

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner,

v.

SPACETIME3D, INC.,
Patent Owner.

IPR2023-00242
Patent 8,881,048 B2

Before HUBERT C. LORIN, DAVID C. McKONE, and
MINN CHUNG, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–18 of U.S. Patent No. 8,881,048 B2 (Ex. 1001, “the ’048 patent”). SpaceTime3D, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Petitioner also filed a Preliminary Reply (Paper 7, “Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 8, “Prelim. Sur-reply”).¹

We have jurisdiction under 35 U.S.C. § 6.

Upon consideration of the arguments and evidence presented by Petitioner, we are persuaded that Petitioner has demonstrated, under 35 U.S.C. § 314(a), a reasonable likelihood that it would prevail in showing the unpatentability of at least one challenged claim.

For the reasons stated below, we institute *inter partes* review as to challenged claims 1–18 of the ’048 patent.

B. Related Proceedings

Petitioner indicates, and Patent Owner agrees, that the ’048 patent is being asserted in *SpaceTime3D, Inc. v. LG Electronics Inc.*, No. 2:22-cv-00049 (E.D. Tex. 2022) and *SpaceTime3D, Inc. v. Apple Inc.*, No. 6:22-cv-00149 (W.D. Tex. 2022) (“District Court Action”). Pet. 92; Paper 3.

¹ The Board authorized the filing of these papers. *See* Ex. 3001. The Board also authorized Petitioner to file a *Sotera* stipulation. *See* Ex. 1053, 17:21–18:1; Ex. 1054.

Petitioner and Patent Owner also indicate that the '048 patent was involved in *SpaceTime3D, Inc. v. Samsung Electronics Co.*, No. 2:19-cv-00372 (E.D. Tex.), which has terminated, and IPR2020-01417, in which the petition was dismissed prior to institution. Pet. 92; Paper 3.

C. The '048 patent (Ex. 1001)

1. Disclosure

The '048 patent, titled “System and Method for Providing Three-Dimensional Graphical User Interface,” relates to “a three-dimensional ('3D') interactive computing interface and sorting interface comprising information from real-time and static sources, including . . . meta search results from the Web.” Ex. 1001, code (54), 1:30–33.

The '048 patent addresses the problem of finite space on a computer's desktop interface whereby “elements of the GUI^[2] (the windows) are typically drawn on top of each other such that the GUI components overlap one another.” Ex. 1001, 2:8–10. The '048 patent notes that “[w]e live in a 3D . . . world” and the “notion of expressing depth or time in a visual computer metaphor is important for the creation of a visual history of the end user's computing sessions.” *Id.* at 2:14–20. Accordingly, the '048 patent observes the potential to create “a virtual space that does not overlap or substitute what exists on the finite desktop,” and proposes “an improved graphical user interface that allows the user to efficiently navigate through a virtual space wherein groups of windows can be easily organized, stored, and retrieved.” *Id.* at 2:20–24, 2:40–43.

² Graphical User Interface (“GUI”).

“The invention provides a Graphical User Interface (GUI) that uses the two-dimensional display of an end user’s computer to display information (e.g., webpages and other information mapped onto 3D objects) in a simulated real-time 3-D immersive Cartesian space.” Ex. 1001, 7:59–63. “The 3D GUI program creates the appearance of a 3-D space within a 2-D window on the desktop of a computer . . .” *Id.* at 7:66–67. This is depicted in Figure 10, reproduced below.

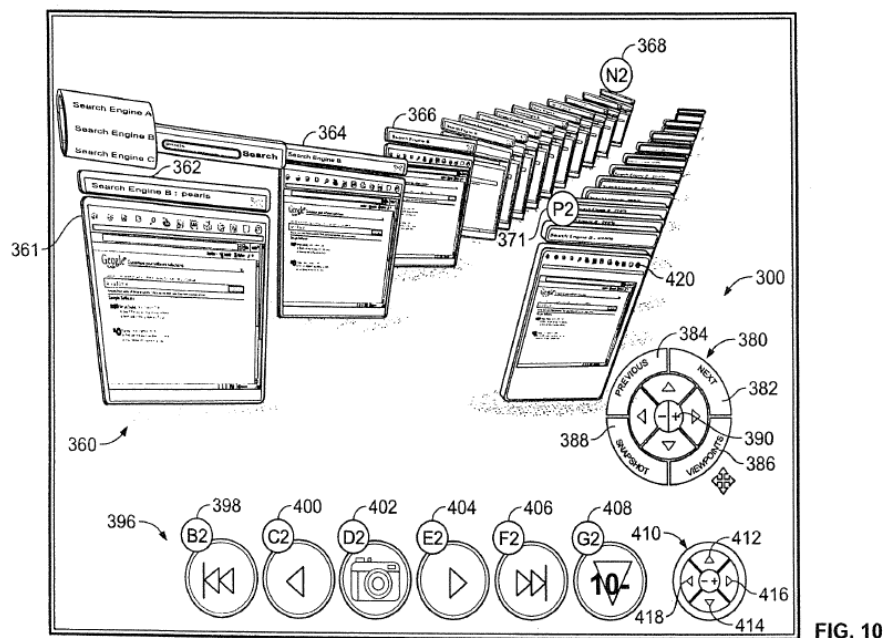


Figure 10 of the '048 patent shows a simulated 3-D virtual space 300 displayed within a 2-D window. Ex. 1001, 6:30–31; 17:64.

“The program creates what seems to be an infinite simulated 3-D Cartesian space within the two-dimensional display . . . [and] creates interactivity of the simulated real-time 3-D immersive Cartesian space.” *Id.* at 8:6–20.

Figure 11 of the '048 patent depicts “an embodiment of a 3D GUI application window with an opened database module” (Ex. 1001, 6:32–33), and is reproduced below.

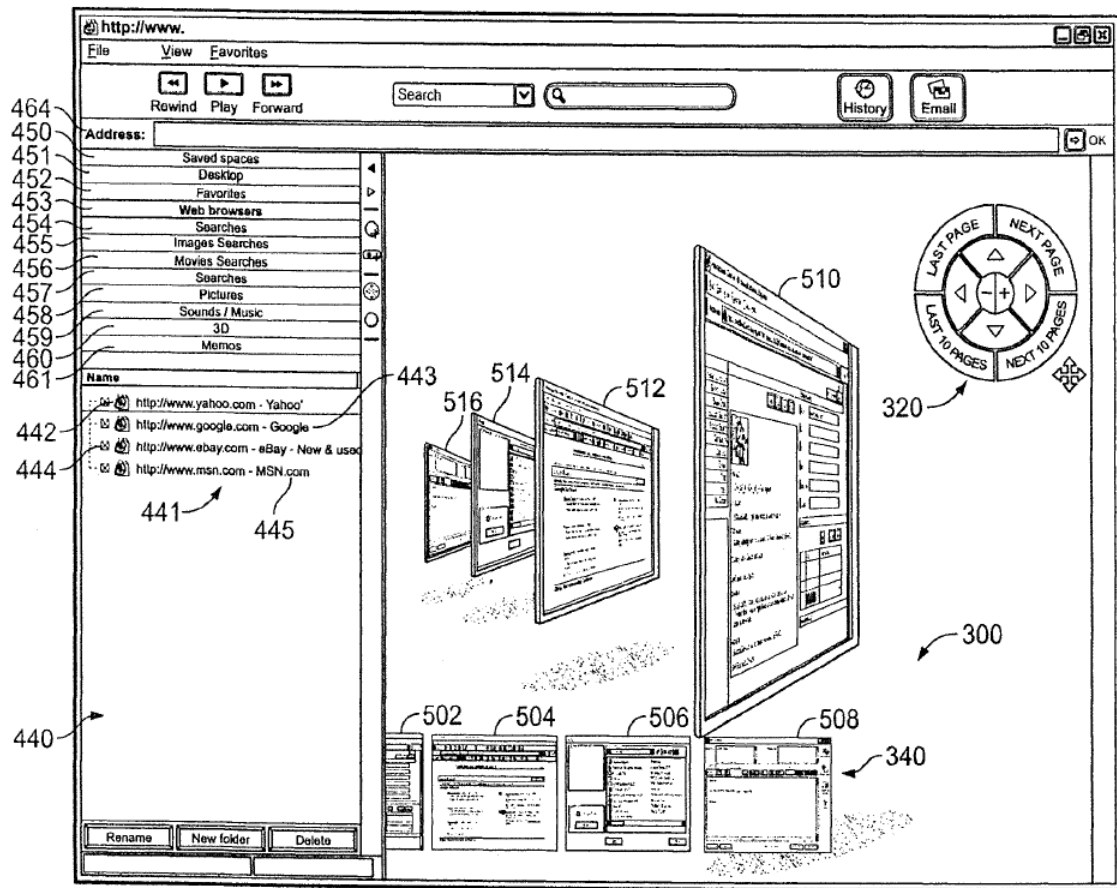


FIG. 11

Figure 11 of the '048 patent shows a virtual space 300 along with an interface 440 called a compass or database module. Ex. 1001, 9:66–10:4.

Figure 11 shows compass or database module 440 “located to the left of the display of the virtual space 300.” *Id.* at 10:2–4. Compass 440 includes names of viewpoints in virtual space 300 where the “names constitute a map of the 3D space as well as a method to navigate the map.” *Id.* at 10:7–11. In the example shown in Figure 11, when a “tab called Web Browsers 453” in the application is selected, compass 440 lists “the names of four viewpoints of the webpages (shown in the main window or virtual space) . . . whose

viewpoint names as they relate to the compass (and are listed as such) are ‘http://www.yahoo.com—Yahoo!’ 442, ‘http://www.google.com—Google’ 443, ‘http://www.ebay.com—ebay’ 444 and ‘http://www.msn.com—MSN’ 445.” *Id.* at 10:34–48. At the bottom of the virtual space in the Figure 11 embodiment “there is provided a linear map, called a timeline 340, having a plurality of icons (502, 504, 506, 508),” which “represent viewpoints indexed in the compass 440 and correspond to the windows 510, 512, 514, 518, respectively.” *Id.* at 10:11–16. As shown in Figure 11, windows 510, 512, 514, and 518 are displayed three-dimensionally above the timeline icons. “[E]ach 3D icon (502, 504, 506, 508) is a hyperlink or graphic that jumps to a new location or viewpoint (when clicked).” *Id.* at 11:47–49.

Figure 13B of the ’048 patent depicts “another embodiment of a 3D GUI application window with an opened database module” (Ex. 1001, 6:37–38), and is reproduced below.

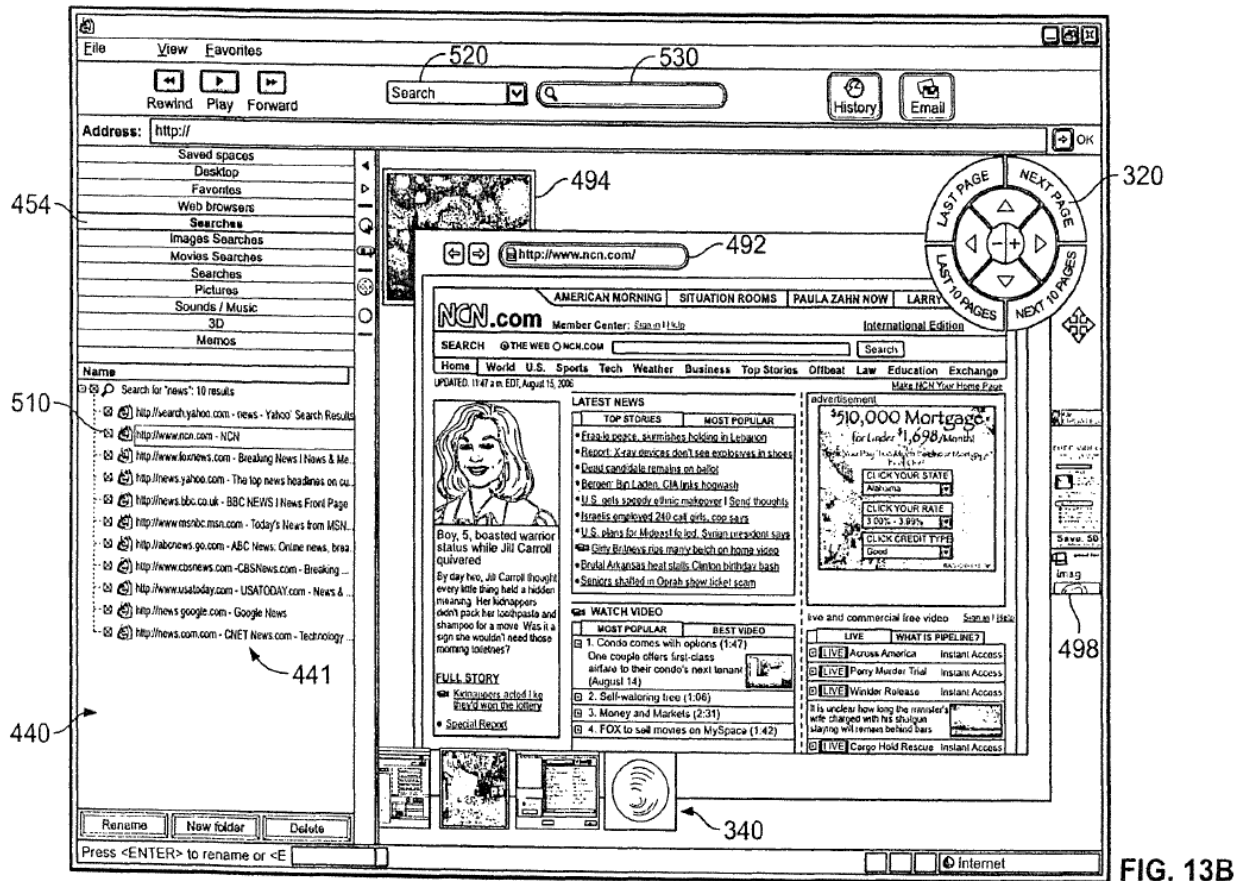


FIG. 13B

Figure 13B of the '048 patent shows an example of clicking a name in compass 440 to present a favorable viewpoint of a webpage in the virtual space. *See id.* at 21:5–19.

As shown in Figure 13B, in which search tab 454 is selected, clicking on one of the “indexed names (viewpoints)” in explorer pane 441 “brings a favorable viewpoint/perspective of the output for this particular webpage in the 3D virtual space to the end user’s view.” *Id.* at 21:5–12. In this way,

each name indexed in the explorer pane of the window (compass or data base module 440) . . . serves both as an index of the search results . . . as well as a hyperlink or trigger to a favorable viewpoint within the 3D virtual space of each webpage within the search results.

Id. at 21:12–19.

The '048 patent notes, however, that an end user may “occupy[] an unfavorable viewpoint in the virtual space where objects are drawn in skew,” therefore making it “difficult to interact with a file.” Ex. 1001, 21:20–24. In this case, a “heads-up display” feature allows for clicking an icon to “trigger[] a change to the viewpoint of the end user within the virtual space . . . thereby making it easier to interact with.” *Id.* at 21:29; 21:39–45. This may be “accomplished by revealing the 2D version of the webpage that was initially hidden or drawn off screen and positioning it in a layer that is in front of the 3D virtual space such that the end user can interact with this layer in 2D.” *Id.* at 21:45–49. Further, “an end user can toggle or switch between 2D and 3D for any selectively captured computing output and information . . . that was drawn within a 3D virtual space.” *Id.* at 21:54–58.

2. *Claims 1–18*

Petitioner challenges claims 1–18. Pet. 1.

Claims 1, 8, and 14 are the independent claims. Claim 1 is illustrative and is reproduced below. We add bracketing similar to Petitioner’s annotations to assist in referring to the claim elements. Pet. i–ii.

1. [1pre] A method for providing a three-dimensional (3D) graphical user interface, comprising:

[1a] receiving at least first and second inputs from an end user;

[1b] receiving first and second webpages from at least one server in response to said first and second inputs, wherein the first and second inputs are website addresses corresponding to said first and second webpages, respectively;

[1c] displaying at least a portion of the first webpage on a first object within a 3D space, and at least a portion of the second webpage on a second object within the 3D space, comprising;

[1ci] rendering the first and second webpages;

[1cii] capturing first and second images of the at least a portion of the first webpage and the at least a portion of the second webpage, respectively; and

[1ciii] texturing the first image on the first object and the second image on the second object, the first object being displayed in a foreground of the 3D space and the second object being displayed in a background of the 3D space; and

[1d] displaying additional information, comprising:

[1di] receiving an interaction by the end user on the first image;

[1dii] replacing the first and second objects within the 3D space with a window within a two-dimensional (2D) space in response to receiving the interaction, wherein the window includes the rendered first webpage;

[1diii] receiving an interaction by the end user on a link provided in the rendered first webpage, the link corresponding to the additional information;

[1div] rendering the additional information; and

[1dv] displaying the rendered additional information in said window within the 2D space.

Ex. 1001, 37:48–38:16.

D. Asserted References

Petitioner relies on the following references:

Name	Reference	Ex. No.
Gettman	U.S. Patent Application Publication No. 2005/0086612 A1, published Apr. 21, 2005	1006
Gralla	PRESTON GRALLA, HOW THE INTERNET WORKS (6th ed. 2002)	1005
Robertson	U.S. Patent No. 6,414,677 B1, issued July 2, 2002	1004
Sauve	U.S. Patent Application Publication No. 2006/0230356 A1, published Oct. 12, 2006	1007
Tsuda	U.S. Patent No. 6,577,330 B1, issued June 10, 2003	1008

Petitioner also relies on the Declaration of Dr. Henry Fuchs (Ex. 1003, “Fuchs Decl.”) and the prosecution file of the ’048 patent (Ex. 1002) as support for various contentions.

Patent Owner relies, *inter alia*, on the Declaration of Eddie Bakhsh, President and founder of SpaceTime3D, Inc., and the inventor named on the ’048 patent, as support for various contentions. Ex. 2001 (“Bakhash Decl.”); Ex. 1001, code (76).

E. Asserted Grounds

Petitioner contends that claims 1–18 of the ’048 patent are unpatentable under the following grounds:

Ground	Claims Challenged	35 U.S.C. §	Reference(s)/Basis
I	1–18	§ 103(a) ³	Robertson, Gralla, Gettman
II	1–18	§ 103(a)	Sauve, Tsuda

Pet. 3.

II. ANALYSIS

A. Discretionary Denial Under 35 U.S.C. § 314(a)

Patent Owner requested that we exercise our discretion to deny institution under § 314(a) due, *inter alia*, due to the advanced state of the District Court Action. *See* Prelim. Resp. 3–8.

However, if Petitioner has provided a *Sotera*⁴ stipulation, we will not discretionarily deny institution under § 314(a) in view of a District Court action. *See* Director Memorandum, *Interim Procedure for Discretionary Denials in AIA-Post Grant Proceedings With Parallel District Court Litigation*, U.S. PATENT AND TRADEMARK OFFICE (June 21, 2022) (“Director Memo”), at 3, 7, 9.

³ 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 ’048 patent have an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA version of 35 U.S.C. § 103 throughout this Decision.

⁴ *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential, designated Dec. 17, 2020).

The Board authorized Petitioner to file a *Sotera* stipulation.⁵

Petitioner subsequently filed a *Sotera* stipulation which presents, in part, that:

Apple hereby stipulates that if the PTAB institutes IPR2023-00242 based on the grounds and claims listed in the tables in Appendix A, *Apple will not pursue for the instituted claims, in the District Court proceedings, the grounds asserted in the IPR2023-00242 petition or any other ground that could have been reasonably raised in an IPR. Sotera Wireless, Inc. v. Masimo Corp.*, Case IPR2020-0109, Paper 12 (PTAB Dec. 1, 2020).

In so stipulating, Apple seeks to minimize the overlap of issues and avoid multiple proceedings addressing the validity of the challenged claims based on the same grounds. Rather, through this stipulation, Apple expresses its intention to have only the PTAB address any Instituted Grounds of invalidity of claims 1–18 of the '048 Patent.

Ex. 1054, 1 (emphasis added).

The Director Memo states that “the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.” Director Memo at 3.

Since Petitioner’s stipulation presents that Petitioner “will not pursue for the instituted claims, in the District Court proceedings, the grounds asserted in the IPR2023-00242 petition or any other ground that could have been reasonably raised in an IPR” (Ex. 1054) and because this satisfies the condition for the PTAB not to discretionarily deny institution in view of

⁵ See *supra* n.1.

parallel district court litigation as stated in the Director Memo (*id.* at 3), we determine that discretionary denial of the Petition under 35 U.S.C. § 314(a) is unwarranted under the circumstances of this case.

B. Discretionary Denial Under 35 U.S.C. § 325(d)

Patent Owner requests that the Board exercise its discretion to deny institution under § 325(d). Prelim. Resp. 32–41.

Section 325(d) provides that the Director may elect not to institute a proceeding if the challenge to the patent is based on matters previously presented to the Office. 35 U.S.C. § 325(d) states, in pertinent part, that “[i]n determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.”

The Board uses a two-part framework for evaluating arguments under § 325(d):

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). “[T]he *Becton, Dickinson* factors provide useful insight into how to apply the framework under 35 U.S.C. § 325(d).” *Id.* at 9 (footnote omitted). The non-exclusive *Becton, Dickinson* factors are:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (“*Becton, Dickinson*”). *Becton, Dickinson* factors (a), (b), and (d) relate to the first part of the *Advanced Bionics* framework (whether the same or substantially the same art or arguments previously were presented to the Office), and *Becton, Dickinson* factors (c), (e), and (f) relate to the second part of that framework (previous Office error). *Advanced Bionics*, Paper 6 at 9–11. Only if the same or substantially the same art or arguments were previously presented to the Office do we then consider whether the petitioner has demonstrated a material error by the Office. *Id.*

Under § 325(d), the art or arguments must have been previously presented to the Office during proceedings, such as examination of the underlying patent application, pertaining to the challenged patent. *Advanced*

Bionics, Paper 6 at 7. Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (“IDS”), in the prosecution history of the challenged patent. *Id.* at 7–8.

1. First step of the framework

Patent Owner contends, *inter alia*, that “th[is] petition should be rejected because it proposes invalidity grounds based on prior art and arguments identical or cumulative to those previously before the USPTO.” Prelim. Resp. 33.

As a preliminary matter, the Examiner did not apply the references (*i.e.*, Robertson, Gralla, Gettman) of Ground I or Sauve of Ground II and Patent Owner does not indicate, nor does there appear to be any indication in the record, that the Examiner considered these references. *See generally* Prelim. Resp. 54–57; Ex. 1002. The Examiner also did not apply Tsuda, the other Ground II reference, although there are two PTO-1449 Information Disclosure Statements in the record listing Tsuda. Ex. 1002, 200, 255. But even there the Examiner did not initial the forms to indicate that Tsuda was considered. *Id.*

Be that as it may, the claims subject to the proposed grounds are not the same as those that were subject to rejections based on prior art previously before the USPTO. As Petitioner states, “[t]he examiner never rejected the Challenged Claims during prosecution.” Pet. 87 (citing Ex. 1002).

An Amendment was filed on June 27, 2014, cancelling claims 1–66 and adding claims 67–88. Ex. 1002, 55. Claims 66–88 newly included “interaction” and “replacing” steps, among other limitations. *Id.* at 56.

Appellant discussed the “interaction” steps in the Remarks accompanying the Amendment:

For example, Claim 67 is directed toward a method of *interacting* with a webpage (*e.g.*, a two-dimensional webpage) that is being displayed in a three-dimensional space. Claim 67 accomplishes this, in part, by rendering a first webpage, capturing an image of the first webpage, and texturing the image on a first object so that it can be displayed (with other objects) in 3D space. The user can then navigate through the plurality of objects that are being displayed in 3D space. If the user interacts with the first object (*i.e.*, the image of the first webpage), then a windowed version of the first webpage is presented to the user, thereby allowing the user to navigate the webpage in a more traditional fashion.

Ex. 1002, 63–64 (emphasis added). On that basis the Examiner allowed the claims. Ex. 1002, 31.

The “replacing” step however was not mentioned either by Appellant or the Examiner. *See generally* Ex. 1002.

Petitioner and Patent Owner now present arguments relative the “replacing” step. Pet. 39–42; Prelim. Resp. 41–50. These arguments are new because no arguments were previously presented to the Office for this step. Additionally, Petitioner supports these arguments with the testimony of Dr. Fuchs, which the Examiner did not consider. Ex. 1003 ¶¶ 123–127.

There is no overlap between the arguments made during examination and the manner in which Petitioner relies on Robertson, Gralla, Gettman, Sauve, and Tsuda for this step. *Cf. Becton, Dickinson* factor (d).

There is also no overlap between the arguments made during examination and the manner in which Patent Owner distinguishes the prior art. *Cf. Becton, Dickinson* factor (d). The “replacing” step is central to Patent Owner’s argument distinguishing the claims over the references. *See e.g., Prelim. Resp.* 41–42:

The ’048 Patent provides for a different sequence of events [for the references] —events involving the switching, back-and-forth, between 2D and 3D space, and *replacing* images in 3D space with a single, active webpage in 2D space, where the webpage is selected based on the interaction with one of the plurality of images.

Emphasis added. This is not an argument identical or cumulative to any previously before the USPTO.

Moreover, even assuming, as Patent Owner alleges, that the individual Robertson, Gralla, Gettman, and Sauve references are substantially similar to other prior art references cited by (or to) the Examiner, the Examiner did not consider combinations the same as, or similar to, those presented by Petitioner. *Prelim. Reply* 2–4. In the Preliminary Sur-reply, Patent Owner purports to identify “several combinations including ones similar to Robertson and Gettman” and “ones similar to Suave and Tsuda,” but does not meaningfully explain these arguments. *Prelim. Sur-reply* 4. In any case, we find that those combinations are not substantially the same as the combinations presented in the Petition.

For the reasons discussed, we find the arguments are not the same or substantially the same as was previously presented to the Office.

2. Second step of the framework

Because the same or substantially the same arguments were not previously presented to the Office, we do not consider whether Petitioner has demonstrated a material error by the Office. *See Advanced Bionics*, Paper 6 at 9–11.

3. Conclusion Regarding § 325(d)

Under the circumstances of this case, we determine that exercising discretion to deny the Petition under § 325(d) is unwarranted.

C. Principles of Law for Patentability

A patent claim is unpatentable 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 ordinary skill in the art; and (4) when in

evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).⁶

“In an [*inter partes* review], 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”)). The burden of persuasion never shifts to Patent Owner. See *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

D. Level of Ordinary Skill in the Art

Petitioner contends:

The range of qualifications for a POSITA [person of ordinary skill in the art] would have included a bachelor’s degree in computer science or a comparable field and at least two years of professional experience working with 2D and 3D graphical user interfaces. Additional years of experience could substitute for an advanced-level degree (and vice versa).

Pet. 13 (citing Fuchs Decl. ¶¶ 28–29) (citations omitted). Patent Owner states that “at least the inventor of the ’048 Patent, E. Eddie Bakhsh, is a

⁶ We recognize that “the strength of *each* of the *Graham* factors must be weighed in every case and must be weighted en route to the final determination of obviousness or non-obviousness.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). This includes objective indicia of nonobviousness. To that end, we evaluate Patent Owner’s objective indicia in Section II.I below, and find that evidence unpersuasive on the preliminary record.

POSITA, and reserves the right to further address this issue at a later point in time if necessary.” Prelim. Resp. 18–19.

Petitioner’s proposed definition of a person of ordinary skill in the art appears reasonable, and we adopt that definition for our analysis in this decision.

That being said, we see no reason why the level of ordinary skill in the art is not adequately reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

E. Claim Construction

For petitions filed on or after November 13, 2018,

[claims] of a patent . . . shall be construed using the same claim construction standard that would be used to construe the [claims] in a civil action under 35 U.S.C. § 282(b), including construing the [claims] in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b) (2022); *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

The parties agree that the claim terms “3D space” and “two-dimensional (2D) space” should be construed as “a virtual space defined by a three-dimensional coordinate system” and “a finite graphical area defined by a two-dimensional coordinate system,” respectively. Pet. 13–14; Prelim. Resp. 19–20 (emphasis omitted) (citing Ex. 2010, 7–19).

Petitioner submits that “texturing” should be construed as “drawing or mapping an image onto a 3D object,” although Petitioner asserts that “the parties’ dispute [over this term] does not impact the merits of the Petition

and, thus, need not be resolved by the Board.” Pet. 13–14. Patent Owner asserts that “the Board need not construe this term,” “because the prior art cited by Petitioner is so thoroughly deficient that the texturing limitation becomes largely irrelevant.” Prelim. Resp. 20.

At this stage of the proceeding, it is unnecessary for us to address Petitioner’s proposed constructions for the two limitations in order to resolve any of the patentability disputes. Only those terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

F. Overview of the Prior Art References

1. Gettman (Ex. 1006)

Gettman relates to “a method of organizing and displaying a large volume of material content in a manner that can be easily browsed and accurately navigated by a viewer.” Ex. 1006 ¶ 44.

Figure 1, reproduced below, depicts “a diagram of a screen display generated by one embodiment of an information display method.” *Id.* ¶ 9.

Fig.1.

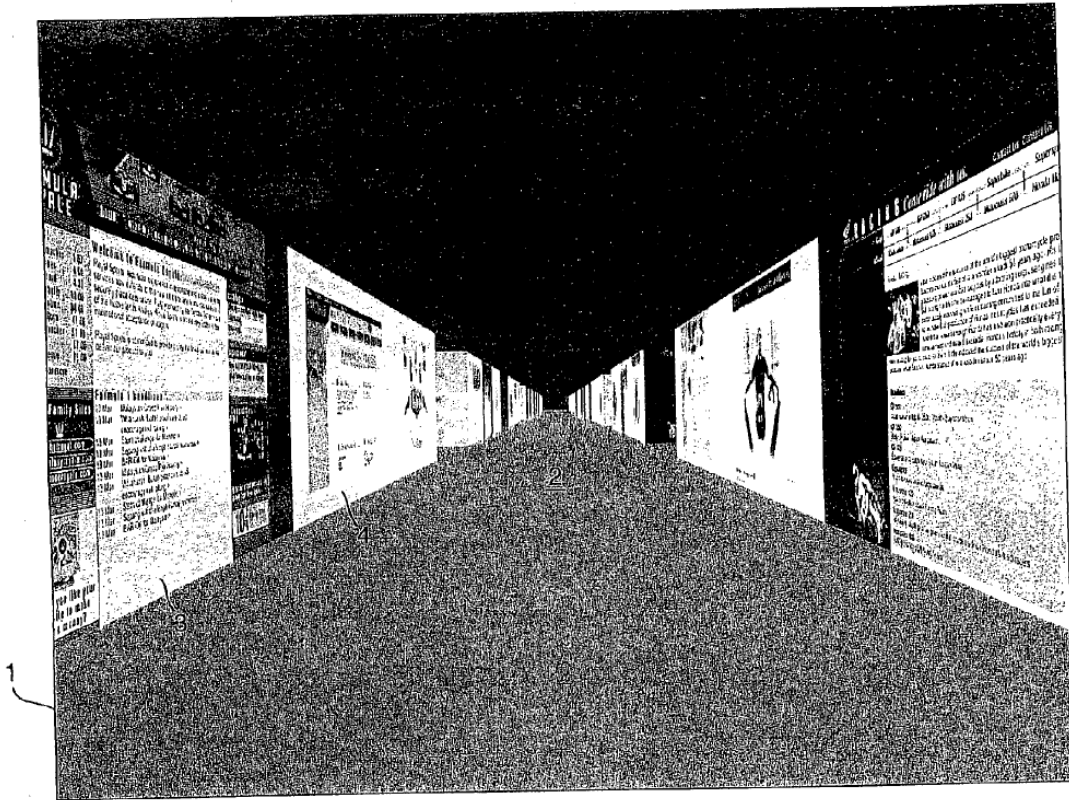


Figure 1 of Gettman shows virtual street 2 with buildings 3 having virtual display windows 4.

Gettman's Figure 1 shows "an image of a virtual street 2 seen in three-dimensional perspective from the middle of the street," where "[b]uildings 3 are located on each side of the street 2, and each has one or more virtual display windows 4 facing the street 2." Ex. 1006 ¶ 76. Each window 4 may show content from "an Internet HTML page," and "[t]hese may be the home pages of commercial concerns or pages specifically generated for display in this format." *Id.* "As a viewer 'moves' along the street, distant windows come into view and close-by ones pass out of sight 'behind' the viewer," with "the program carefully select[ing] the set of

HTML pages to cache and store in memory to ensure a smooth and fast appearance of rendered display windows.” *Id.* ¶ 84. However, in one example, a “page is not rendered dynamically until the viewer turns toward it (and ‘clicks’ on it or remains in that position for a set period of time), at which stage the dynamically cached page may be displayed in a two-dimensional, conventional-style browser display box.” *Id.* ¶ 83.

2. *Gralla (Ex. 1005)*

Gralla is a book titled “How the Internet Works,” and is aimed at professionals and novices alike. *See* Ex. 1005, 12. In a section titled “How the World Wide Web Works,” Gralla explains the basics of how a Web browser sends a URL request in order to retrieve a page, document, or object from a Web server. *Id.* at 134.

3. *Robertson (Ex. 1004)*

Robertson relates to “[a] graphical user interface in which object thumbnails are rendered on a simulated three-dimensional surface which (i) exploits spatial memory and (ii) allows more objects to be rendered on a given screen.” Ex. 1004, code (57).

Figure 8A of Robertson, reproduced below, depicts “an exemplary display of web page thumbnails using the user interface of the present invention.” Ex. 1004, 8:4–5.

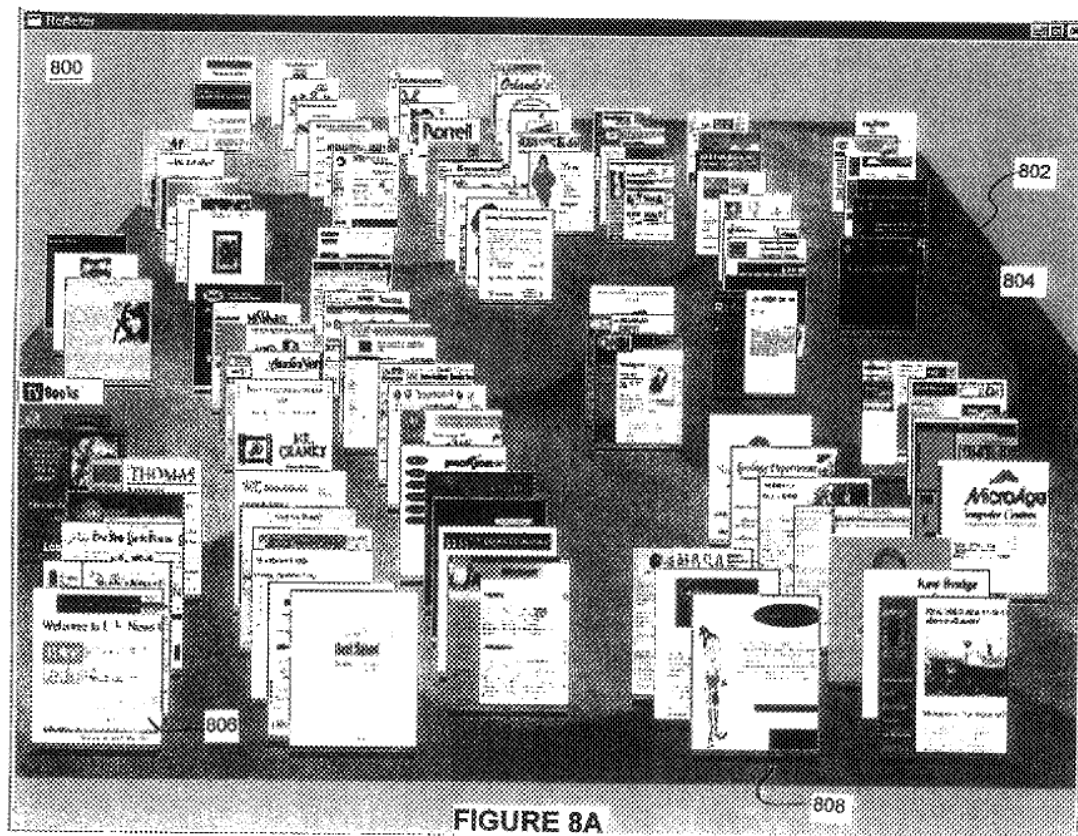


Figure 8A of Robertson shows display 800 with inclined plane 802 having object thumbnails 806.

In Robertson's Figure 8A, display 800 illustrates inclined plane 802 as having "low resolution images . . . or object thumbnails 806," where "object thumbnails 806 represent web (or hypertext markup language or 'HTML') pages." Ex. 1004, 12:58–65.

Figure 9, reproduced below, depicts "an exemplary display showing a selected web page using the user interface of the present invention." Ex. 1004, 8:9–10.

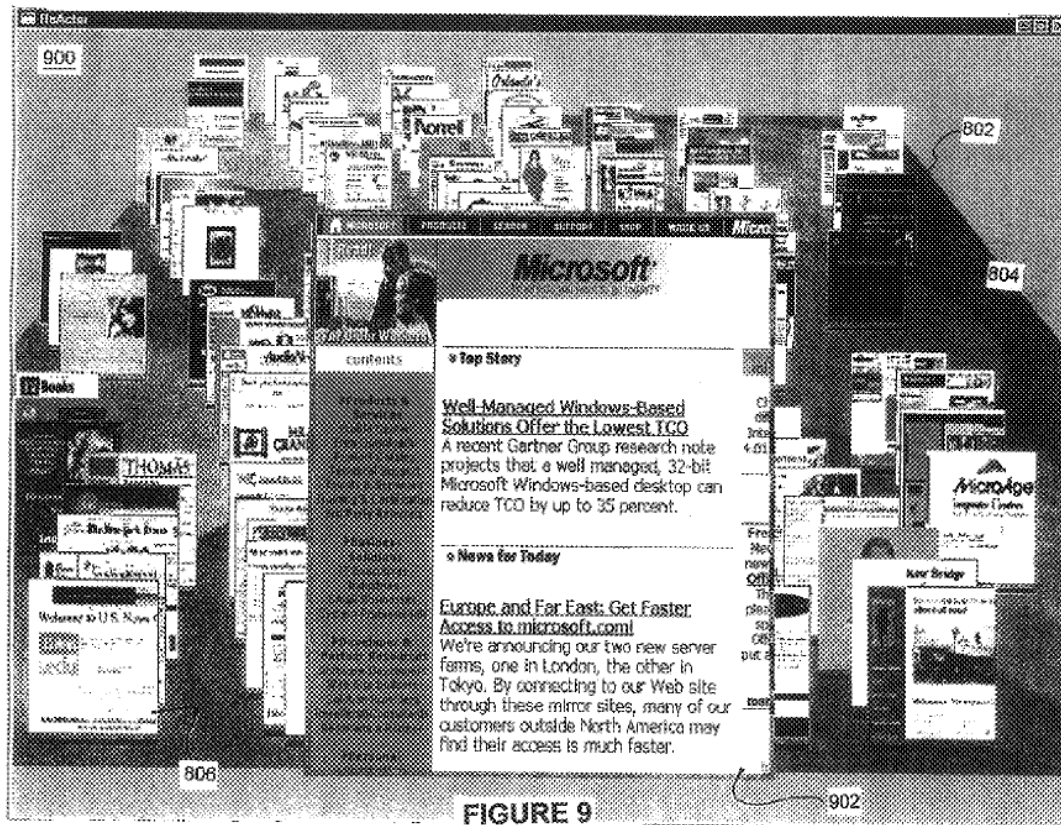


Figure 9 of Robertson shows display 900 with a selected object thumbnail 902.

In Robertson's Figure 9, a selected object thumbnail 902 in display 900 may be "displayed in a preferred viewing position, in this case, at the center foreground of the three-dimensional environment." Ex. 1004, 13:58-62. Here, "selected object thumbnail 902 is a high resolution bit map," which may be an instance of a browser application "rendering a web page, with the user interface of the present invention in the background." *Id.* at 13:62-14:4.

4. *Sauve* (Ex. 1007)

Sauve relates to browsing software that “provide[s] a quick pick user-interface that visually displays the several tabs” open in a tabbed browser window. Ex. 1007 ¶ 6.

Figure 4, reproduced below, depicts “a display illustrating one embodiment for the quick pick user-interface and illustrating a user’s selection within the interface.” Ex. 1007 ¶ 11.

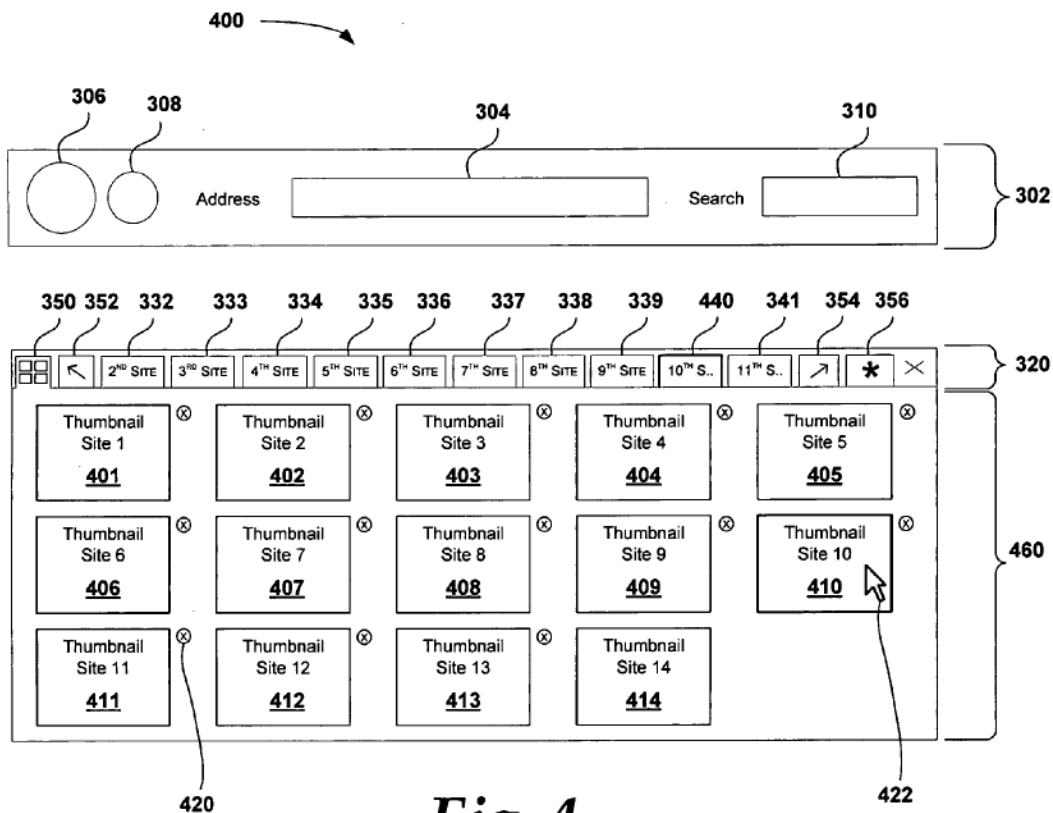


Fig. 4

Figure 4 of *Sauve* shows quick pick user-interface 400 with quick pick window 460 displaying thumbnails 401–414.

Sauve’s Figure 4 shows quick pick window 460 of quick pick user-interface 400 displaying “a rich set [of] information, such as a graphical representation (e.g., thumbnails 402–411) for each of the open tabs in the tab row 320, [and] a graphical representation (e.g., thumbnails 401, 412–414) of the open tabs that are not currently visible in the tab row because they are in the overflow.” Ex. 1007 ¶ 42. Each thumbnail is scaled “so that the content of each tab can be viewed in the quick pick window 460.” *Id.*

5. *Tsuda (Ex. 1008)*

Tsuda relates to a “multiple window display device” that “display[s] windows inclined in the depth direction of the screen (hereafter also described as the ability to display windows in perspective) as if placed in a virtual 3D space.” Ex. 1008, 10:57–61.

Figure 11B, reproduced below, depicts an exemplary alignment method of windows. Ex. 1008, 8:3–4.

FIG. 11B

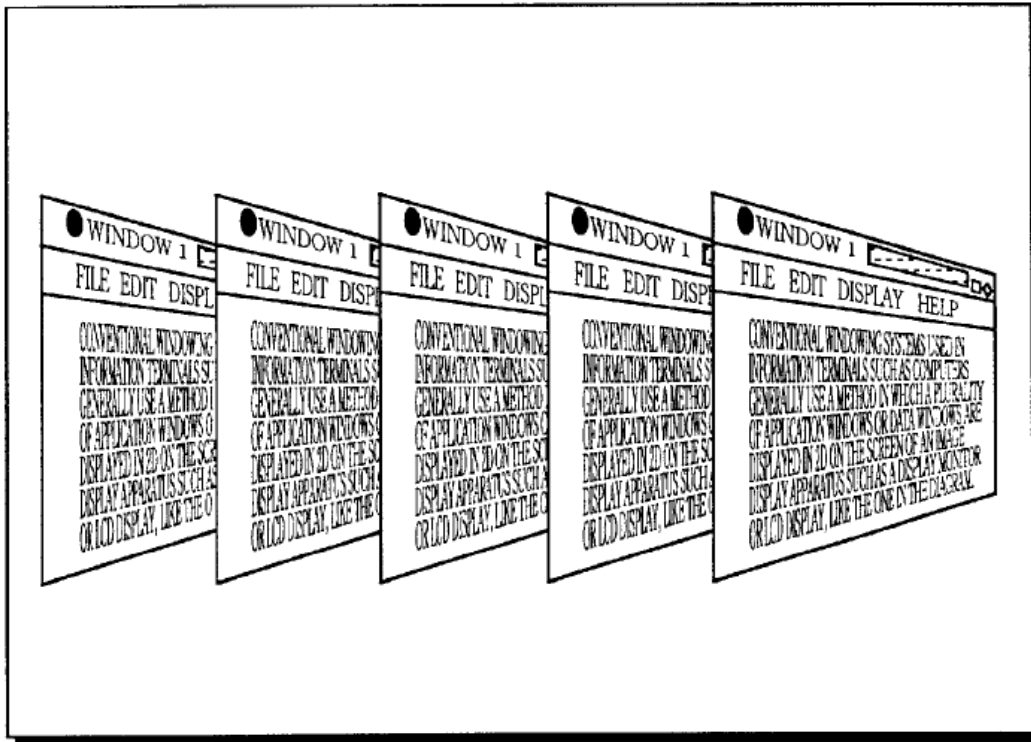


Figure 11B of Tsuda shows an example of windows aligned in 3D. In Tsuda's Figure 11B, five windows have been aligned in a stacked arrangement by using a 3D position calculating unit. Ex. 1008, 17:53–65.

G. Ground I

Petitioner challenges claims 1–18 as unpatentable under 35 U.S.C. § 103(a) over the combination of Robertson, Gralla, and Gettman. Pet. 14–54.

1. Independent claim 1

Petitioner contends that the combination of Robertson, Gralla, and Gettman (“art combination”) would have rendered obvious the method as claimed. *See* Pet. 25–44.

We observe that Patent Owner responds to Petitioner’s contention by focusing on the “replacing” step (limitation [1dii]). *See e.g.*, Prelim. Resp. 41–42:

The ’048 Patent provides for a different sequence of events [from that described in the references]—events involving the switching, back-and-forth, between 2D and 3D space, and replacing images in 3D space with a single, active webpage in 2D space, where the webpage is selected based on the interaction with one of the plurality of images.

Patent Owner has not responded to Petitioner’s position as to the preamble ([1pre]) and limitations [1a]–[1di] and [1diii]–[1dv] with any particularity at this stage of the proceeding. *See generally* Prelim. Resp. 41–50. As to these limitations, we have reviewed the evidence Petitioner has presented, briefly discussed below, and based on our evaluation of that evidence, we determine that at this stage Petitioner sufficiently shows on this record that the art combination would have rendered obvious the subject matter recited in the preamble ([1pre]) and imitations [1a]–[1di], and [1diii]–[1dv]. Our discussion below of limitation [1dii] addresses Patent Owner’s specific arguments.

[1pre] A method for providing a three-dimensional (3D) graphical user interface

Petitioner contends that, if the preamble is limiting, Robertson teaches providing a 3D-GUI. Pet. 25 (citing, *inter alia*, Ex. 1004, 6:30–31 (“The

present invention provides a user interface, and in particular a graphical user interface . . . a simulated three-dimensional environment on the user’s video monitor.”)).

We have reviewed the evidence; that is, Robertson’s disclosure of “a graphical user interface . . . a simulated three-dimensional environment.” Ex. 1004, 6:30–31. In our view, at this stage, Petitioner sufficiently shows on this record that Robertson teaches providing a 3D-GUI.⁷

[1a] receiving at least first and second inputs from an end user

Petitioner contends that Gralla shows a web browser receiving inputs from an end user when, for example, a “user ‘type[s] the URL for a location [they] want to visit’” in an address bar.” Pet. 26. In that regard, Petitioner reproduces page 134 of Gralla which shows a typical web browser and an address bar containing an URL. *Id.*; Ex. 1005 ¶ 134.

Dr. Fuchs explains that “[a] POSITA would have understood and found it obvious that a user would visit multiple Internet locations (*e.g.*, webpages and websites) during one or more browsing sessions and, accordingly, provide multiple (***first/second***) uniform resource locator (URL) ***inputs***. Any person who has used the Internet can attest to this indisputable fact.”

Ex. 1003 ¶ 93; Pet. 26–27.

We have reviewed Gralla. In our view, at this stage, Petitioner sufficiently shows on this record that Gralla teaches a web browser “receiving at least first and second inputs from an end user.”

⁷ At this stage of the proceeding, we do not determine whether the preamble is limiting. *See Vivid Techs.*, 200 F.3d at 803.

As for a 3D-GUI “receiving at least first and second inputs from an end user,” Petitioner contends that the art combination would have led a POSITA to “integrate[] Robertson’s 3D-GUI into the web browser described by Gralla as an upgrade to the conventional bookmark/favorites tools for revisiting webpages.” Pet. 18 (citing Ex. 1003 ¶¶ 71–21).

Dr. Fuchs testifies that “extensive development on 3D-GUIs and webpage revisitation tools took place long before the ’048 patent, and those of skill in the art had already integrated these lines of development to create new and improved 3D-GUIs for web browsers.” Ex. 1003 ¶ 71. “[T]he integration of Robertson and Gralla tracks the broad development trends in the prior art.” *Id.*

Petitioner further explains, *inter alia*, that “Robertson makes clear that its 3D-GUI is an improvement over the ‘Favorites’ tool employed in Microsoft’s Internet Explorer, a featured web browser in Gralla.” Pet. 18–19 (citing Ex. 1004, 3:55–4:3; Ex. 1005, 133–34). According to Petitioner, Robertson notes downsides of the hierarchical lists used in said “Favorites” tool. *Id.* at 20 (referring to Ex. 1004, 3:55–4:3). To overcome this, Robertson “propos[es] its 3D-GUI as a needed improvement . . . expressly encourag[ing] the POSITA to combine the teachings of Robertson and Gralla” and thereby arrive at a 3D-GUI “receiving at least first and second inputs from an end user,” as claimed. *Id.* (citing Ex. 1004, 6:15–67, 9:14–50; Ex. 1003 ¶¶ 74–76).

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that the combination of Robertson and Gralla would have rendered obvious a 3D-GUI comprising “receiving at

least first and second inputs from an end user” (e.g., visiting two Internet locations), as claimed.

[1b] receiving first and second webpages from at least one server in response to said first and second inputs, wherein the first and second inputs are website addresses corresponding to said first and second webpages, respectively

Petitioner contends that the art combination satisfies this limitation.
Pet. 27.

Specifically, Petitioner contends, *inter alia*, that Gralla teaches a user typing “URLs (website addresses corresponding to webpages) into the address bar of a web browser.” Pet. 27 (emphasis omitted) (citing Ex. 1005, 134, 163; Ex. 1003 ¶ 96). According to Petitioner, this satisfies that part of the limitation calling for “wherein the first and second inputs are website addresses corresponding to said first and second webpages.” *Id.*

Gralla is also relied upon for the other part of the limitation, i.e., “receiving first and second webpages from at least one server in response to said first and second inputs.” Petitioner quotes Gralla:

“Your Web browser sends the URL request using Hypertext Transfer Protocol (HTTP), which defines the way the Web browser and Web server communicate with each other.” [Ex. 1005, 134]. “When the server finds the requested home page, document, or object, it sends that home page, document, or object back to the Web browser client. The information is then displayed on the computer screen in the Web browser.” [*Id.*].

Pet. 28 (emphasis omitted).

Petitioner takes the view that the typical sending of a URL request to a server whereupon the requested webpage is found and then sent to the browser that Gralla teaches satisfies the limitation. Dr. Fuchs’s testimony

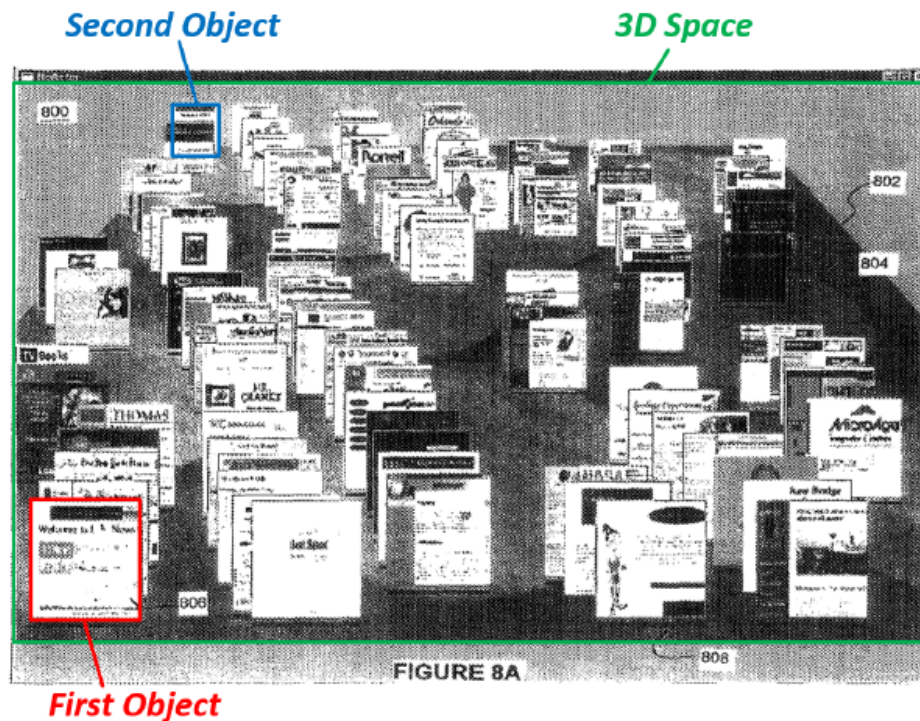
supports this view: “[A]fter (*in response to*) the user types a URL (*website address*) into the address bar (*first/second inputs*), the browser sends a request to the *server* and receives a response from *server* including the (*first/second*) *webpage* that corresponds to the URL.” Ex. 1003 ¶ 97; Pet. 28.

We have reviewed Gralla. In our view, at this stage, Petitioner sufficiently shows on this record that it teaches limitation [1b].

[1c] displaying at least a portion of the first webpage on a first object within a 3D space, and at least a portion of the second webpage on a second object within the 3D space

Petitioner contends that the art combination satisfies limitation [1c]. Pet. 29. To illustrate, Petitioner provides an annotated version of Robertson Figure 8A, reproduced below. *Id.*

According to Petitioner, as illustrated below, Robertson teaches “displaying [via display 800] at least a portion of the first webpage on a first object [outlined in red] within a 3D space [outlined in green], and at least a portion of the second webpage on a second object [outlined in blue] within the 3D space.” Pet. 29.



Petitioner’s annotated version of Figure 8A of Robertson showing display 800 with inclined plane 802 having object thumbnails 806 with a first webpage on a first object outlined in red and a second webpage on a second object outlined in blue within a 3D space outlined in green.

Dr. Fuchs provides supporting testimony by explaining that Robertson “FIG. 8A is a display 800 which illustrates an inclined . . . plane 802 . . . having low resolution images . . . or object thumbnails 806.” Ex. 1003 ¶ 100 (quoting Ex. 1004, 12:54–63); Pet. 29. Robertson “teaches that, ‘[i]n the display 800, the object thumbnails 806 represent web (or hypertext markup language or ‘HTML’) pages.’” *Id.* (emphasis omitted).

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that Robertson teaches limitation [1c].

[1ci] rendering the first and second webpages

Petitioner contends that a “POSITA would have known that webpage rendering was a ubiquitous process for converting code received from a web server into visible content.” Pet. 31 (emphasis omitted).

Dr. Fuchs provides supporting testimony by explaining that “[a] POSITA would have understood that Robertson’s 3D-GUI ***renders the (first/second) webpages*** to obtain the webpage images on the object thumbnails.” Ex. 1003 ¶ 104 (citing, *inter alia*, Ex. 1004, 6:30–50); Pet. 31. “Webpage ***rendering*** is a core functionality of virtually all web browsers, and it would have been obvious to a POSITA that rendering is a prerequisite step to obtaining ‘screen snapshots of actual web pages,’; as explained in Robertson’s companion Data Mountain paper.” *Id.* ¶ 105 (quoting Ex. 1030); Pet. 31.

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that Robertson teaches limitation [1ci].

[1cii] capturing first and second images of the at least a portion of the first webpage and the at least a portion of the second webpage, respectively

According to Petitioner a “POSITA would have understood that Robertson’s 3D-GUI captures images of the rendered (first/second) webpages to obtain the webpage images on the object thumbnails.” Pet. 32 (emphasis omitted) (citing Ex. 1004, 6:30–50; Ex. 1003 ¶ 107).

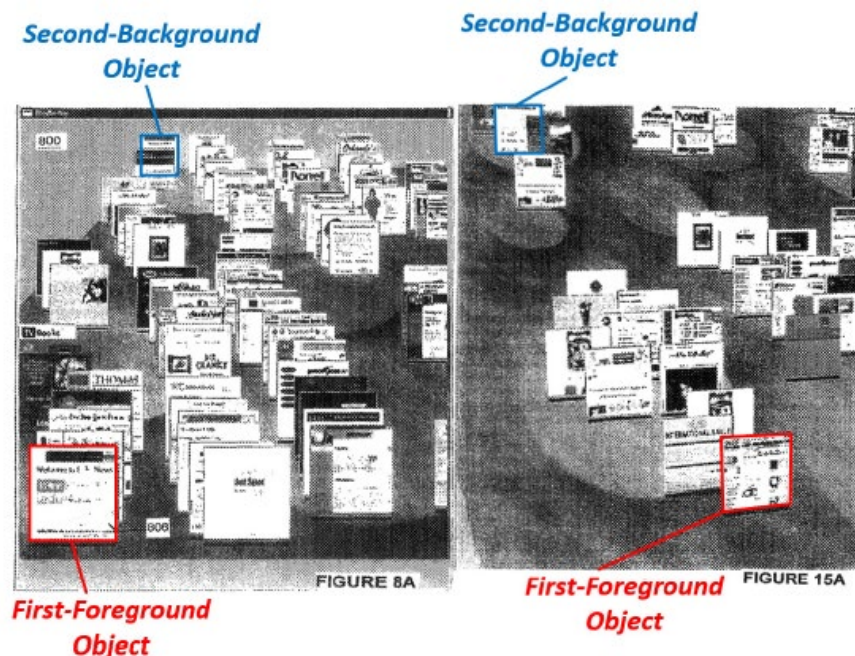
Dr. Fuchs explains that “Robertson shows the webpage images in its figures (*e.g.*, Figure 8A [*see* Petitioner’s annotated version reproduced above]) and explains that they are saved in memory as low-resolution bit maps.” Ex. 1003 ¶ 107 (citing Ex. 1004, 9:10–35, 18:1–5); Pet. 32.

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that Robertson teaches “capturing” first/second images of first/second webpages per limitation [1cii].

[1ciii] texturing the first image on the first object and the second image on the second object, the first object being displayed in a foreground of the 3D space and the second object being displayed in a background of the 3D space

Petitioner contends, *inter alia*, that Robertson teaches “texturing” as claimed. Pet. 33.

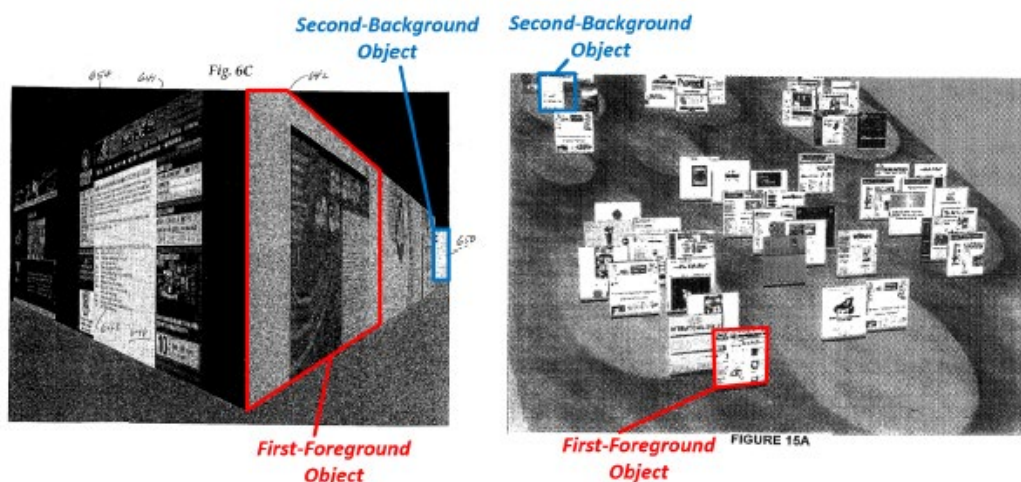
Petitioner provides annotated versions of Robertson Figures 8A and 15A, reproduced below, to illustrate how Robertson teaches “texturing.” Pet. 34. “Robertson’s figures demonstrate how the webpage images are drawn/mapped based on the size and shape of the object thumbnail—e.g., larger in the foreground, smaller in the background, and optionally with a parallax effect.” *Id.* (emphasis omitted) (citing, *inter alia*, Ex. 1003 ¶¶ 111–113).



Petitioner’s annotated versions of Robertson Figures 8A and 15A showing First-Foreground Object outlined in red and Second-Background Object outlined in blue.

Petitioner cites Gettman because “Robertson does not use the exact term [“texturing”].” Pet. 35–36 (citing Ex. 1003 ¶ 114). Gettman is relied upon to “confirm[] that a POSITA would have understood Robertson’s technique to use texturing.” *Id* at 36 (emphasis omitted).

Petitioner provides a side-by-side comparison of annotated versions of Gettman Figure 6C and Robertson Figure 15A to illustrate their similarity, reproduced below. Pet. 36. “Gettman and Robertson similarly provide 3D spaces with objects bearing images of webpages.” *Id.* at 35.



Petitioner’s annotated versions of Gettman Figure 6C (left) and Robertson Figure 15A (right) showing First-Foreground Object outlined in red and Second-Background Object outlined in blue in both.

Dr. Fuchs testifies that in Gettman “‘cached HTML pages’ (*captured images*, per Element [1.c.ii]) are ‘stored as *textures* in the client computer memory’ and ‘used to populate the display windows’ (*objects*) in *the 3D space*.” Ex. 1003 ¶ 114 (quoting Ex. 1006 ¶ 112); Pet. 35. Also, Gettman teaches that “‘a first virtual building 642 . . . in a *foreground* . . . a second

virtual building 650 . . . in a **background**[.]’.” *Id.* (quoting Ex. 1006 ¶ 163); Pet. 35. According to Dr. Fuchs, these “teachings reinforce the POSITA’s understanding that Robertson’s disclosure about mapping webpage images onto objects in a 3D space uses **texturing**.” Ex. 1003 ¶ 114; Pet. 36.

We have reviewed Robertson and Gettman. In our view, at this stage, Petitioner sufficiently shows on this record that Robertson and Gettman teach “texturing,” as claimed.

[1d] displaying additional information

Petitioner contends that the art combination renders obvious “displaying” additional information because the art combination satisfies limitations [1di]–[1dv]. Pet. 39.

[1di] receiving an interaction by the end user on the first image

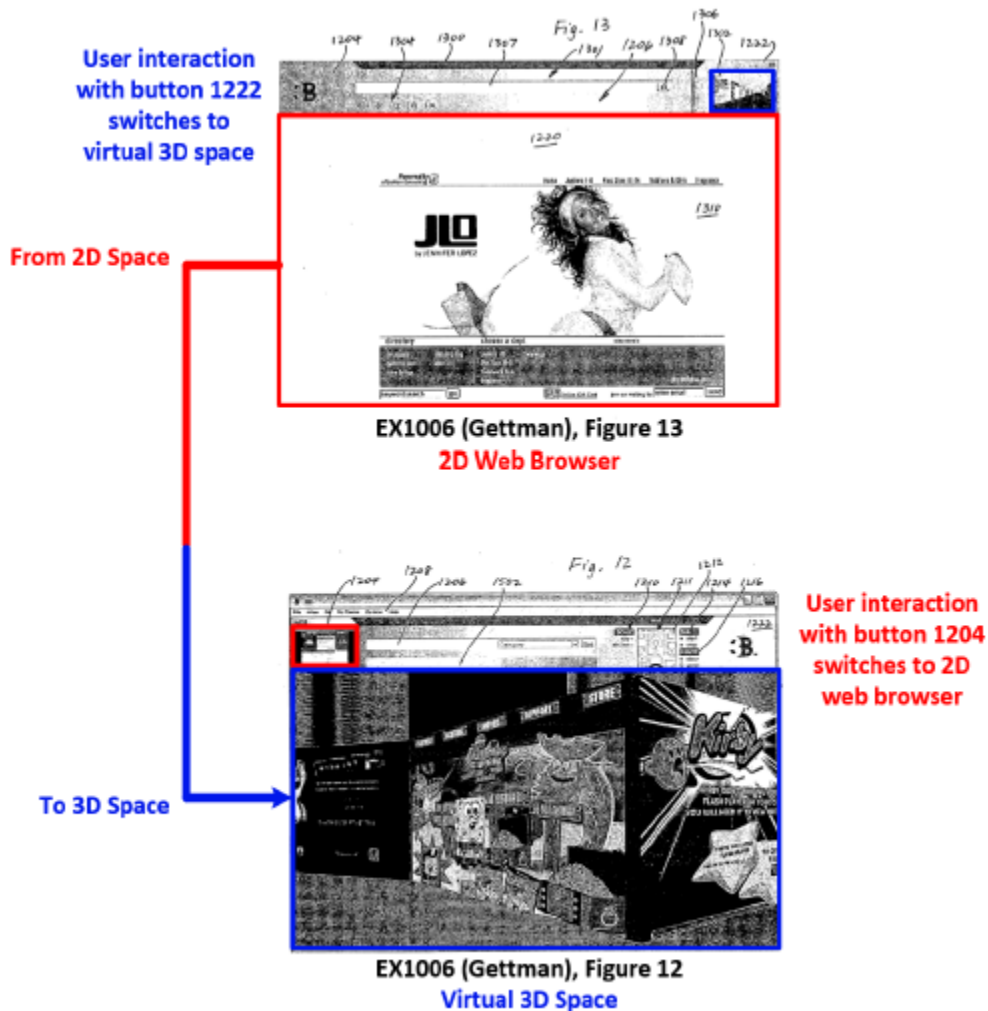
According to Petitioner, Robertson’s 3D-GUI uses “‘live’ objects within an associated application for . . . working on a selected object.” Pet. 39 (quoting Ex. 1004, 13:55–14:14). According to Petitioner, “[t]he selection [of the selected object] is made when the end user inputs, and the 3D-GUI receives, a predetermined interaction, such as a ‘mouse click,’ on the (first) image of the object thumbnail.” *Id.* (emphasis omitted) (citing Ex. 1004, 16:3–17, 15:45–68). In this way, Robertson teaches receiving an interaction by an end user on a first image, according to Petitioner. *Id.*

We have reviewed Robertson. In our view, at this stage, Petitioner sufficiently shows that Robertson teaches receiving an interaction by an end user on a first image, as claimed.

[Idii] replacing the first and second objects within the 3D space with a window within a two-dimensional (2D) space in response to receiving the interaction, wherein the window includes the rendered first webpage

Petitioner contends, *inter alia*, that Robertson teaches this limitation because, when the user selects an object thumbnail, “Robertson’s 3D-GUI presents a “‘live’ object” that is ‘in its associated application,’ such as ‘the Internet Explorer™ Internet browser . . . [for] rendering a [first] web page’.” Pet. 39–40 (emphasis omitted) (quoting Ex. 1004, 13:55–14:14, citing Figure 9). According to Petitioner, in doing so, “the **(first/second) objects in the 3D space** of Robertson’s GUI are **replaced**—both from the user’s perspective of what content is viewable and the computer’s standpoint in terms of what content is being displayed—by a full-screen **window in the two-dimensional space** of a conventional Internet Explorer web browser.” *Id.* at 40 (citing Ex. 1003 ¶¶ 123–125).

Petitioner also relies on Gettman which, according to Petitioner, “describes an embodiment where ‘the result of the interaction [with a 3D display window in the virtual city] may cause the target [w]eb site to open in a conventional two-dimensional web browser.’” Pet 40–41 (quoting Ex. 1006 ¶ 164, citing *id.* ¶¶ 200–201). Petitioner quotes Gettman as explaining that in this embodiment, “‘the user *switches* to an alternate two-dimensional view of the web page.’” *Id.* (emphasis Petitioner’s). Petitioner provides annotated versions of Gettman Figures 12 and 13, reproduced below, to illustrate that, when a user interacts with buttons, a 2D space (i.e., a 2D web browser (Fig. 13)) “switches” to a 3D space (i.e., a virtual 3D space (Fig. 12)). *Id.* at 41 (citing Ex. 1004 ¶ 200, Figs. 12, 13).



Petitioner’s annotated versions of Gettman Figures 12 (bottom) and 13 (top) showing buttons 1204 and 1222, that, when interacted with, cause a 2D space (outlined in red) to switch to a 3D space (outlined in blue).

According to Petitioner, “a POSITA would have been motivated to employ Gettman’s above-discussed teaching of toggling between ‘a virtual 3D space’ and ‘a two dimensional browser’ in response to an end user interacting with and selecting an object thumbnail.” Pet. 42 (citing Ex. 1003 ¶ 127).

Patent Owner does not disagree with Petitioner’s characterization of the teachings in Robertson and Gettman at this stage of the proceeding. *See generally* Prelim. Resp. 41–50.

We have reviewed Robertson, including Figure 9 (reproduced and discussed in section II.F.3.). In our view, at this stage, Petitioner sufficiently shows on this record that Robertson teaches limitation [1di].

We have reviewed Gettman. In our view, at this stage, Petitioner sufficiently shows on this record that Gettman shows interacting with an object whereby one can toggle between a 3D space and a window within a two-dimensional (2D) space.

Patent Owner argues that said teachings nevertheless do not satisfy the “replacing” step. *See generally* Prelim. Resp. 41–50.

According to Patent Owner, “a critical feature of the invention is how webpages are presented to the user in 3D space and how the user then interacts with a particular webpage to acquire additional information (*e.g.*, another webpage).” Prelim. Resp. 41. Patent Owner explains that

The ’048 Patent provides for a different sequence of events [from that described in Robertson and Gettman]—events *involving the switching, back-and-forth, between 2D and 3D space, and replacing images in 3D space with a single, active webpage in 2D space*, where the webpage is selected based on the interaction with one of the plurality of images.

Id. at 41–42 (emphasis added). “SpaceTime3D did what is counterintuitive—requiring switching from a 3D environment, where only images are presented, to a 2D environment, where only one active application is presented for interaction.” *Id.* at 42.

Patent Owner argues that Robertson and Gettman “teach the same solution to the same problem—a GUI where both active (‘live’) and inactive (images) webpages are presented to the user exclusively in 3D space . . . ” and that this contrasts with what is claimed, which requires the 3D space to be replaced by a 2D space. Prelim. Resp. 47.

Patent Owner’s argument rests on interpreting [1dii] as requiring replacing the 3D space with a 2D space in its entirety. However, limitation [1dii] recites “replacing” *first and second objects* “within the 3D space *with a window* within a two-dimensional (2D) space.” Only the *objects* in the 3D space are required to be replaced and only by a *window* within a 2D space. The claim does not appear to require replacement of the entire 3D environment with a 2D space, and Patent Owner does not explain why such a replacement is required. As long as first/second images within the 3D space are replaced by a window within a 2D space (e.g., a webpage), the limitation would appear to be met. Thus, contrary to Patent Owner’s argument, Robertson and Gettman satisfy [1dii] by teaching “a GUI where both active (‘live’) and inactive (images) webpages are presented to the user exclusively in 3D space.” *See* Prelim. Resp. 47.

In the same vein, Patent Owner argues that Robertson provides for a selected webpage that “may be presented in an Internet Explorer Internet™ browser *in 3D space*.” Prelim. Resp. 44 (emphasis added). But we are not persuaded by Patent Owner’s explanation as to why the selected webpage is not “a window within a two-dimensional (2D) space” that replaces first/second objects in the 3D space as Petitioner contends. *See* Pet. 40. The fact that Robertson’s selected webpage is presented within a larger 3D space

does not undermine Petitioner’s position. This is so because replacing the entire 3D space with a 2D space is not a requirement of the claim.

Similarly, Patent Owner argues that “it is clear that Gettman does not switch between a 3D space where inactive windows (or images thereof) are present and a 2D space where an active window is present. Instead, active windows are presented in 3D space” Prelim. Resp. 47. Again, we are not persuaded by Patent Owner’s explanation as to why Gettman’s active window does not satisfy the limitation “a window within a two-dimensional (2D) space” as Petitioner contends. The fact that Gettman’s active window is presented within a larger 3D space does not undermine Petitioner’s position. This is so because replacing the entire 3D space with a 2D space is not a requirement of the claim.

Patent Owner’s argument at this stage of the proceeding is unavailing on this record.

In our view, at this stage, Petitioner sufficiently shows on this record that Robertson and Gettman teach limitation [1dii] for the reasons discussed.

[1diii] receiving an interaction by the end user on a link provided in the rendered first webpage, the link corresponding to the additional information

Petitioner contends that the art combination satisfies this limitation, explaining that Robertson, for example, “teach[es] the concept of launching a web browser (*e.g.*, Intern[et] Explorer or Mozilla) for the user to interact with in a conventional way—*i.e.*, in a 2D window instead of a virtual 3D space.” Pet. 42 (citing Ex. 1003 ¶ 128). Petitioner relies on Gralla for an explanation of the “conventional way”; that is, “the conventional functionalities of such a web browser involve *receiving an interaction by*

the end user—a “click”—on a link provided in the rendered (first) webpage, the link corresponding to the additional information.” *Id.* (citing Ex. 1005, 134).

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that the combination of Gralla and Robertson satisfies limitation [1diii].

[1div] rendering the additional information

[1dv] displaying the rendered additional information in said window within the 2D space

Petitioner addresses these limitations together. Pet. 43–44.

Petitioner’s position is that the art combination meets these limitations because Robertson, for instance, “teach[es] the concept of launching a web browser (e.g., Intern[et] Explorer or Mozilla) for the user to interact with in a conventional way—i.e., in a 2D window instead of a virtual 3D space” and “Gralla explains that the conventional functionalities of such a web browser involve rendering and displaying the additional information.” Pet. 43–44 (emphasis omitted) (citing Ex. 1005, 142–43; Ex. 1003 ¶¶ 104–105, 129).

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that the combination of Gralla and Robertson satisfies limitations [1div] and [1dv].

2. Claims 2–18

Petitioner argues that claims 2–7 depending from claim 1 are also taught or rendered obvious over the art combination. Pet. 44–49. As for claims 8–13 and 14–18, they are “substantially similar to Claims 1–6” and “substantially similar to Claims 1–4,” respectively. Pet. 49, 52.

Along with our reasons discussed with respect to the challenge of claim 1, we are persuaded that the evidence relied upon by Petitioner sufficiently supports Petitioner’s contentions regarding claims 2–18.

Patent Owner does not provide any specific arguments challenging Petitioner’s patentability position as to these claims. *See* Prelim. Resp. 41–50.

H. Ground II

Petitioner challenges claims 1–18 as unpatentable under 35 U.S.C. § 103(a) over the combination of Sauve and Tsuda. Pet. 54–85.

1. Independent claim 1

Patent Owner has not responded to Petitioner’s position as to the preamble ([1pre]) and limitations [1a]–[cii], [1di], and [1diii]–[1dv] with any particularity at this stage of the proceeding. *See generally* Prelim. Resp. 50–56. As to these limitations, we have reviewed the evidence Petitioner has presented, and based on our evaluation of that evidence, we determine that at this stage Petitioner sufficiently shows on this record that the art combination would have rendered obvious the subject matter recited in the preamble ([1pre]) and limitations [1a]–[cii], [1di], and [1diii]–[1dv].

We provide the following analysis for limitations [1ciii] and [1dii] to which Patent Owner has particularly responded.

[1ciii] texturing the first image on the first object and the second image on the second object, the first object being displayed in a foreground of the 3D space and the second object being displayed in a background of the 3D space

[1dii] replacing the first and second objects within the 3D space with a window within a two-dimensional (2D) space in response to receiving the interaction, wherein the window includes the rendered first webpage

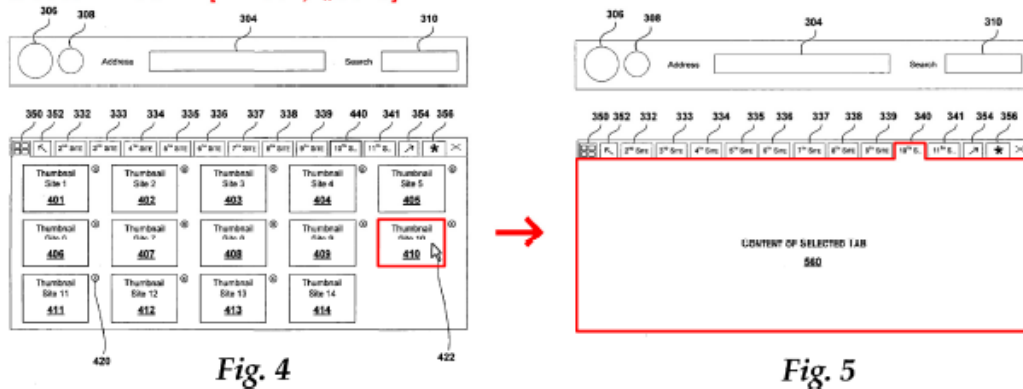
Petitioner contends that the combination of Sauve and Tsuda satisfies limitations [1ciii] and [1dii]. Pet. 68–71, 73–74, respectively.

Petitioner contends, *inter alia*, that Sauve teaches

that the end user can switch from the quick pick user-interface (Figure 4 below) and a tabbed window showing the webpage content for an in-focus tab (Figure 5 below) by “select[ing] any one of the thumbnails to view its corresponding content.”

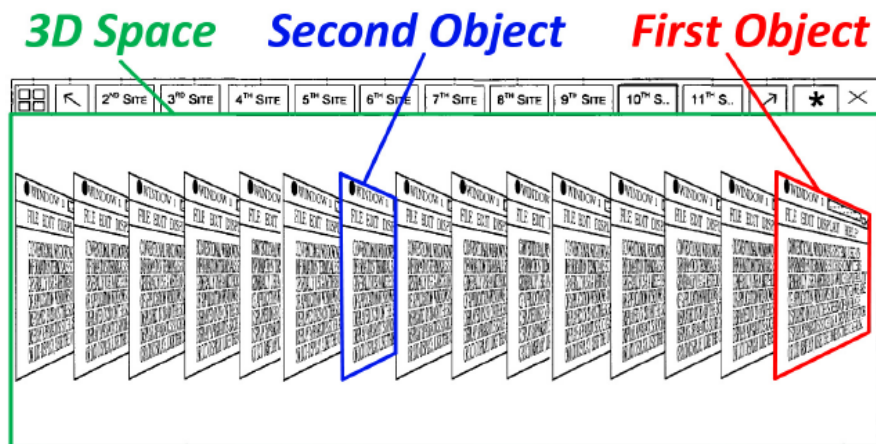
Pet. 72 (quoting Ex. 1007 ¶¶ 43–44). Petitioner provides annotated versions of Sauve Figures 4–5, reproduced below, to illustrate. *Id.*

“The user may select any one of the thumbnails to view its corresponding content in the tabbed window.” [EX1007, ¶0043].



Petitioner’s annotated versions of Sauve Figures 4 (left) and 5 (right) showing pick user-interface (Fig. 4) and a tabbed window (Fig. 5) resulting from a user’s selection of a thumbnail (outlined in red) on the pick user-interface.

Petitioner contends that Tsuda describes, *inter alia*, “a device for displaying windows in a virtual three-dimensional (3D) space.” Pet. 56 (quoting Ex. 1008, 1:5–12; Ex. 1003 ¶ 154). Petitioner provides an annotated version of Tsuda Figure 11B, reproduced below. *Id.* at 66.



Petitioner’s annotated version of Tsuda Figure 11B showing a 3D space (outlined in green) with a “First Object” (outlined in red) situated towards the right of the 3D space and a “Second Object” (outlined in blue) situated left of the First Object within the 3D space.

For limitation [1cii], Petitioner contends that the art combination of Sauve and Tsuda teaches the limitation, relying principally on Tsuda. Pet. 68–71. According to Petitioner,

Tsuda’s windows (*objects*) are stacked horizontally from right to left, such that the rightmost window in the stack occupies a plane that is forward in the stack (*first object* in a *foreground*) relative to the plane of a window further to left (*second object* in a *background*).

Pet. 69 (citing Ex. 1008, 8:3–14, 17:25–32, 18:8–18; Ex. 1003 ¶¶ 180–181, depicting Petitioner’s annotated version of Tsuda Fig. 11 in the context of Sauve’s quick pick user-interface).

Patent Owner disagrees, arguing that neither reference teaches “the first object being displayed in the foreground of the 3D space and the second object being displayed in a background of the 3D space.” Prelim. Resp. 55. According to Patent Owner, “Tsuda’s solution is to present every window so

that at least a portion is in the foreground (near the front) and no window is in the background.” *Id.* at 55 (citing Ex. 1008, 2:13–26).

Patent Owner’s argument does not undermine Petitioner’s position at this stage because Petitioner sufficiently shows the first object (in red in Petitioner’s annotated version of Tsuda Fig. 11) appearing in the foreground of the second object in the stack (in blue in Petitioner’s annotated version of Tsuda Fig. 11), with the second object remaining in the background relative to the first object.

For limitation [1dii], Petitioner’s contends that a POSITA would have been motivated to “replace[]” the “2D thumbnails disclosed by Sauve [*see* Fig. 4 reproduced above]” with “Tsuda’s 3D windows [*see* Fig. 11B reproduced above]” thereby arriving at the arrangement claimed. Pet. 57 (citing Ex. 1003 ¶¶ 155–163).

Petitioner provides the following figure showing combining Sauve Figure 4 and Tsuda Figure 11B:

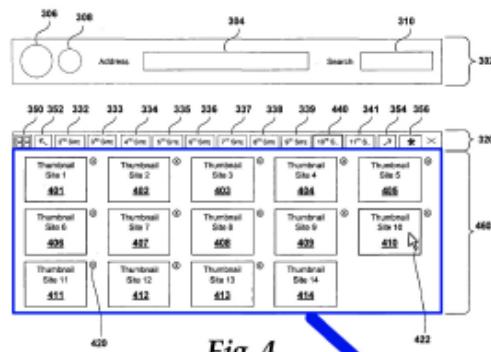
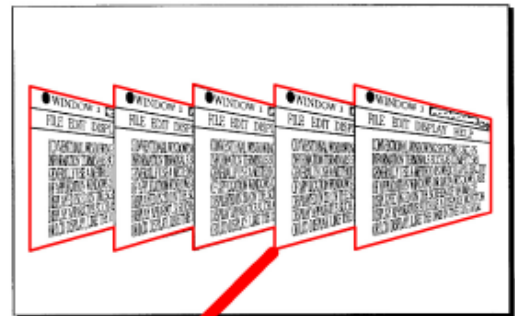


Fig. 4
Sauve's Quick Pick
User-Interface

FIG. 11B



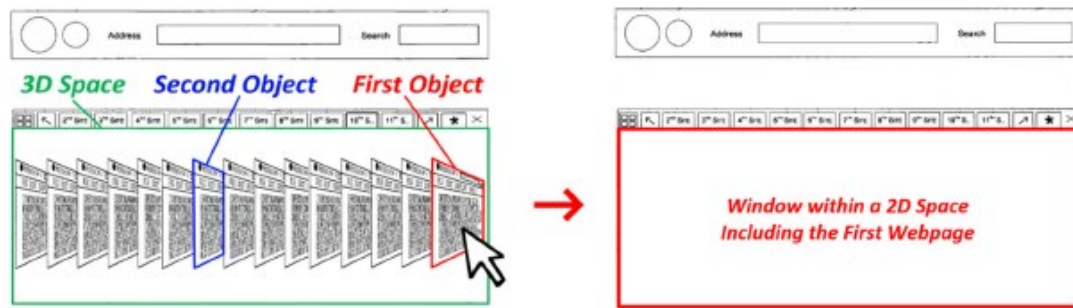
Tsuda's
Virtual 3D Space



Petitioner's figure illustrating replacing 2D thumbnails in Sauve Figure 4 (outlined in blue) with Tsuda's 3D windows from Figure 11B (outlined in red).

Pet. 58.

Petitioner explains that the combination of Sauve and Tsuda satisfies the limitation because “the web browser of the Combination [shown above] *replaces* the *3D space* of the quick pick user-interface, which includes the (*first/second*) virtual 3D windows (*objects*), with *a window within a 2D space* including the (*first*) *webpage* of the selected tab.” Pet. 73 (citing Ex. 1007 ¶¶ 18, 42–44; Ex. 1003 ¶ 193). Petitioner provides the following figure to demonstrate how a window within a 2D space replaces a first object within the 3D space.



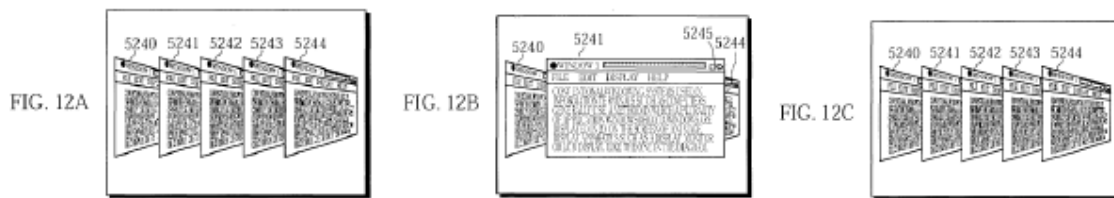
Petitioner’s figure illustrating a selected First Object from the web browser of the combination of Sauve and Tsuda (left, outlined in green) replaced (red arrow) by a window within a 2D space including a corresponding webpage (right, outlined in red).

We have reviewed Sauve and Tsuda. In our view, at this stage, Petitioner sufficiently shows on this record that the combination of Sauve and Tsuda would have led a POSITA to a method whereby first and second objects within the 3D space are replaced with a window within a 2D space, with the window including a rendered first webpage, as claimed.

Patent Owner does not disagree with Petitioner’s characterization of the teachings in Sauve and Tsuda. *See generally* Prelim. Resp. 50–56.

Patent disagrees instead with Petitioner’s contention that “Suave’s quick-pick interface could be replaced with Tsuda’s 3D GUI, thereby teaching the claimed invention.” Prelim. Resp. 51 (citing Pet. 57–58).

According to Patent Owner, “[i]n Tsuda, interacting with a window in 3D space does not transport the user (*i.e.*, switch) to a different (*e.g.*, active) window. Instead, the windows in Tsuda are already active and interacting with one merely results in the window being displayed ‘facing the front.’” Prelim. Resp. 52 (citing Ex. 1008, 2:57–67). To illustrate, Patent Owner reproduces Tsuda Figures 12A–12C. *See id.*, reproduced below.



Tsuda Figures 12A–12C showing a “display screen after automatic alignment has been performed” (Fig. 12A); “a display screen immediately after a window 5241 in FIG. 12A has been selected” and “the selected window 5241 is rotated to face the front” (Fig. 12 B); and “a display screen immediately after the window adjustment button 5245 positioned in the right corner of the title bar of the window 5241 has been pressed” (Fig. 12C). Ex. 1008, 18:44–56.

The difficulty with Patent Owner’s argument is similar to the one we addressed under Ground I. *See* section II.G.1.[1dii]. Patent Owner interprets the limitation as requiring replacing the 3D space with a 2D space in its entirety. However, limitation [1dii] recites “replacing” *first and second objects* “within the 3D space *with a window* within a two-dimensional (2D) space.” Only the *objects* in the 3D space are required to be replaced and only by a *window* within a 2D space. The claim does not appear to require replacement of the entire space with another space. As long as first/second images within the 3D space are replaced by a window within a 2D space (e.g., a webpage), the limitation would appear to be met.

We are not persuaded by Patent Owner’s explanation as to why the selected webpage is not “a window within a two-dimensional (2D) space” that replaces first/second objects in the 3D space as Petitioner contends. *See* Pet. 73. The fact that Tsuda’s selected webpage is presented within a larger 3D space does not undermine Petitioner’s position. This is so because, as

explained, replacing the entire 3D space with a 2D space is not a requirement of the claim.

We have reviewed the evidence. In our view, at this stage, Petitioner sufficiently shows on this record that the combination of Sauve and Tsuda satisfies limitations [1ciii] and [1dii].

2. Claims 2–18

Petitioner argues that claims 2–7 depending from claim 1 are also taught or rendered obvious over the art combination of Sauve and Tsuda. Pet. 76–80. As for claims 8–13 and 14–18, they are “substantially similar to Claims 1–6” and “substantially similar to Claims 1–4,” respectively. Pet. 81, 83.

Along with our reasons discussed with respect to the challenge of claim 1, we are persuaded that the evidence relied upon by Petitioner sufficiently supports Petitioner’s contentions regarding claims 2–18.

Patent Owner does not provide any specific arguments challenging Petitioner’s patentability position as to these claims. *See* Prelim. Resp. 50–56.

I. Objective Indicia of Nonobviousness

Notwithstanding what the teachings of the prior art would have suggested to one skilled in the art, objective evidence of nonobviousness (so called “secondary considerations”) may lead to a conclusion that the challenged claims would not have been obvious. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Objective evidence of nonobviousness “may often be the most probative and cogent evidence in the record” and “may often establish that an invention appearing to have been obvious in

light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983)).

“In order to accord substantial weight to secondary considerations in an obviousness analysis, ‘the evidence of secondary considerations must have a “nexus” to the claims, i.e., there must be “a legally and factually sufficient connection” between the evidence and the patented invention.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (citing *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019)). “The patentee bears the burden of showing that a nexus exists” *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). Nexus is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). A nexus is presumed when “the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory*, 944 F.3d at 1373 (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). “A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations,” as “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Id.* at 1373–74 (citing *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)).

Patent Owner presents arguments and evidence related to secondary considerations of non-obviousness. Prelim. Resp. 57–59. In support, Patent Owner relies on the Bakhsh Decl.. *Id.* (citing Ex. 2011 ¶¶ 13–24).

Patent Owner initially states that “Petitioner Fails To Address The Required ‘Objective Indicia’ Of Non-Obviousness.” Prelim. Resp. 57. However, Petitioner did address Patent Owner’s evidence of industry praise, for instance, arguing that it contained statements that undermined Patent Owner’s position. *See* Pet. 85–87. Moreover, Patent Owner responded by characterizing Petitioner’s position as consistent with the prior art cited by the Examiner and as such did not undermine Patent Owner’s position. *See* Prelim. Resp. 58.

Patent Owner discusses, primarily, secondary considerations in the form of industry praise received by “technical journals and newspapers.” Prelim. Resp. 57 (citing Ex. 2001 ¶¶ 13–15). According to Patent Owner, “there is a ‘nexus’ between the claimed invention and the industry praise. . . . For example, *TechNewsWorld* stated that “[w]ith SpaceTime, I have an unlimited 3-D space . . . [that] lets me alternate between 3-D and 2-D perspectives” *Id.* at 58 (quoting Ex. 2001 ¶ 16). However, *TechNewsWorld* (Exhibit E) does not clearly identify the claimed invention or any of its features. *See* Ex. 2001 ¶¶ 16, 88–91 (Exhibit E). It simply describes “[a]n innovative three-dimensional search program” and a “browser.” *Id.* at 88–91 (Exhibit E). A nexus between the *claimed invention* and the industry praise is not sufficiently shown.

Similarly, Patent Owner states that “Samsung sent emails to SpaceTime3D expressing interest in its technology and inviting

SpaceTime3D to present its technology at Samsung’s headquarters.” Prelim. Resp. 58 (citing Ex. 2001 ¶¶ 17–23). However, it is unclear from reading the emails (Exhibits F–J) that they are referring to the claimed invention. All they mention is SpaceTime “technology and solutions.” See Ex. 2001 ¶¶ 17–23, 92–104 (Exhibits F–J).

Finally, Patent Owner contends that “Samsung ultimately licensed the ’048 Patent, which is strong evidence of commercial success.” Prelim. Resp. 59 (citing Ex. 2001 ¶ 24). “SpaceTime3D is also in discussions with LG Electronics Inc. over a similar license, the details of which should be finalized before the deadline for the Board’s institution decision.” *Id.* However, there is insufficient information about the license on this record, making it difficult at this stage to ascertain whether this amounts to “strong evidence of commercial success” as Patent Owner contends. *Id.*

We have considered the evidence of industry praise and commercial success, but we find it insufficiently developed at this stage of the proceeding to have sufficient weight to preclude a finding of a reasonable likelihood of success on this ground.

Accordingly, we find that, at this stage of the proceeding and based on the current record, Petitioner’s contentions, detailed above and supported by the Fuchs Decl., are sufficient to show that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 1–18 under Grounds I and II.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of claims 1–18 of the ’048 patent.

Accordingly, we grant the Petition and institute an inter partes review of the '048 patent.

Because a decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition,” *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 & n.2 (Fed. Cir. 2018) (citing *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) and corresponding USPTO Guidance, <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial> (Apr. 26, 2018)), and because we have determined that at least one ground set forth in the Petition satisfies the threshold for institution, trial is instituted on the proposed grounds.

IV. ORDER

It is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of claims 1–18 of the '048 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of claims 1–18 of the '048 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of *inter partes* review.

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