

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CANON INC., CANON U.S.A., INC., and  
AXIS COMMUNICATIONS AB,  
Petitioner,

v.

AVIGILON FORTRESS CORPORATION,  
Patent Owner.

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IPR2019-00311  
Patent 7,923,923 B2 & C1

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Before GEORGIANNA W. BRADEN, KIMBERLY McGRAW, and  
JESSICA C. KAISER, Administrative Patent Judges.

McGRAW, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining No Challenged Claims Unpatentable  
35 U.S.C. § 318(a)

## I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Canon Inc., Canon U.S.A., Inc., and Axis Communications AB (collectively “Petitioner”) challenge claims 1–41 of U.S. Patent No. 7,932,923 B2 & C1 (Ex. 1001, “the ’923 patent”), owned by Avigilon Fortress Corporation (“Patent Owner”). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has not shown by a preponderance of the evidence that claims 1–41 of the ’923 patent are unpatentable.

### *A. Procedural History*

Petitioner filed a Petition for *inter partes* review of claims 1–41 of the ’923 patent. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 9. Petitioner then filed an authorized Reply to address Patent Owner’s arguments that the asserted references are not printed publications (Paper 11), to which Patent Owner filed an authorized Sur-reply (Paper 12). Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we instituted an *inter partes* review of the challenged claims. Paper 13 (“Inst. Dec.”).

Following institution, Patent Owner filed a Patent Owner Response (Paper 27, “PO Resp.”), Petitioner filed a Reply (Paper 31, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 38, “PO Sur-reply”). An oral hearing was held on April 8, 2020, and a copy of the hearing transcript has been entered into the record. Paper 46 (“Tr.”).

### *B. Related Matters*

Concurrent with the instant Petition, Petitioner filed another petition for *inter partes* review of the ’923 patent in IPR2019-00314. *Canon Inc. et*

*al. v. Avigilon Fortress Corp.*, IPR2019-00314, Paper 1 (PTAB Nov. 12, 2018). We issue a final written decision in IPR2019-00314 concurrently with this Decision.

Petitioner also has filed several petitions challenging patents related to the '923 patent.<sup>1</sup> For example, Petitioner filed petitions in IPR2018-00138 and IPR2018-00140 challenging claims of related U.S. Patent No. 8,564,661 B2 (“the '661 patent”). In both of these proceedings, we determined that Petitioner had shown by a preponderance of the evidence that each of the challenged claims of the '661 patent are unpatentable. *Axis Commc'ns AB et al. v. Avigilon Fortress Corp.*, IPR2018-00138, Paper 25 (PTAB May 30, 2019); *Axis Commc'ns AB et al. v. Avigilon Fortress Corp.*, IPR2018-00140, Paper 25 (PTAB May 30, 2019).

Petitioner also filed petitions in IPR2019-00235 and IPR2019-00236 challenging claims of related U.S. Patent No. 7,868,912 B2. We denied institution of both of these proceedings. *See Canon Inc. et al. v. Avigilon Fortress Corp.*, IPR2019-00235, Paper 19 (PTAB June 4, 2019) (stating that Petitioner did not show the asserted reference qualified as a prior art printed publication); *Canon Inc. et al. v. Avigilon Fortress Corp.*, IPR2019-00236, Paper 12 (PTAB June 4, 2019) (exercising discretion under 35 U.S.C. § 325(d) to decline institution).

### *C. The '923 Patent (Ex. 1001)*

The '923 patent, titled “Video Surveillance System Employing Video Primitives,” is generally directed to methods, devices, and computer readable storage media for video surveillance. *See* Ex. 1001, codes (54),

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<sup>1</sup> Petitioner states the '923 patent and U.S. Patent Nos. 8,564,661 B2 and 7,868,912 B2 are related as each claim priority to U.S. Application No. 09/694,712. Pet. 8.

(57), Reexamination Certificate 1:29–4:28. In one embodiment, the disclosed video surveillance system operates by (1) obtaining source video, (2) extracting “video primitives” from the video, (3) archiving the video primitives, (4) extracting “event occurrences” from the video primitives using “event discriminators,” and (5) undertaking a response, as appropriate. *Id.* at Fig. 4, 4:30–31, 11:63–65. “Video primitive” refers to an “observable attribute” of an object viewed in a video feed, such as the size, shape, position, speed, color, and texture of the object. *Id.* at 7:6–12. The ’923 patent explains that event discriminators are used to filter the video primitives to determine if any event occurrences occurred. *Id.* at 10:66–11:1. For example, an event discriminator can look for a “wrong way” event as defined by a person traveling the “wrong way” into an area between 9:00 a.m. and 5:00 p.m. *Id.* at 11:1–4. The event discriminator checks the video primitives and determines if any video primitives with the following properties exist: a timestamp between 9:00 a.m. and 5:00 p.m., a classification of “person” or “group of people,” a “position inside the area,” and a “wrong direction of motion.” *Id.* at 11:4–9.

#### *D. Illustrative Claims*

Petitioner challenges claims 1–41 of the ’923 patent. Claims 1, 8, 9, 20, 22, 29, and 30 are independent. Claim 1 is representative and is reproduced below.

1. A method comprising:

- [a] detecting an object in a video from a single camera;
- [b] detecting a plurality of attributes of the object by analyzing the video from said single camera, the plurality of attributes including at least one of a physical attribute and a temporal attribute, each attribute representing a characteristic of the detected object;

- [c] selecting a new user rule after detecting the plurality of attributes;
- [d1] after detecting the plurality of attributes and after selecting the new user rule, identifying an event of the object that is not one of the detected attributes of the object by applying the new user rule to the plurality of detected attributes,
- [d2] *wherein the applying the new user rule to the plurality of detected attributes comprises applying the new user rule to only the plurality of detected attributes;*
- [e] wherein the plurality of attributes that are detected are independent of which event is identified,
- [f] wherein the step of identifying the event of the object identifies the event without reprocessing the video, and
- [g] wherein the event of the object refers to the object engaged in an activity.

Ex. 1001, Reexamination Certificate, 1:34–55 (matter in brackets added for clarity; matter in italics indicates additions made to the claim during the reexamination proceeding).

*E. Asserted Challenges to Patentability*

Petitioner asserts that claims 1–41 are unpatentable based on the following challenges (Pet. 3):

| Claim(s) Challenged | 35 U.S.C. §         | Reference(s)                |
|---------------------|---------------------|-----------------------------|
| 1–41                | 102(b) <sup>2</sup> | Kellogg <sup>3</sup>        |
| 1–41                | 103                 | Kellogg, Brill <sup>4</sup> |

<sup>2</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the challenged claims of the ’923 patent have an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of §§ 102 and 103.

<sup>3</sup> Christopher James Kellogg, Visual Memory (May 1993) (B.S. and M.S. thesis, Massachusetts Institute of Technology, Department of Electrical Engineering and Computer Science) (Ex. 1003, “Kellogg”).

<sup>4</sup> Frank Z. Brill et al., *Event Recognition and Reliability Improvements for the Autonomous Video Surveillance System*, in Proceedings of a Workshop

### *F. Testimonial Evidence*

In support of its unpatentability contentions, Petitioner relies on a declaration by John R. Grindon, D.Sc. (Ex. 1005). Patent Owner cross-examined Dr. Grindon via deposition. *See* Ex. 2018. In support of its Patent Owner Response, Patent Owner relies on a declaration by Alan Bovik, Ph.D. (Ex. 2019). Petitioner cross-examined Dr. Bovik via deposition. *See* Ex. 1056.

## II. DISCUSSION

### *A. Legal Principles*

To prevail on its challenge to Patent Owner's claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e) (2012); 37 C.F.R. § 42.1(d) (2018). The petitioner "has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim"))). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed.

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held in Monterey California, Nov. 20–23, 1998, pp. 267–283 (Ex. 1004, "Brill").

Cir. 1987). In order to anticipate a claimed invention, a prior art reference must disclose all of the claim limitations “arranged or combined in the same way as in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008); *see also Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (stating that the “dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching that every claim element was disclosed in that single reference”) (first alteration in original) (emphasis omitted).

A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

#### *B. Level of Ordinary Skill in the Art*

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. Before institution, the parties provided slightly different definitions of the level of skill in the art. *See* Pet. 8–9 (citing Ex. 1005 ¶¶ 76–80); Prelim. Resp. 7. In our Decision on Institution, we adopted Petitioner’s proposed definition of a person of

ordinary skill in the art as someone having (i) a Bachelor of Science degree in electrical engineering, computer engineering, or computer science, with approximately two years of experience or research related to video processing and/or surveillance systems, or (ii) equivalent training and work experience in computer engineering and video processing and/or surveillance systems. Inst. Dec. 8 (citing Pet. 8–9; Ex. 1005 ¶¶ 76–80).

Neither party disputes our definition of the level of ordinary skill in the art from the Institution Decision. We see no reason to change our definition based on the complete record and, thus, maintain our definition for the purposes of this Decision. We further note that our analysis would be the same under either party’s definition.

### *C. Claim Construction*

In an *inter partes* review filed before November 13, 2018, such as here, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b) (2018);<sup>5</sup> *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews).

Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent

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<sup>5</sup> The 2018 amendment to this rule does not apply here because the Petition was filed before November 13, 2018. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (now codified at 37 C.F.R. pt. 42 (2019)) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018).

disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

The parties propose constructions for a number of claim terms. *See* Pet. 9–23; PO Resp. 5–15; Pet. Reply 4–10; PO Sur-reply 5–9. We need only construe claim terms that are in controversy, and only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). To the extent we find it necessary to address the meaning of any claim term, we do so below in the context of our unpatentability analysis.

#### *D. Asserted Anticipation of Claims 1–41 by Kellogg*

Petitioner contends that claims 1–41 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Kellogg. Pet. 34–43. In response, Patent Owner argues Petitioner fails to show that Kellogg discloses all the limitations of the challenged claims. PO Resp. 15–38. For the reasons explained below, Petitioner has not established by a preponderance of the evidence that Kellogg anticipates claims 1–41 of the ’923 patent.

##### *1. Overview of Kellogg*

Kellogg is a master’s thesis titled “Visual Memory” with the stated goals of designing a “visual memory architecture” and implementing a “visual memory prototype to support a real-time scene monitoring prototype.” Ex. 1003, 1, 10. Kellogg explains that visual memory supports computer vision applications “by efficiently storing and retrieving spatiotemporal information. It is a unique combination of databases, spatial

representation and indexing, and temporal representation and indexing.”

*Id.* at 9. Chapter 3 of Kellogg presents a design for a visual memory system. *See id.* at 18–67. Chapter 4 describes a prototype of a visual memory system that implements the design of chapter 3. *See id.* at 68–80. In this prototype, image processing using video cameras tracks objects and stores information about them in the visual memory. *Id.* at 68. Using a graphical query interface, users can specify queries to the visual memory and view the result in various ways. *Id.* Chapter 5 describes tests that were conducted to analyze the prototype’s performance. *See id.* at 81–87.

## *2. Petitioner’s Contentions*

We begin our analysis by summarizing Petitioner’s anticipation arguments, focusing on Petitioner’s contentions for method claim 1, which is representative of the other independent claims. Petitioner contends that Kellogg discloses each limitation recited in method claim 1. Pet. 34–43. Petitioner asserts that Kellogg discloses the limitations of claim element 1[a], which require detecting an object in a video from a single camera, as Kellogg discloses the real-time processing of CCD camera images and software that tracks people walking in its field of view. *See* Pet. 35–36 (citing Ex. 1003, 21, 30–31, 50, 68–69, 79, Figs. 3–5, 4–9); Ex. 1005 ¶¶ 195–196. Petitioner also asserts that Kellogg discloses the “detecting a plurality of attributes” limitations of claim element 1[b], as it teaches detecting various physical and temporal attributes that represent characteristics of an object, such as the height of a person (physical attribute) or the time intervals an object is present (temporal attribute). *See id.* at 37 (citing Ex. 1003, 24, 63, 25, 74, 36–41; Ex. 1005 ¶¶ 202–207).

Petitioner further contends that Kellogg discloses the “selecting a new user rule” limitations of claim element 1[c] because Kellogg discloses “a

tasking mechanism to allow users to create *ad hoc* queries using a set of attributes, i.e., selecting a new user rule.” Pet. 38 (citing Ex. 1005 ¶¶ 209–210, 215–216). In particular, Petitioner points to Kellogg’s “Approach Query,” which “tracks all objects that came within 3 units of a given object on its trajectory during a certain set of valid times,” as an example of a “new user rule” disclosed in Kellogg. *See id.* at 38–39 (citing Ex. 1003, 62–63; Ex. 1005 ¶¶ 209–216 (emphasis omitted)).

Petitioner also asserts that Kellogg’s “Approach Query” satisfies the limitations of claim element 1[d1] that require, *inter alia*, “identifying an event of the object that is not one of the detected attributes of the object by applying the new user rule to the plurality of detected attributes,” because the query applies at least two different attributes from the plurality of detected attributes. *Id.* at 39 (citing Ex. 1003, 62–63; Ex. 1005 ¶ 218). Petitioner further contends that Kellogg also satisfies the limitations of claim element 1[d1] that require applying the new user rule after detecting attributes and creating the query because “Kellogg’s system was designed to record basic attributes so that a search can later be created based on any arbitrary subset of the recorded attributes.” *Id.* at 39–40 (citing Ex. 1003, 53–54, 78; Ex. 1005 ¶ 220).

Petitioner further asserts the limitations of claim element 1[d2] that recite “applying the new user rule to the plurality of detected attributes comprises applying the new user rule to only the plurality of detected attributes” require that “the prior art have the ability to search only the attributes themselves.” Pet. 40 (citing Ex. 1005 ¶ 221; Pet. 19–21). Petitioner argues Kellogg discloses this limitation because Kellogg discloses that the attribute data can be stored in a “bucket index” and therefore, “Kellogg can search only the attributes themselves and does not require

traversing a tree structure of abstractions to search the detected attributes.”  
*Id.* (citing Ex. 1003, 83; Ex. 1005 ¶ 222).

Petitioner also contends that the attributes queried in Kellogg’s Approach Query are “independent of which event is identified,” as required by claim element 1[e], because the attributes are pre-collected. *Id.* at 40–42 (citing Ex. 1003, 62–63; Ex. 1005 ¶¶ 223–225, 227). Petitioner further notes that Kellogg “discloses that the queries are forensic in nature, where ‘[a] large amount of [stored] information could be established prior to application execution.’” *Id.* at 42 (alterations in original) (emphasis omitted) (quoting Ex. 1003, 9) (citing Ex. 1003, 19).

In addition, Petitioner contends that because Kellogg searches stored attributes in its database, Kellogg performs the “identifying” step “without reprocessing the video,” as required by claim element 1[f]. *See* Pet. 42 (citing Ex. 1003, 53–54, 77, 79; Ex. 1005 ¶¶ 228–229). Finally, Petitioner asserts that Kellogg’s Approach Query satisfies the limitations of claim element 1[g] (“wherein the event of the object refers to the object engaged in an activity”) because the Approach Query identifies an Approach Event, which refers to an object (persons p, q) engaged in activity (the action of moving along a certain trajectory). *See* Pet. 42 (citing Ex. 1003, 62–63; Ex. 1005 ¶ 230; Ex. 1001, 3:31–33).

### 3. Analysis

In our Institution Decision, we determined that Petitioner made an adequate showing for institution purposes that Kellogg discloses each limitation of claim 1. *See* Inst. Dec. 21. Nevertheless, on the complete record now before us as discussed in detail below, we find that a preponderance of the evidence does not establish that Kellogg discloses “wherein the applying the new user rule to the plurality of detected attributes

comprises applying the new user rule to only the detected attributes,” as recited in independent claim 1, element [d2], as well as in independent claims 8, 9, 22, and 29, and similarly recited in independent claims 20 and 30 (hereinafter the “only” limitations). Accordingly, because Petitioner’s anticipation analysis relies on Kellogg for teaching the claimed “only” limitations, we determine that Petitioner has not shown by a preponderance of the evidence that independent claims 1, 8, 9, 20, 22, and 30, or the claims that depend therefrom, are anticipated by Kellogg.

As described above, Petitioner contends the “Approach Query” is a “new user rule.” *See* Pet. 38–39 (stating that the creation of *ad hoc* queries using a set of attributes, such as the “Approach Query,” discloses selecting a “new user rule”). Dr. Grindon explains that the Approach Query “specifies a combination of a set of physical and temporal attributes together with object classification attributes for identifying an ‘Approach Event’ between person p and persons q by searching for any persons q that came within a certain distance of person p at a given time period.” Ex. 1005 ¶ 212 (citing Ex. 1003, 62–63). According to Dr. Grindon, the Approach Query “searches the centroid of the two objects and their trajectories, and the distance between the moving centroids.” *Id.* Dr. Grindon further states that the Approach Query “also searches for trajectories within certain periods, *e.g.*, time-1 and time-2.” *Id.* In addition, the Approach Query “also applies the object classification attribute, *i.e.*, person, for both objects.” *Id.* Dr. Grindon opines that the event being identified by the Approach Query “is not just one of the detected attributes, but rather a collection or a set of attributes.” *Id.* ¶ 218.

Petitioner also contends that the “only” limitations require “that the prior art have the ability to search only the attributes themselves.” *See*

Pet. 40 (citing Ex. 1005 ¶ 221; Pet. 19–21); *see also id.* at 47, 52, 60 (referring to analysis of claim 1 to show unpatentability of independent claims 8, 9, 20, 22, and 30). Petitioner asserts that Kellogg can search only the attributes themselves and does not require traversing a tree structure of abstractions to search the detected attributes because Kellogg discloses that the attribute data can be stored in a “bucket index.” *Id.* (citing Ex. 1003, 83; Ex. 1005 ¶ 222). Petitioner asserts that a “bucket index simply maintains a list of all the objects stored in the visual memory” and “answers a query by retrieving all the objects in its list and checking them against the query specification,” thus demonstrating that the system can search only the attributes themselves. *Id.* (citing Ex. 1003, 83; Ex. 1005 ¶ 222).

Patent Owner asserts Kellogg does not apply “the new user rule to *only* the plurality of detected attributes” because Kellogg’s prototype visual memory system does not use the bucket index, but rather performs its queries on “spatial indices” (i.e., “fixed grid” and “bucket PR quadtree”) and on “temporal indices,” such as the “temporal segment tree.” *See* PO Resp. 27–31 (citing Ex. 1003, 72–77, Figs. 4–3, 4–4, 4–5); *see also* Ex. 1003, 67 (describing a spatiotemporal query in which “the indexing mechanism finds the temporal description in the temporal indices, retrieves the corresponding versions of the spatial indices, finds the spatial description in them, and retrieves the corresponding spatiotemporal object versions”). Patent Owner contends that these indices “are not optional in Kellogg” and that they are the only way the queries are described as operating. *Id.* at 27 (citing Ex. 1003, 54, 64). Patent Owner asserts that because the indices used by Kellogg have a tree-structure hierarchy, Kellogg’s queries on these indices “quer[y] object-oriented abstractions” and, therefore, do not apply the new user rule to only the plurality of detected attributes, as required by

the claims. *See* PO Resp. 27–31. Patent Owner further asserts that the bucket index “is not described in Kellogg’s implementation of the visual memory” but is only used “to analyze the performance of the two implemented spatial indices.” *See* PO Resp. 31 (citing Ex. 1003, § 4 (titled “Implementation”), 84).

Petitioner replies that Kellogg’s “fixed grid” and “PR quadtree” indices are irrelevant because Petitioner does not rely on these features of Kellogg. Pet. Reply 16 (citing Pet. 40; Ex. 1005 ¶¶ 221–222); *see also* Tr. 15:6–7 (stating that “what [Petitioner] rel[ies] on to show that Kellogg is searching only the attributes is this bucket index that’s disclosed in Kellogg”). Petitioner further states that even though Kellogg’s bucket index is not in Kellogg’s implementation section, Kellogg actually “built and tested the bucket index.” Pet. Reply 17 (citing Ex. 1003, 83); *see also id.* at 16 (stating that the bucket index “answers a query by retrieving all the objects in its list and checking them against the query specification” (citing Ex. 1003, 83)).

Based on the complete record, we determine that Petitioner has not shown sufficiently that Kellogg discloses the ‘only’ limitations of independent claims 1, 8, 9, 20, 22, 29, and 30, because Petitioner has failed to demonstrate sufficiently that Kellogg discloses performing the Approach Query on the bucket list, which is the basis of Petitioner’s showing for these limitations. Petitioner points to Kellogg’s disclosure of using a bucket index to test the performance of Kellogg’s spatial indices using a spatial query and to test the performance of Kellogg’s temporal indices using a temporal query, but Petitioner has not shown sufficiently that Kellogg discloses performing the “Approach Query,” which is a spatiotemporal query, on the bucket list index. *See* Pet. 40 (citing Ex. 1003, 83; Ex. 2005 ¶ 222). Nor has

Petitioner shown that a person skilled in the art would have understood that Kellogg's bucket list index could have supported a spatiotemporal query.

*See id.*

Significantly, Kellogg draws a distinction between (1) "Spatial Queries" (Ex. 1003, 54–57 (§ 3.7.2)), (2) "Temporal Queries" (*id.* at 57–59 (§ 3.7.3)) and (3) "Spatiotemporal Queries" (*id.* at 59–63 (§ 3.7.4)). A spatiotemporal query "specifies a spatiotemporal object and a temporal object, and how objects must intersect with these to satisfy the query." *Id.* at 59; *see also id.* at 68 (stating that the visual memory prototype specifies "a variety of queries, including spatial, temporal, and spatiotemporal"). *Id.* at 68. Kellogg states that its "query mechanism is tailored to the spatial and temporal representations," and describes the query mechanism and the types of queries supported by its visual memory. *Id.* at 53. Indeed, Kellogg states that the "interaction of space and time makes spatiotemporal indexing a complex problem." Ex. 1003, 66.

Neither of Kellogg's tests involving the bucket list to demonstrate query performance appear to test a spatiotemporal query. *See* Ex. 1003, 82–87. The first test, as shown in Figure 5–4, is titled "Spatial query performance." *Id.* at 86. This test shows "the performance for spatial indices with a 10-unit by 10-unit query square" by comparing query performance on (1) the spatial quadtree index, (2) the spatial grid index, and (3) the bucket list index. *See id.* at 83–86. The second test, shown in Figure 5–5, titled "Temporal query performance," shows the "performance for temporal indices with a query interval of 10 seconds" by comparing query performance on (1) the temporal B+ tree index, (2) the temporal Segment tree index, and (3) the bucket list index. *See id.* at 83–85, 87. Thus, while Kellogg discloses performing a *spatial* query and a *temporal*

query on the bucket list index, there is no disclosure of performing a *spatiotemporal* query, such as the Approach Query, on the bucket list index. In sum, Petitioner does not provide sufficient argument or evidence that Kellogg performed, or otherwise discloses, performing the Approach Query, or any spatiotemporal query, on a bucket list. Nor has Petitioner presented sufficient argument or evidence that a bucket index could support a spatiotemporal query.

Therefore, for the foregoing reasons, based on the complete record, Petitioner has not shown sufficiently that Kellogg discloses the “only” limitations, i.e., “wherein the applying the new user rule to the plurality of detected attributes comprises applying the new user rule to only the detected attributes,” as recited in independent claim 1, element [d2], as well as in independent claims 8, 9, 22, and 29, and similarly recited in independent claims 20 and 30. Accordingly, we determine that Petitioner has not shown by a preponderance of the evidence that independent claims 1, 8, 9, 20, 22, and 30, or the claims that depend therefrom, are anticipated by Kellogg.

*E. Asserted Obviousness of Claims 1–41 over Kellogg and Brill*

Petitioner contends that claims 1–41 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Kellogg and Brill. Pet. 62–75. Petitioner does not rely on Brill to teach the “only” limitations not disclosed by Kellogg as described above. *Id.* Nor does Petitioner provide any argument that these limitations would have been obvious to one of ordinary skill in the art. *Id.* Accordingly, Petitioner has not shown by a preponderance of the evidence that the combination of Kellogg and Brill teaches or suggests each of the limitations of claims 1–41. Accordingly, Petitioner has not shown by a preponderance of the evidence that claims 1–41 would have been obvious over Kellogg and Brill.

### III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–41 are unpatentable.

| <b>Claims</b>          | <b>35 U.S.C. §</b> | <b>Reference(s)</b> | <b>Claims<br/>Shown<br/>Unpatentable</b> | <b>Claims<br/>Not Shown<br/>Unpatentable</b> |
|------------------------|--------------------|---------------------|------------------------------------------|----------------------------------------------|
| 1–41                   | 102(b)             | Kellogg             |                                          | 1–41                                         |
| 1–41                   | 103(a)             | Kellogg, Brill      |                                          | 1–41                                         |
| <b>Overall Outcome</b> |                    |                     |                                          | 1–41                                         |

### IV. ORDER

Accordingly, it is

ORDERED that claims 1–41 of U.S. Patent No. 7,932,923 B2 & C1 have not been shown to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2019-00311  
Patent 7,932,923 B2 & C1

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