

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

AVIGILON FORTRESS CORPORATION,
Patent Owner.

IPR2019-00314
Patent 7,923,923 B2 & C1

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 IPR2019-00311. *Canon Inc. et*

al. v. Avigilon Fortress Corp., IPR2019-00311 (PTAB Nov. 12, 2018) (Paper 1). We issue a final written decision in IPR2019-00311 concurrently with this Decision.

Petitioner also has filed several petitions challenging patents related to the '923 patent.¹ 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),

¹ 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 Challenge to Patentability

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

Claims Challenged	35 U.S.C. §	References
1–41	103 ²	Dimitrova, ³ Brill ⁴

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

³ Nevenka Dimitrova, *Motion Recovery for Video Content Classification*, ACM Transactions on Information Systems, Vol. 13, No. 4, Oct. 1995, 408–439 (Ex. 1006, “Dimitrova”).

⁴ Frank Brill et al., *Event Recognition and Reliability Improvements for the Autonomous Video Surveillance System*, Proceedings of a Workshop held in Monterey California, Nov. 20–23, 1998, pp. 267–283 (Ex. 1004, “Brill”).

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 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 (1966). 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. 7–8 (citing Pet. 8–9; Ex. 1005 ¶¶ 76–80).

Neither party disputes our definition of the level of ordinary skill in the art. 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 parties’ 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);⁵ *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 disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

The parties propose constructions for a number of claim terms, including the phrase “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,” as recited in claims 1, 8, 9, 22, and 29 and as similarly recited in claims 20 and 30⁶ (hereinafter the “only” limitations). *See* Pet. 9–23; PO Resp. 5–15; Pet. Reply 4–10; PO Sur-reply 5–9.

This language was added during the reexamination of the ’923 patent to distinguish over certain prior art references. *See* Ex. 1016 (Oct. 30, 2013 Amendment), 78–79; Ex. 1017 (June 4, 2014 Final Action), 37–38; Ex. 1018

⁵ 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).

⁶ Claim 20 recites “wherein the analysis of the combination of the attributes to detect the event comprises analyzing only the combination of attributes.” Ex. 1001, Reexam. Cert. 2:46–48. Claim 30 recites “wherein the applying the selected new user rule to the plurality of attributes stored in memory comprises applying the selected new user rule to only the plurality of attributes stored in memory.” *Id.* at 4:23–24.

(April 16, 2014 Amendment and Reply), 3–6, 9. In its October 2013 amendment, Patent Owner stated that the added claim language “require[s] application of the user rule ‘only’ to the detected attributes.” Ex. 1016, 78. Patent Owner further stated that in contrast, the queries of the prior art references “are not applied to attributes . . . alone but are applied to object-oriented abstractions.” *Id.* at 78–79. The Examiner agreed with Patent Owner and found the “conceptual queries utilized in the video query system of Day-I are not applied to ‘only’ the detected attributes, but require the use of object-oriented abstractions to interface with the VSDG model.” Ex. 1017, 38; *see also id.* (stating as shown in the ’923 patent, “an event discriminator (‘user rule’) can be applied only against video primitives as opposed to abstractions thereof”).

Petitioner argues that the added claim language cannot be construed to require searching only attributes and exclude the searching of abstractions because there is no support for such a limitation in the specification of the ’923 patent. *See* Pet. 20 (citing Ex. 1005 ¶ 133); *id.* at 7 (stating “the word ‘only’ is used for excluding reprocessing source video as opposed to excluding something other than video primitives, such as abstractions” (citing Ex. 1033 ¶ 30, 148; Ex. 1018, 7; Ex. 1005 ¶ 69)). Thus, Petitioner contends any “argument that the claims include a negative limitation precluding the searching of abstractions . . . must fail because [there is] no written description support for that limitation in the ’923 patent.” Pet. Reply 9; *see also id.* at 9–10 (stating a “construction of the claims forbidding searching abstractions lacks written description support in the ’923 patent and would be an error”).

We disagree with Petitioner and determine that the plain and ordinary meaning of the phrase “applying the selected new user rule to *only* the

plurality of attributes” requires that the new user rule be applied to only the plurality of attributes. Even if the added claim language was not adequately supported,⁷ the language of the claim clearly states that the new user rule is applied to only the plurality of attributes, and as such, we construe the claim in accordance with its plain meaning. Petitioner has not persuasively shown that claim construction should deviate from the clear meaning of the claim. The prosecution history also supports a construction in accordance with the plain and ordinary meaning of the claim language. During the reexamination proceeding, Patent Owner expressly stated that the added language “require[s] application of the user rule ‘only’ to the detected attributes” in “contrast [to] the requirements of Day-I [which] are not applied to the attributes stored in the VSDG alone but are applied to object-oriented abstractions.” Ex. 1016, 78; *see also id.* at 79 (stating the “queries of Day-II are also not applied to the attributes stored in the VSDG alone but are applied to object-oriented abstractions”). Thus, the prosecution history supports a construction as requiring that the new user rule be applied to only the plurality of attributes (i.e., the new user rule is not applied to object-oriented abstractions).

The parties remaining disputes regarding the scope of the “only” limitations need not be resolved as they are not necessary to resolution of the issues before us. 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) (applying *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d

⁷ We make no determination as to whether the added claim language is adequately supported.

795, 803 (Fed. Cir. 1999) in the context of an *inter partes* review). To the extent we find it necessary to further address the meaning of any other claim terms, we do so below in the context of our unpatentability analysis.

D. Asserted Obviousness of Claims 1–41 over Dimitrova and Brill

Petitioner contends that claims 1–41 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Dimitrova and Brill. Pet. 34–73; Pet. Reply 11–25. Patent Owner opposes. PO Resp. 16–51; PO Sur-reply 10–24. For the reasons explained below, Petitioner has not established by a preponderance of the evidence that claims 1–41 of the ’923 patent would have been obvious over Dimitrova and Brill.

1. Overview of Dimitrova

Dimitrova is an article titled “Motion Recovery for Video Content Classification” that is directed to content retrieval based on video data for video on demand, automated surveillance systems, and other similar systems. Ex. 1006, 3–4. Dimitrova discloses that the distinction between still images and moving pictures is typically based in movements and variations, and, accordingly, the analysis of the motion of objects allows for the extraction of information that is unique to a video sequence. *Id.*

Dimitrova stores the video information using object attributes (“O”), object motion attributes (“M”), and video attributes (“V”), or an “OMV” triplet. *See id.* at 19–20. The OMV triplet is the basis for the query function that allows for retrieval of video data based on its content. *Id.* at 3, 20. For example the query expression

“*V_Seq(O_category = pet, (Activity = walking, Trajectory = t₁))*” translates into “retrieve all the video sequences in which a pet walks and makes a trajectory t₁.” *Id.* at 20. Dimitrova states that the answer to that query will include all the “objects (animals) that are classified as pets: cats, dogs, fish

called Wanda.” *Id.* Another example is the function “*Object_motion : O x V → P (M)*” which takes any object description and a particular video sequence and returns a set of motion descriptions related to that object. *Id.* Dimitrova states that these functions “allow for inexactness, and by default, they return results that are approximately similar to the precise answer.” *Id.* at 21. To make the retrieval exact, the symbol “!” is placed in front of the query function. *Id.* (stating that the query “!*Object_motion*” will return only the motion descriptions of objects that match the give characteristics).

Dimitrova also explains that these retrieval functions are imbedded into the framework of a multimedia functional query language called “EVA,” which is “object oriented and supports objects, object classes, attributes and methods of objects, and relationships between objects.” *Id.* at 21–22. EVA deals with the temporal and spatial aspects of multimedia information retrieval and delivery, in addition to the usual capabilities provided by the ordinary database languages. *Id.* at 21.

2. Overview of Brill (Ex. 1004)

Brill, an article titled “Event Recognition and Reliability Improvements for the Autonomous Video Surveillance System,” is directed to an Autonomous Video Surveillance (“AVS”) system that “processes live video streams from surveillance cameras to automatically produce a real-time map-based display of the locations of people, objects and events in a monitored region.” Ex. 1004, 4. Specifically, the AVS system of Brill has been enhanced to utilize collateral information sources, camera hand-off, vehicle recognition, and complex event recognition. *Id.*

3. Petitioner’s Contentions

Petitioner contends that the combined teachings of Dimitrova and Brill render claims 1–41 unpatentable as obvious. *See* Pet. 33–73. With

respect to claim 1, Petitioner contends Dimitrova discloses the limitations of claim element 1[a], which require detecting an object in a video from a single camera, as Dimitrova detects objects and their motion in a video obtained from a single camera. *See id.* at 33 (citing Ex. 1006, 8–19, Figs. 4–6; Ex. 1005 ¶¶ 345–347; Ex. 1006, 4–5). Petitioner also asserts Dimitrova discloses the “detecting a plurality of attributes” limitations of claim element 1[b] as Dimitrova’s system uses “motion analysis” techniques to detect basic activity attributes of an object, such as strolling, walking, or hurrying, and observable physical attributes, such as size, shape, color, or velocity. *Id.* at 33–36 (citing Ex. 1006, 17, 25; Ex. 1005 ¶¶ 348–349, 351, 359). Petitioner contends Brill also discloses detecting physical and temporal attributes because Brill discloses events that use multiple physical attributes (e.g., “person” and “near the door”), an activity attribute (“loiter”), and a temporal attribute (“more than 5 seconds”) *Id.* at 36–37 (citing Ex. 1005 ¶ 360).

Petitioner further contends Dimitrova discloses the “selecting a new user rule” limitations of claim element 1[c] because Dimitrova discloses “a tasking mechanism that allows users to create *ad hoc* queries based on a plurality attributes that are already detected.” *Id.* at 37–38 (citing Ex. 1005 ¶¶ 362–363; Ex. 1006, 20, 28–29). In particular, Petitioner points to Dimitrova’s “Parade Query” as specifying a combination of a set of already detected activity, physical, and temporal attributes for identifying a Parade Event. *Id.* at 38 (citing Ex. 1005 ¶¶ 364–365). Petitioner also contends that the proper construction of a “new user rule” does not require setting a response, but that if a response is required, both Dimitrova and Brill teach this feature. *Id.* at 38 (citing Ex. 1004, Fig. 11; Ex. 1006, 11, 27; Ex. 1005 ¶ 366).

Claim element 1[d1] recites, *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.” Petitioner asserts that “applying” encompasses “any mechanism for analyzing the detected attributes to determine if they satisfy the new user rule criteria, e.g., querying a database.” Pet. 12 (citing Ex. 1005 ¶¶ 100–103); *see also* Pet. Reply 7 (stating that a “‘query’ must examine the attributes to find a match for the collection of attributes specified by the user rule” (emphasis omitted) (citing Ex. 2019, 42)). Petitioner asserts Dimitrova’s “Parade Query” satisfies the limitations of claim element 1[d1] because the query applies at least two different attributes (e.g., “waving,” “walking,” “tall,” “president,” “person” and four frame numbers), from the plurality of detected attributes. Pet. 39 (citing Ex. 1006, 25; Ex. 1005 ¶ 368). Petitioner further contends the Parade Query includes a temporal attribute requiring that the two objects meet the specified criteria at the same time. *Id.* at 40 (citing Ex. 1005 ¶ 370). Petitioner also contends Dimitrova satisfies the limitations of claim element 1[d1] that require applying the new user rule after detecting attributes and creating the query because the Parade Event is created after-the-fact and applied to existing recorded attributes. *Id.* at 39–40 (citing Ex. 1006, 33, 34, 24–25, 29; Ex. 1005 ¶¶ 369, 371).

Petitioner 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.” *Id.* at 40 (citing Pet. 19–21). Petitioner argues Dimitrova discloses this limitation by providing a query operator called “exact” (using symbol “!”). *Id.* (citing Ex. 1004, 21; Ex. 1005 ¶¶ 372–373). Petitioner

contends this operator allows the system to retrieve only objects that have the same detected attributes as the user specified in the query. *Id.* at 40–41 (citing Ex. 1005 ¶ 373). Petitioner asserts this “operator prevents the system from returning higher-level abstractions based on the queried attributes, which would merely represent approximations of the searched attributes.” *Id.* at 41 (citing Ex. 1005 ¶ 373). Petitioner also asserts that although “*Dimitrova* discloses schemas that define logical relationships between objects and attributes, those schemas do not define the storage structure of the data in the *Dimitrova* database.” *Id.* at 41 (citing Ex. 1006, 22–23; Ex. 1005 ¶ 374). Petitioner contends that *Dimitrova* merely teaches that the attributes are stored as “OMV triplets,” without requiring any further hierarchy and that *Dimitrova* “can apply its user rules to only the attributes, e.g., the OMV triplet data, and therefore “does not require searching that involves higher-level abstractions,” such as the abstractions of the Day references that Patent Owner was trying to distinguish with the “only” limitation. Ex. 1005 ¶ 374 (citing Ex. 1006, 19).

Petitioner also contends the attributes queried in *Dimitrova*’s Parade Query are “independent of which event is identified” as required by claim element 1[e] because attributes are pre-collected and stored in a database before the Parade Query is defined by the user. *See* Pet. 41–43 (citing Ex. 1006, 20, 25, 29; Ex. 1005 ¶¶ 375–380). In addition, Petitioner contends that because *Dimitrova* searches stored attributes in its database, *Dimitrova* performs the “identifying” step “without reprocessing the video,” as required by claim element 1[f]. *See id.* at 43 (citing Ex. 1003, 24–27; Ex. 1005 ¶ 381). Finally, Petitioner asserts *Dimitrova*’s Parade 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 Parade Query identifies a

“parade” event by searching for activity attributes (i.e., “waving” and “talking”) that refer to an object engaged in an activity. *See id.* at 44 (citing Pet. 41–43; Ex. 1005 ¶ 382).

4. Analysis

In our Institution Decision, we determined Petitioner made an adequate showing for institution purposes that Dimitrova and Brill teach or suggest each limitation of claim 1. *See* Inst. Dec. 24–31. 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 the combined teachings of Dimitrova and Brill teach or suggest “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, we determine that Petitioner has not shown by a preponderance of the evidence that independent claims 1, 8, 9, 20, 22, 29 and 30, or the claims that depend therefrom, would have been obvious over Dimitrova and Brill.

As described above, Petitioner contends the “Parade 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 “Parade Query” discloses selecting a “new user rule”). According to Petitioner, the Parade Query, when used with a “query operator called ‘exact’ (using symbol ‘!’),” applies the new user rule to only the plurality of detected attributes because the “exact” operator “allows the system to retrieve only objects that have the same detected attributes as the user specified in the query.” *See id.* at 40–41 (citing Ex. 1004, 21; Ex. 1005

¶¶ 372–373).⁸ Petitioner asserts that the “exact” operator prevents the system from returning higher-level abstractions based on queried attributes, which would merely represent approximations of the searched attributes. *Id.* at 41 (citing Ex. 1005 ¶ 373).

Patent Owner responds that Dimitrova does not teach “applying the new user rule to only the plurality of detected attributes” because Dimitrova, even when using the “exact” operator, “queries object-oriented abstractions” (abstraction data) and thus does not query only attributes. *See* PO Resp. 18–22. To support its argument that Dimitrova queries abstraction data in addition to attributes (and thus does not apply the new user rule to “only” attributes), Patent Owner points to Dimitrova’s disclosure that “its retrieval functions ‘need to relate the motion at a higher level of abstraction of the object to the detailed motion of parts of objects.’” *Id.* at 19 (quoting Ex. 1006, 33) (citing Ex. 1006, 21, 27; Ex. 2018, 130:13–24; Ex. 1006, 27). Patent Owner also contends that Dimitrova explicitly states that its query operates on abstractions as the “V_seq” operator “operates on “any description that can be provided at any level of the spatial hierarchy.” *Id.* (quoting Ex. 1006, 20); *see also* Ex. 1006, 21–22 (stating that the language used in the system is “object oriented and supports objects, classes, attributes and methods of objects, and *relationships between objects*” (emphasis added)). Patent Owner further argues that Dimitrova states that it uses “a semantic multiresolution hierarchy for spatiotemporal representation

⁸ Petitioner also argues that the “only” limitations cannot be construed to require searching only attributes and “exclude searching abstractions” because the ’923 patent provides no written description support for that limitation. *See, e.g.*, Pet. 19–20; Pet. Reply 13–14. We disagree with this argument for the reasons stated above in Section II.C.

(Figure 7) because it helps video analysis at various resolution levels” and that even Petitioner’s expert agrees that “there is a spatial hierarchy in Dimitrova that is involved in the query process.” PO Resp. 20 (quoting Ex. 1006, 17; Ex. 2018, 145:17–146:9) (citing Ex. 1006, Fig. 7; Ex. 2018, 146:10–15; Ex. 1022, 1, 2, 5, 7). In addition, Patent Owner contends Dimitrova’s OMV triplet “is an abstraction of the video data” because it represents a way to store the analyzed video in an indexed way with metadata that associates different O, M, and V values as a group and is more than just purely an attribute or set of attributes. *Id.* at 20–21 (citing Ex. 1006, 20; Ex. 2018, 133:1–134:18, 135:13–21).

Petitioner does not dispute Patent Owner’s argument that the “exact” operator “!” queries higher-level abstractions. *See* Pet. Reply 14. Rather, Petitioner argues that Dimitrova’s “exact” search operator “!” prevents the system “from *returning* higher level abstractions.” *Id.* Petitioner contends that because Dimitrova’s “exact operator only *considers and returns* results that exactly match the specified attributes,” Dimitrova satisfies the limitations of claim element 1[d2]. *See id.*

Based on the complete record, we determine that Petitioner has not adequately shown that Dimitrova teaches this limitation. Claim element 1[d2] requires “*applying* the new user rule to only the plurality of detected attributes,” not “*consider[ing] and return[ing]*” only the detected attributes or *preventing* the system from returning higher level abstractions. *See* Pet. Reply 14 (emphases added). Petitioner admits that the “applying the new user rule” limitations includes “querying” a database. *See* Pet. 11–12 (stating that the claimed “‘applying’ would encompass any mechanism for analyzing the detected attributes to determine if they satisfy the user rule criteria, *e.g.*, querying a database”). Indeed, Petitioner stated “at most, this

limitation [i.e., applying a new user rule to only the plurality of detected attributes] only requires an embodiment that can *search* attributes alone.” Pet. Reply 10; *see also* Ex. 1005 ¶ 102 (stating that a person of ordinary skill in the art “would understand that the claimed ‘applying’ could encompass any mechanism for analyzing the detected attributes to determine if they satisfy the new user rule criteria,” and that “[t]his could be accomplished by *querying* a database” (emphasis added)); *see also* Pet. Reply 8 (stating that the prosecution history does not support a clear and unmistakable disclaimer that “applying” requires “analysis” on top of a “query”), 7 (stating that “a ‘query’ must examine the attributes to find a match for the collection of attributes specified by the user rule” (emphasis omitted)).

We agree with Patent Owner that Dimitrova’s queries using the “exact” operator query abstraction data in addition to attributes and, therefore, Petitioner has not shown sufficiently that Dimitrova teaches “applying the new user rule to only” the attributes as required by the independent claims. *See* PO Resp. 18–22 (citing Ex. 1005 ¶ 387; Ex. 1006, 1, 2, 5, 7, 17, 20–21, 27, 33, Fig. 7; Ex. 1016, 78–79; Ex. 1017, 38; Ex. 2018, 130:13–24, 133:1–134:18, 135:13–21, 142:9–18, 143:16–144:24, 145:17–146:9, 146:10–15; Ex. 2019, 52–53); PO Sur-Reply 13–14 (citing Ex. 1016, 9, 14; Ex. 1017, 13, 38). We are persuaded by Patent Owner’s evidence and argument, as described above, that Dimitrova’s “exact” operator does not change the core functionality of the query from analyzing abstractions to analyzing only attribute data. *See, e.g.*, PO Resp. 21 (citing Ex. 2019, 52–53). Patent Owner has provided sufficient evidence and argument that Dimitrova’s queries, with or without the “!” operator, are applied to the same data, including abstraction data, when looking for matching results, and thus the “exact” operator queries still operate on data

that contain higher-level abstractions. *Id.* (citing Ex. 1006, 21, 24, 40–41); Ex. 2019, 52–53.

Petitioner does not present sufficient evidence or argument to rebut this evidence and argument. Petitioner’s contention that Dimitrova’s “exact” search operator “prevents the system from *returning* higher-level abstractions” (Pet. Reply 14 (emphasis added)) does not persuasively show that Dimitrova’s “exact” search operator does not *search* the higher-level abstractions. *See* Pet. Reply 14. Even if the “exact” search operator prevents the system from *returning* higher-level abstractions, a query using the “exact” search operator still operates by *querying* the higher-level abstractions, and therefore, is *applied* to more than just the attributes.

Based on the complete record, we find that Petitioner has not shown sufficiently that Dimitrova teaches or suggests applying the new user rule to “only” the plurality of detected attributes as required by the independent claims. Petitioner does not contend that Brill teaches this missing limitation. Therefore, for the foregoing reasons, based on the complete record, Petitioner has not shown sufficiently that Dimitrova and Brill teach or suggest “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, 29, and 30, or the claims that depend therefrom, would have been obvious over the combined teachings of Dimitrova and Brill.

III. CONCLUSION

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

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–41	103(a)	Dimitrova, Brill		1–41
Overall Outcome				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.

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