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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ALESSANDRO FORIN, KEN EGURO, and RAY BITTNER

Appeal 2017-007521
Application 13/869,960
Technology Center 2600

Before HUNG H. BUI, JOSEPH P. LENTIVECH, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

LENTIVECH, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellants¹ appeal from the Examiner's decision to reject claims 1–20, the only claims pending in the application on appeal. We have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We reverse.

¹ According to Appellants, the real parties in interest are Microsoft Technology Licensing, LLC and Microsoft Corporation. App. Br. 3.

STATEMENT OF THE CASE

Appellants' Invention

Appellants' invention generally relates to performing K-means cluster analysis using streamed k-means computations. *See* Spec., Title; ¶¶ 23, 30–

31. Claim 1, which is illustrative, reads as follows:

1. A system comprising:

at least one hardware device processor; and

a computer readable storage medium storing instructions for execution by the at least one device processor, for implementing a streaming computational engine including:

a population data acquisition component that obtains a set of population data that includes a plurality of individual population data entities; and

a population data streaming component that initiates sequential, single-pass streaming of the population data entities in the obtained set to an array of a plurality of evaluation functions, each of the evaluation functions configured to evaluate each individual population data entity to determine an acceptability of the each individual population data entity for a current state of a candidate centroid value associated with the each evaluation function, with acceptance of each of the input data entities terminated after a first accepting one of the evaluation functions accepts the each individual data entity, based on the determined acceptability and on a predetermined priority ordering of acceptance, the first accepting one of the evaluation functions, in the priority ordering, incorporating population data associated with the each individual population data entity into an aggregator that is local to the first accepting one of the evaluation functions.

*Rejection*²

Claims 1–20 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Shotton et al. (US 2011/0210915 A1; published Sept. 1, 2011) (“Shotton”). Final Act. 4–16.

ANALYSIS

Dispositive Issue: Whether the Examiner erred in finding Shotton discloses “initiat[ing] sequential, single-pass streaming of the population data entities in the obtained set to an array of a plurality of evaluation functions,” as recited in claim 1, and similarly recited in independent claims 14 and 17.

Regarding the disputed limitation, the Examiner finds:

Shotton et al. discloses “sequential, single-pass streaming of the population data entities in the obtained set to an array of a plurality of evaluation functions” by disclosing “**sequence**” illustrated in fig. 11, disclosed in ¶ [0095] - ¶ [0099] and ¶ [0131], where all the information is construed as a “**single-pass**” in order to “Determine Probability Associated With Each Body Part for Starting Location” {shown at the bottom of fig. 11}, described as “**continuous**” in ¶ [0057]. Also, take into consideration of synonym terms in respect to sequential, such as series and serially, and the fact that plurality of individual population data entities correspond to different body series of

² Should there be further prosecution of this application (including any review for allowance), the Examiner may wish to review the claims for compliance under 35 U.S.C. § 101 in light of *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); and *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011).

segments. Figures 12–13 & 15 show segmentation described in ¶¶ 100–104 & ¶¶ 108–109.

Ans. 24. The Examiner further finds “the definition of ‘streaming’ states ‘relating to or being the transfer of **data (as audio or video material) in a continuous stream** especially for immediate processing or playback.’”

Ans. 25 (citing <http://www.merriam-webster.com/dictionary/streaming>).

The Examiner finds Shotton discloses that the body may be defined by a continuous set of 3D representations and, therefore, Shotton discloses “streaming” because “*Shotton et al.* is in the same context of [the] cited definition of transferring data in order to calculate a depth image 60 based on body pose of [the] user.” Ans. 25 (citing Shotton ¶ 57).

Appellants contend Shotton fails to disclose “initiat[ing] sequential, single-pass streaming of the population data entities in the obtained set to an array of a plurality of evaluation functions,” as recited in claim 1, and similarly recited in independent claims 14 and 17. App. Br. 15–27; Reply Br. 2–3. In particular, Appellants argue Shotton does not disclose “sequential, single-pass streaming,” as required by claim 1, but, instead, discloses that individual pixels are selected based on results of evaluation a previous pixel as well as their locations relative to the evaluated pixel. App. Br. 18 (citing Shotton ¶ 124). Appellants further argue that, even if Shotton’s “depth/probability test” discloses an “evaluation function” and the phrase “continuous set of 3D representations” “implies some processing in a ‘sequential, single-pass streaming’ manner,” Shotton discloses performing the depth/probability test and utilizing the continuous set of 3D representations in alternative embodiments and, therefore, the Examiner’s

findings are insufficient to show that Shotton discloses the disputed limitations. Reply Br. 2–3.

Appellants’ arguments are unpersuasive. Shotton relates to “[t]echniques for human body pose estimation.” Shotton, Abstract. Shotton discloses “[t]he techniques may process the pixels or voxels [i.e., 3-D pixels (Shotton ¶ 62)] to determine a probability that each pixel or voxel is associated with a segment of a body captured in the image or to determine a three-dimensional representation for each pixel or voxel that is associated with a location on a canonical body.” Shotton, Abstract. Shotton discloses a depth image may be used to determine the body pose of a user by dividing the body into a series of segments and assigning, to each pixel of the depth map, a probability that the pixel is associated with each segment of the body. Shotton ¶ 57. Using this information, one or more processes may determine the location of nodes, joints, centroids, or the like to determine a skeletal model and interpret the motions of a user. *Id.* Shotton also discloses that

[R]ather than dividing the body into segments and assigning probabilities to pixels, the body may be defined by a set of 3D representations (e.g., a continuous set of 3D representations), such as 3D coordinates and variances, which reference locations on a model body having a canonical pose, shape, and/or size. One or more of such 3D representations may be calculated for each pixel of the depth image 60 and may be used along with the depth image 60 to determine the body pose of the user.

Shotton ¶ 57 (underlining added). As such, we agree with Appellants (*see* Reply Br. 2–3) that Shotton discloses dividing the body into segments and assigning probabilities to pixels as an alternative to defining the body by a continuous set of 3D representations. As such, the Examiner’s findings are

insufficient to show that Shotton discloses that the pixels are “streamed” to Shotton’s depth/probability evaluation function.

Further, Shotton discloses receiving a depth map, selecting a first pixel, and determining whether the first pixel is at the background depth. Shotton ¶ 95. If the first pixel is not at the background depth, an angle and distance to a second pixel is selected. *Id.* Shotton discloses “[i]f the second pixel fails the depth/probability test . . . then location F-1 is selected” and “[i]f, however, the second pixel passes the depth/probability test . . . then location P-1 is selected.” Shotton ¶ 98. Shotton also discloses that “[w]hile these locations may, in some cases, be the same, they may also vary widely in location based on the results of the depth/probability tests.” *Id.* Shotton, therefore, discloses transferring pixels to the depth/probability evaluation function based on a result of a depth/probability test performed on a previous pixel rather than in a sequence or sequentially, as required by claim 1.

For these reasons, we do not sustain the Examiner’s rejection of claim 1; independent claims 14 and 17, which recite corresponding limitations; and claims 2–13, 15, 16, and 18–20, which depend therefrom. Because we find this issue to be dispositive, we do not reach Appellants’ remaining contentions.

DECISION

We reverse the Examiner’s rejection of claims 1–20 under 35 U.S.C. § 102(a).

REVERSED