings and conclusions, the issue before us follows:

1. Did the Examiner err in rejecting claims 1–16 under 35 U.S.C. § 101 as being directed to patent ineligible subject matter?

2. Did the Examiner err in rejecting claims 1–16 under 35 U.S.C. § 112 as being indefinite?

ANALYSIS

The 35 U.S.C. § 101 Rejection

Appellants argue independent claims 1 and 12 together as a group with respect to the § 101 rejection. *See* Br. 5–10. We select independent

claim 1 as representative of Appellants' arguments with respect to claims 1–16. 37 C.F.R. § 41.37(c)(1)(iv).

We have reviewed the Examiner's rejections in light of Appellants' contentions that the Examiner has erred. We disagree with Appellants' contentions. Except as noted below, we adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken and (2) the reasons set forth by the Examiner in the Examiner's Answer in response to Appellants' Appeal Brief. We concur with the conclusions reached by the Examiner. We highlight the following additional points.

The Examiner rejects the claims as being directed to patent ineligible subject matter in that the claims are directed to an abstract idea “because the claimed medical data is abstract generic data, the claimed steps performed on the medical data are mathematical algorithms, and the claimed generating a report is abstract” (Final Act. 9) and the “method claimed . . . can be performed by [a] human mentally or with the aid of pencil and paper,” which is abstract (Final Act. 9) and the claim limitations “do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the claimed computer-readable medium is a conventional computer component” (Final Act. 11). Appellants contend that the claims are “drawn to ‘significantly more’ than an abstract idea” (1) because they tie a physical process to a mathematical formula (citing *Diamond v. Diehr*, 450 U.S. 175 (1981)) (Br. 6); (2) “the algorithms are performed on data made available from a medical device input” (citing *In re Abele*, 684 F.2d 902 (CCPA 1982)) (Br. 6); (3) “the claimed subject matter includes input from a physical device” (citing *Digitech Image Technologies*

v. Electronics for Imaging, 758 F.3d 1344 (Fed. Cir. 2014)); (4) “the input data was transformed” (citing *Bilski v. Kappos*, 561 U.S. 593 (2010)) (Br. 7–8); and (5) “the underlying computer's operation is improved” (Br. 9).

Under 35 U.S.C. § 101, a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 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) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 77–80 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts” (*id.*), e.g., to an abstract idea. If the claims are not directed to an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 78, 79).

The Court acknowledged in *Mayo*, that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena,

or abstract ideas.” *Mayo*, 566 U.S. at 71. 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).

Turning to the first step of the eligibility analysis, the Examiner finds that claim 1 is directed to the abstract idea of manipulating medical data using mathematical algorithms and then generating a report. Final Act. 9. Appellants do not address the first eligibility analysis step. We agree with the Examiner that the claims at issue are drawn to an abstract concept. The Federal Circuit has ruled that claims covering the receipt, analysis, and display of data were directed to abstract ideas. *See, e.g., Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1047, 1054–56 & n.6 (Fed. Cir. 2017); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1351–54 (Fed. Cir. 2016); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1351–55 (Fed. Cir. 2014); *SmartGene, Inc. v. Advanced Biological Labs., SA*, 555 F. App’x 950, 951–52, 954–55 (Fed. Cir. 2014).

Additionally, as explained by the Examiner, the limitations of claim 1 may be performed strictly in the human mind. (Final Act. 9–10).). “In a similar vein, we have treated *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*, 830 F.3d at 1354 (emphasis added); *see also In re TLI Comm’ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016).

Having found Appellants’ claims are directed to an abstract concept under Alice’s step 1 analysis, we next address whether the claims add

significantly more to the alleged abstract idea. As directed by our reviewing Court, we search for an “‘inventive concept’ sufficient to ‘transform the nature of the claim into a patent-eligible application.’” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016) (quoting *Alice*, 134 S. Ct. at 2355).

Turning to the second step of the eligibility analysis, the Examiner finds that the limitations of claim 1 amount to no more than routine conventional computer operations and components. Final Act 10–11; Ans. 8–13. We agree with the Examiner that the claims at issue do not amount to significantly more than an abstract idea. The instant claims are akin to the claims for analyzing information found to be abstract in *Electric Power Group*, 830 F.3d at 1353, or the claims directed to image data processing discussed in *Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (finding “a process that employs mathematical algorithms to manipulate [data or information] to generate additional information is [abstract and] not patent eligible”). See *Elec. Power Grp.*, 830 F.3d at 1353–54 (citing *Digitech*, 758 F.3d at 1351). As explained by the Examiner (see Ans. 8–13), Appellants’ citations to *Diamond v. Diehr*, *In re Abele*, *Digitech Image Technologies*, *Bilski v. Kappos*, and The USPTO’s July 2015 Subject Matter Eligibility Guidance (improvement of the underlying computer’s operation — see *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014)) are inapposite to the instant claims and Appellants misconstrue the cited precedent.

Additionally, Appellants do not address any of the Examiner’s additional findings and explanation in the Examiner’s Answer. Appellants

did not file a reply brief addressing the Examiner’s additional findings and clarified explanation or otherwise rebutting the findings and responsive arguments made by the Examiner in the Answer.

For at least the reasons above, we are not persuaded of Examiner error in the rejection of claim 1 under 35 U.S.C. § 101. Thus, we sustain the Examiner’s rejection under § 101 of independent claims 1 and 12, and also dependent claims 2–11 and 13–16, which fall with claims 1 and 12, respectively.

The 35 U.S.C. § 112 Rejection

The Examiner rejects claims 1–16 as being indefinite. Final Act. 11–13. Appellants contend the clustering step, referenced by the Examiner, is clear. Br. 10–13. We agree with Appellants that the Examiner’s rejection is in error (*id.*).

“[W]e apply the approach for assessing indefiniteness approved by the Federal Circuit in *Packard*,^[2] i.e., “[a] claim is indefinite when it contains words or phrases whose meaning is unclear.” 751 F.3d at 1310, 1314. Put differently, ‘claims are required to be cast in clear—as opposed to ambiguous, vague, indefinite—terms.’ *Id.* at 1313; *see also* MPEP § 2173.02(1).” *In re McAward*, Appeal 2015-006416, 2017 WL 3669566, *5 (PTAB Aug. 25, 2017) (precedential). The Examiner has not made findings showing that what is being claimed would not have been clear to a skilled artisan, but rather summarily concludes that “the method claimed in claims 1-16 does not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim.” Final Act. 13 (citing *Research*

² *In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014).

Corporation Technologies Inc. v. Microsoft Corp., 97 USPQ2d 1274 (Fed. Cir. 2010) (internal quotations omitted). Appellants' Specification describes the clustering process, which lends clarity to the claims by showing that the plain meaning of the clustering language in the claims is in fact what Appellants intended to claim. See Spec. ¶¶ 13, 14, 44, 45, 48; Fig. 10. We are, therefore, constrained by the record to find the Examiner erred in rejecting claims 1–16 as indefinite.

CONCLUSIONS

Appellants have not shown that the Examiner erred in rejecting claims 1–16 under 35 U.S.C. § 101.

Appellant have shown that the Examiner erred in rejecting claims 1–16 under 35 U.S.C. § 112, second paragraph.

DECISION

We affirm the Examiner's rejection of claims 1–16.

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).

AFFIRMED