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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID R. POPE

Appeal 2019-001545
Application 15/694,826
Technology Center 2600

BEFORE JOSEPH L. DIXON, ST. JOHN COURTENAY III, and
ELENI MANTIS MERCADER, *Administrative Patent Judges.*

DIXON, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the
Examiner's decision to reject claims 21–24, 26–31, 33–37, 39, and 40.
Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] We use the word "Appellant" to refer to "Applicant" as defined in 37
C.F.R. § 1.42(a) (2018). Appellant identifies the real party in interest as
Apple Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to a detecting keypoints in image frame data.

Claim 21, reproduced below, is illustrative of the claimed subject matter:

21.   An image signal processor, comprising:

a keypoint control parameter storage structure configured to *store a plurality of keypoint sensitivity threshold values corresponding to a first set of respective image frame regions*;

a keypoint detection circuit connected to the keypoint control parameter storage structure and configured to:

receive pixel data for an image frame;

perform a keypoint detection operation on the received pixel data to detect one or more keypoints in the image frame; and

selectively output to a system memory *a description of at least one of the one or more keypoints detected in the first set of respective image frame regions of the image frame in response to respective magnitude values of the one or more keypoints exceeding one of the plurality of keypoint sensitivity threshold values corresponding to the first set of respective image frame regions.*

REJECTION[2]

Claims 21–24, 26–31, 33–37, 39, and 40 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Final Act. 8.

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[2] The Examiner has withdrawn the rejections under obviousness-type double patenting, 35 U.S.C. § 112(b), anticipation and obviousness. Final Act. 2–4. Additionally, the Examiner has withdrawn the patent eligibility rejection of dependent claims 25, 32, and 38. Ans. 13, 14, 15.

OPINION

1. *35 U.S.C. § 101*

a. *Legal Principles*

An invention is patent eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* and *Alice*. *Alice*, 573 U.S. at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, under Step 2A, we first determine what concept the claim is "directed to." *See Alice*, 573 U.S. at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas and, thus, patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India

rubber, smelting ores" (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S.

252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69

(citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

If, under Step 2A, the claim is "directed to" an abstract idea, then,

under Step 2B, "we must examine the elements of the claim to determine

whether it contains an 'inventive concept' sufficient to 'transform' the

claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at

221 (quotation marks omitted). "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].'" *Id.* (quoting

Mayo, 566 U.S. at 77). "[M]erely requir[ing] generic computer

implementation[] fail[s] to transform that abstract idea into a patent-eligible

invention." *Id.*

On January 7, 2019, the U.S. Patent and Trademark Office

("USPTO") published revised patent subject matter eligibility guidance. *See*

2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50,

2019 ("Revised Guidance"). Under the Revised Guidance, Step 2A of the

Alice two-step framework is divided in two prongs. For Step 2A, Prong 1,

we look to whether the claim recites any judicial exceptions falling into

certain groupings of abstract ideas (*e.g.*, mathematical concepts, certain

methods of organizing human activity such as a fundamental economic

practice, or mental processes). For Step 2A, Prong 2, if the claim recites

such a judicial exception, we look to whether the claim recites any additional

elements that integrate the judicial exception into a practical application (*see*

Manual of Patent Examining Procedure ("MPEP") § 2106.05(a)–(c), (e)–

(h)).

Only if a claim recites a judicial exception and does not integrate that

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exception into a practical application, do we then determine, under Step 2B of the *Alice* two-step framework, whether the claim adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)) or simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

b. *Examiner's Findings and Conclusions*[3]

In the Final Action, for Step 2A of the *Alice* two-step framework, the Examiner concludes that "Claims 21-40 are directed to an abstract idea in the form of a mathematical procedure for selectively outputting a description of one or more keypoints." Final Act. 8. The Examiner finds the key point detection circuit limitation of claim 21 (and similar limitations of claims 28 and 35) is akin to the mathematical processing features found abstract in *Benson, Digitech,* and *TLI Comms*.[4] Final Act. 8. Thus, the Examiner concludes claim 21 recites an abstract idea. Ans. 8.

In the Answer, for Step 2A, Prong 2 of the Revised Guidelines, the Examiner finds that claim 21 requires additional elements, but that those

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[3] We note that the Final Action and Examiner's Answer were mailed before the USPTO published the Revised Guidelines and, therefore, does not rely on the Revised Guidelines. Additionally, Appellant's arguments in the Appeal and Reply Briefs and the Examiner's conclusions in the Examiner's Answer do not rely on the Revised Guidelines. Our analysis is based on the Revised Guidelines. Patent eligibility under 35 U.S.C. § 101 is a question of law that is reviewable *de novo*. *See Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012).

[4] *Gottschalk* v. *Benson,* 409 U.S. 63, 67 (1972); *Digitech Image Techs., LLC* v. *Elecs. for Imaging, Inc.,* 758 F.3d 1344, 1350 (Fed. Cir. 2014); *TLI*

additional elements are simply elements of a computer. *See generally* Ans. 12 discussing "particular material implementation." Relying on Appellant's Specification, the Examiner, however, finds that the recited computer components are generic and simply result in the abstract idea being implemented on a generic computer. Ans. 12. The Examiner further concludes that the language of claim 21 "is devoid of any such language [machine vision algorithms]." Ans. 11. Thus, the Examiner finds that claim 21 does not integrate the abstract idea into a practical application and, therefore, is directed to an abstract idea. Ans. 11.

For Step 2B of the *Alice* two-step framework, the Examiner maintains that the remaining limitations of claim 21 correspond to the additional elements recited in claims 21–24, 26–31, 33–37, 39, and 40 beyond those directed to the abstract idea do not amount to significantly more than the abstract idea because they recite generic computer elements and functions that are well-understood, routine and conventional activities previously known to the industry. Final Act. 8. The Examiner further finds that the claims also recite various computer hardware at a high level of generality (e.g. an image signal processor, a keypoint control parameter storage structure, a keypoint detection circuit, a central processing unit, a system memory, a preprocessing module). Such general computer hardware is well-understood, routine, and conventional in the art of image analysis. Final Act. 17; *see also* Ans. 11 citing Spec. ¶ 28 (generally discloses system-on-a chip SOC) component 104.)[5]

Communications LLC v. *A.V. Automotive, LLC,* 823 F.3d 607 (Fed. Cir. 2016)).

    [5] Spec. ¶ 27 discloses "system 100 includes image sensor(s) 102, a system-on-a chip (SOC) component 104, system memory (e.g., dynamic

Relying on Appellant's Specification, the Examiner finds that the additional elements of claim 21, when viewed individually and in an ordered combination, correspond to "various computer hardware at a high level of generality" and the Specification is "silent regarding this aspect of the invention as an improvement in the technological field." Ans. 13, 14, 15. The Examiner also finds that the additional elements of claim 21 do not improve the functioning of a computer or any other technology and thus, claim 21 is directed to an abstract idea without significantly more. Final Act. 18; Ans. 14–15.

Finally, the Examiner finds that even though dependent claims 22– 24, 26, 27, 29–31, 33, 34, 36, 37, 39, and 40 recite additional limitations, these additional limitations do not add significantly more than the abstract idea. Final Act. 9–17; *see also* Ans. 3–10.

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random access memory (DRAM)) 130, persistent storage (e.g., flash memory) 128 . . . In different embodiments, system 100 *may be any of various types of devices, including, but not limited to,* a personal computer system; a desktop computer; a laptop computer; a notebook, tablet, slate, or netbook computer; a mainframe computer system; a handheld computer; a workstation; a network computer; a camera; a set top box; a mobile device, such as a mobile phone, pager, personal data assistant **(PDA),** tablet device, or music player; an I/O device such as a digital camera, a scanner, a video recorder; a consumer device; a video game console; a handheld video game device; or *in general any type of computing or electronic device that includes the functionality of a camera or video camera*." (Emphases added.)

c. *Appellant's Arguments*

Appellant contends that "the plain focus of the claims is directed to an improvement on computer functionality, *i.e.* improvements in keypoint detection within an image signal processor, and is clearly patent eligible under *Enfish*."[6] Appeal Br. 6–7; Reply Br. 4. Appellant further contends that claim 21 features of the keypoint control parameter storage structure and the keypoint detection circuit contribute to the inventive improvements are not well-understood routine or conventional. Appeal Br. 7. Appellant further contends that the Examiner has ignored the specific features of the claimed invention. Reply Br. 2–3. Appellant contends that the cases cited by the Examiner are not relevant to the improvements featured in the claim 21. Appeal Br. 8; Reply Br. 3.

Appellant argues that the Answer's identified abstract idea, "a mathematical procedure" ignores other specific features of the claims including the detecting of one or more keypoints in an image frame and the result of such a detection, description(s) of the one or more keypoints detected, would in no way be numerical representation(s) converted from one form into another. Reply Br. 3.

Appellant argues that the Examiner's analysis:

> ignores the fact that the detection and subsequent selective outputting are performed by a keypoint detection circuit of an image signal processor, and thus the claims are directed to a specific improvement, implemented in circuitry, to an image signal processor. Appellant further notes that the claims do[] not merely claim the novelty of an image signal processor in general, but specifically the keypoint detection circuit with novel features

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[6] *Enfish v. Microsoft,* 822 F.3d 1327 (Fed. Cir. 2016).

> and the keypoint control parameter storage structure as included in the specific image signal processor of the claims.

Reply Br. 4 (emphases omitted).

Appellant argues that the Appeal Brief was merely identifying an example application (machine vision) where such improvements could find use and further identifying in the Specification where such applications are disclosed. Appellant further notes that such applications need not be specifically recited in claim language for the claims to be patent eligible. Reply Br. 4. Appellant additionally argues that the Examiner did not address Appellant's arguments in the Appeal Brief, that "the plain focus of the claims is directed to an improvement on computer functionality, *i.e.* improvements in keypoint detection within an image signal processor, and is clearly patent eligible under *Enfish v. Microsoft,* 822 F.3d 1327 (Fed. Cir. 2016)." Reply Br. 4–5. Appellant additionally relies upon *Finjan, Inc. v. Blue Coat Systems*[7] and contends that claim 21 is directed to a non-abstract improvement in computer functionality and also recites specific steps-receiving pixel data, performing a keypoint detection operation and selectively outputting a description of one or more keypoints-that accomplish the non-abstract improvement. Reply Br. 5. Appellant further contends that the claimed "selectively output to a system memory a description of at least one of the one or more keypoints detected in the first set of respective image frame regions of the image" would in no way be numerical representations converted from one form to another. Appeal Br. 8; Reply Br. 3.

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[7] *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299 (Fed. Cir. 2018))

With respect to the dependent claims, Appellant relies upon *Berkheimer v. HP, Inc.*, 822 F.3d 1360 (Fed. Cir. 2018) and contends that the claimed features are not well-understood, routine or conventional and furthermore contribute specific hardware improvements to an image signal processor that are not well-understood, routine or conventional. Appeal Br. 10–18.

d. Discussion

Appellant argues claims 21–24, 26, 35–37, and 39 as a group. Reply Br. 2. We select claim 21 to represent the group. *See* 37 C.F.R. § 41.37(c)(1)(iv). Appellant sets forth separate headings and argument for dependent claims 27 and 40; claims 28–31, 33; and claim 34, and Appellant repeats the language of the claim and presents the same arguments as set forth with respect to independent claim 21. With respect to dependent claim 34, we find the claim limitations to be similar to those addressed by the Examiner with respect to dependent claims 27 and 40 concerning the pre-processing module.[8] We note that the Specification discloses "[i]n one embodiment, keypoint detection circuit 430 may be hardware-based and may be configured to output a number of keypoints per region of an input

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[8] In evaluating dependent claims 27, 34, and 40, the Examiner should consider whether the claimed "module" is a functional claim limitation requiring interpretation under 35 U.S.C. § 112(a). Cf. Spec. Para. 19.

image (e.g., by outputting a number of keypoints in respective areas of a grid corresponding to regions of an image). Spec. ¶ 63.[9]

With regards to Appellant's reliance upon the *Finjan* case, in *Finjan*, the claims were directed to identifying and protecting a computer against malware, which the court found to constitute sufficient non-abstract improvement in computer functionality to render the claims patent eligible. *Finjan*, 879 F.3d at 1304–05. Appellant's claim 21 does not describe *improvements in computer functionality* similar to *Finjan*, or *technological improvements* similar to *McRO*. Rather, Appellant's Specification and claim 21 describes receiving, processing, and selectively output to a system memory a description of [at least] one of the one or more keypoints detected in the first set of respective image frame regions of the image frame in response to respective magnitude values of the one [or more] keypoints exceeding one . . . threshold."

i. Step 2A, Prong 1

For Step 2A, Prong 1, of the Revised Guidance, we find that the emphasized portions of claim 21, reproduced above, recite elements that fall within the abstract idea grouping of mathematical concepts. The Revised Guidance requires us to evaluate whether the claim recites a judicial exception (e.g., an abstract idea). According to the Revised Guidance, to determine whether a claim recites an abstract idea, we must identify limitations that fall within

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[9] We note that Appellant generally argues the keypoint detection circuit, but the Specification merely identifies a block diagram and the Specification includes no underlying algorithm or circuitry corresponding to the broad claimed functionality. If the claimed invention would be directed to a hardware implementation, the Examiner should consider whether the Specification supports Appellant's contention and whether there is enablement and written description support for the claim limitation.

one or more of the designated subject matter groupings of abstract ideas.
According to the October 2019 Patent Eligibility Guidance Update produced
by the USPTO, "a claim recites a judicial exception when the judicial
exception is 'set forth' or 'described' in the claim." *See* October 2019
Patent Eligibility Guidance Update Revised Patent Subject Matter Eligibility
Guidance,
https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.p
df ("October Update"). The Revised Guidance lists "mathematical
concepts—mathematical relationships, mathematical formulas or equations,
mathematical calculations" as one such grouping. 84 Fed. Reg. at 52. We
find that the elements of claim 21 describe this judicial exception.

With respect to independent claim 21, we agree with the Examiner
that, under the broadest reasonable interpretation, claim 21 is recites an
abstract idea in the form of a mathematical procedure for selectively
outputting a description of one or more keypoints.[10] Final Act. 8. For
example, the Specification discloses:

> machine vision stage **318** and/or keypoint detection circuit **430**
> may include one or more spatial filter modules, sometimes
> referred to as "box filters", configured to compute an
> approximation of Gaussian derivatives of Hessian matrix values

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[10] It is well settled that, during patent examination, claims must be
given their broadest reasonable interpretation consistent with the
specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005)
(en banc). The broadest reasonable interpretation standard requires the
words of the claims to be given their "broadest reasonable meaning . . . in
their ordinary usage as they would be understood by one of ordinary skill in
the art, taking into account whatever enlightenment by way of definitions or
otherwise that may be afforded by the written description contained in the
applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir.
1997).

(in the interest of efficiency) for the respective pixels in an active region of an image. . . . Keypoint detection circuit **430** may then determine whether the responses are local maxima and whether a respective local maximum is above a controllable keypoint sensitivity threshold.

Spec. ¶ 62. We find this to broadly recite mathematical concepts.

We further agree with the Examiner that the key point detection circuit limitation of claim 21 (and similar limitations of Claims 28 and 35) is akin to the mathematical processing features found abstract in *Benson, Digitech,* and *TLI Comms*, because the image analysis is claimed at a high level and not reciting the underlying calculations and comparisons. Final Act. 8.

In the Answer, for Step 2A, Prong 1 of the Revised Guidelines, the Examiner finds that certain limitations of claim 21 recites concepts that fall within the "mathematical concepts" category. Thus, we agree with the Examiner independent claim 21 recites an abstract idea.

With respect to Appellant's argument that the selectively outputting a description is not a number, we find that the Specification does not specifically identify what the "description" is, and, under the broadest reasonable interpretation, we find that the description may be a numeric value. Appeal Br. 6, 8. With respect to Appellant's arguments regarding *Enfish* and the improvements in keypoint detection within an image signal processor, Appellant contends that determination of the "plain focus" of the claim in question, where the "plain focus" of the claim is an "improvement to computer functionality itself," the claim is not directed to an abstract idea under step one of the *Alice* analysis. Appeal Br. 6–7. We disagree with Appellant's argument and find that the plain focus of the claim is not improving the functioning of the computer, but reducing the amount of

image data analyzed. *See* Spec. ¶¶ 23, 25, 48, 78. As a result, we find

Appellant's argument does not show error in the Examiner's analysis that

independent claim 21 recites elements that fall within the abstract idea

grouping of mathematical concepts.

ii. Step 2A, Prong 2

For Step 2A, Prong 2, of the Revised Guidance, we find that claim 21,

as a whole, does not integrate the recited mental process into a practical

application of the abstract idea. The Revised Guidance states that "[a] claim

that integrates a judicial exception into a practical application will apply,

rely on, or use the judicial exception in a manner that imposes a meaningful

limit on the judicial exception, such that the claim is more than a drafting

effort designed to monopolize the judicial exception." 84 Fed. Reg. at 53.

The Revised Guidance further states that integration should be evaluated by

"[i]dentifying whether there are any additional elements recited in the claim

beyond the judicial exception(s)" and, based on certain considerations,

"evaluating those additional elements individually and in combination to

determine whether they integrate the exception into a practical application."

84 Fed. Reg. at 54–55. The Revised Guidance identifies considerations such

as whether additional elements yield an improvement to a particular

technology or a computer itself, correspond to the implementation of the

judicial exception with a particular machine, and/or apply the judicial

exception in some way beyond simply linking the judicial exception to a

particular technological environment. *See* MPEP § 2106.05(a)–(c), (e)–(h).

Here, as discussed above, claim 21 incorporates additional device

elements. However, we find that these additional device elements do not

integrate the mathematical concepts of claim 21 into a practical application.

For instance, we do not find that these additional device elements yield an improvement in the functioning of a computer itself or to the particular technology of target contextual advertising, neither do we find that these additional device elements are any particular machine that is necessary to implement the judicial exception or transform something to a different state. Additionally, we do not find that these additional device elements apply the abstract idea in a meaningful way to any particular technological environment.

Also, in the Answer, for Step 2A, Prong 2 of the Revised Guidelines, the Examiner maintains that claim 21 requires additional elements (image signal processor, keypoint control parameter storage structure, keypoint detection circuit, system memory), but that those additional elements are simply elements of a computer. *See generally* Ans. 12 discussing "particular material implementation." *See also* Spec. ¶¶ 28–32; 27 ("system 100 may be any of various types of devices . . . in general any type of computing or electronic device that includes the functionality of a camera or video camera.")

Relying on Appellant's Specification, the Examiner, however, finds that the recited computer components are generic and simply result in the abstract idea being implemented on a generic computer. Ans. 12. The Examiner further maintains that the language of claim 21 "is devoid of any such language [machine vision algorithms]." Ans. 11.

Thus, Appellant's arguments are not persuasive because the arguments are not commensurate with the scope of claim 21. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) ("[A]ppellant's arguments fail from the outset because . . . they are not based on limitations appearing in the claims."); *see also In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)

("[The] proffered facts . . . are not commensurate with the claim scope and are therefore unpersuasive.").

Thus, the Examiner maintains that claim 21 does not integrate the abstract idea into a practical application and, therefore, is directed to an abstract idea. Ans. 11. Because we find that the claimed invention is not directed to a practical application of the recited abstract idea, we agree with the Examiner that the claimed invention is directed to the abstract idea.

iii. Step 2B

We agree with the Examiner's finding for Step 2B of the *Alice* two-step framework that these additional device elements, as claimed, correspond at most to a generic computing structure. *See* Final Act. 8; *see also* Ans. 4. Thus, we find that claim 21, as a whole, does not integrate the recited mathematical concepts into a practical application of the abstract idea. Additionally, we find Appellant's argument that claim 21 "is directed to hardware circuitry for identifying and reporting points of interest, keypoints, of an image within an image signal processor to improve efficiency in computationally intensive machine vision applications, for example" unpersuasive. Appeal Br. 6.

For Step 2B, we are not persuaded by Appellant's argument that claim 21 recites significantly more than the abstract idea itself. Step 2B of the *Alice* two-step framework requires us to determine whether any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to significantly more than the judicial exception. *Alice*, 573 U.S. at 221. As discussed in the previous section, we agree with the Examiner's findings that the additional device elements, when considered individually and in an ordered combination, correspond to nothing more than a generic

computing structure used to implement the mental process. In other words, these components, as claimed, are well-understood, routine, and conventional and "behave exactly as expected according to their ordinary use." *See In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 615 (Fed. Cir. 2016). As discussed in the previous section, Appellant's Specification describes the computing environment in which the invention is performed. Spec. 27–32. However, Appellant's Specification gives no indication that such a computing environment is anything other than a well-understood, routine, and conventional computing environment. Thus, implementing the abstract idea with these generic computer components "fail[s] to transform that abstract idea into a patent-eligible invention." *Alice*, 573 U.S. at 221. Therefore, we agree with the Examiner that Claim 21 does not provide significantly more than the abstract idea itself.

For Step 2B of the *Alice* two-step framework, the Examiner maintains that the remaining limitations of claim 21 correspond to the additional elements recited in claims 21–24, 26–31, 33–37, 39, and 40 beyond those directed to the abstract idea do not amount to significantly more than the abstract idea because they recite generic computer elements and functions that are well-understood, routine and conventional activities previously known to the industry. Final Act. 8. The Examiner further finds that the claims also recite various computer hardware at a high level of generality (e.g. an image signal processor, a keypoint control parameter storage structure, a keypoint detection circuit, a central processing unit, a system memory, a preprocessing module). Such general computer hardware is well-understood, routine, and conventional in the art of image analysis. Final

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Act. 17; *see also* Ans. 11 citing ¶ 28 (generally discloses system-on-a chip (SOC) component 104.)[11]

Relying on Appellant's Specification, the Examiner finds that the additional elements of claim 21, when viewed individually and in an ordered combination, correspond to "various computer hardware at a high level of generality" and the Specification is "silent regarding this aspect of the invention as an improvement in the technological field." Ans. 13, 14, 15. The Examiner also maintains that the additional elements of claim 21 do not improve the functioning of a computer or any other technology and thus, the claim 21 is directed to an abstract idea without significantly more. Final Act. 18; Ans. 14–15. Therefore, based on our analysis under the Revised Guidance, we agree with the Examiner that claim 21 is directed to an abstract idea.

With respect to dependent claims 27, 40, and 34, and we select dependent claim 27 as the representative claim and address Appellant's argument thereto. *See* 37 C.F.R. § 41.37(c)(1)(iv). We note that the Specification discloses:

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[11] Spec. ¶ 27 discloses "system 100 includes image sensor(s) 102, a system-on-a chip (SOC) component 104, system memory (e.g., dynamic random access memory (DRAM)) 130, persistent storage (e.g., flash memory) 128 . . . In different embodiments, system 100 *may be any of various types of devices, including, but not limited to,* a personal computer system; a desktop computer; a laptop computer; a notebook, tablet, slate, or netbook computer; a mainframe computer system; a handheld computer; a workstation; a network computer; a camera; a set top box; a mobile device, such as a mobile phone, pager, personal data assistant (PDA), tablet device, or music player; an I/O device such as a digital camera, a scanner, a video recorder; a consumer device; a video game console; a handheld video game device; *or in general any type of computing or electronic device that includes the functionality of a camera or video camera*." (Emphases added).

In one embodiment, pre-processing module 420 *may include lookup table* 540, which may be configured to perform functions of global tone mapping and/or gamma correction on luminance image data, such as Y data 535. *In various embodiments, lookup table 540 may be implemented in hardware, firmware, or software, and/or elements of lookup table 540 may be stored in system memory 130.*

Spec. ¶ 71 (emphases added).

Appellant argues that the claimed combination of features including a pre-processing module are not well-understood routine or conventional, but Appellant does not provide any citation to the Specification to support the attorney arguments. Attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *Ex parte Belinne*, No. 2009-004693, 2009 WL 2477843, at *3–4 (BPAI Aug. 10, 2009) (informative), *available at* https://www.uspto.gov/sites/default/files/ip/boards/bpai/decisions/inform/fd09004693.pdf; *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011).

Contrary to Appellant's argument, we find the use of a well-known lookup table for data conversion to be well-understood routine or conventional and a short cut to repeated mathematical calculations.

2. Conclusion

Therefore, because claim 21 is directed to the abstract idea of mathematical concepts and does not provide significantly more than the abstract idea itself, we agree with the Examiner that claim 21 is ineligible for patenting and affirm the Examiner's rejections of claims 21–24, 26–31, 33–37, 39, and 40 under 35 U.S.C. § 101.

DECISION

The Examiner's rejection is affirmed.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
21–24, 26–31, 33–37, 39, 40	101	Eligibility	21–24, 26–31, 33–37, 39, 40	

FINALITY AND RESPONSE

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