

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUXOTTICA OF AMERICA INC. AND META PLATFORMS, INC.,
Petitioners,

v.

SOLOS TECHNOLOGY LIMITED,
Patent Owner.

Case IPR2026-00376
Patent 12,216,339

PATENT OWNER'S PRELIMINARY RESPONSE

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All emphasis in quotations is added unless otherwise stated.

I. INTRODUCTION

Institution should be denied because Petitioners fail to show a reasonable likelihood that they would prevail as to any challenged claim. Every challenged claim requires “receiving first data from a first sensor, the first sensor is incorporated into the eyewear device,” “receiving second data from a second sensor, wherein the second sensor is an external sensor,” and “determining a context of the user, wherein determining uses the first data and the second data.” Ex. 1001 [’339 Patent] cl. 1; *see also id.*, cls. 6, 11. All eight grounds fail because Petitioners do not show the required context determination using data received from both specified sources.

Petitioners identify sensors that may reside in eyewear, sensors that may reside elsewhere, devices that may communicate, and functions that determine a user’s situation, activity, orientation, or environment. But the claims require more than an inventory of available components. Petitioners must show that the data from the two specified sources is used in the claimed context determination, or explain why a skilled artisan would have modified the cited systems to achieve that relationship. Their general assertions about the benefits of multiple inputs do not supply that missing explanation.

Each family of grounds suffers from that defect. Petitioners’ Asukai-based Grounds 1-2 and 5-6 assign particular sensor locations to a “Commuting Example” and the “Parenting Example,” without showing that Asukai makes those assignments

or explaining why a skilled artisan would have selected those sources. Pet., 23-25; *see* Sections II.A.1-2, *infra*. Their Liu-based Grounds 3-4 and 7-8 likewise move from disclosures of data generated within Liu’s eyewear to broader communication capabilities and expert testimony, without establishing the claimed use of an external sensor’s data. Pet., 53-55; *see* Section II.C.1, *infra*. Adding Lisy does not cure these source-specific defects. *See* Sections II.A.3, II.C.2, *infra*. Nor does the Japanese prosecution supply the missing Asukai showing. *See* Section II.A.4, *infra*. Institution should be denied.

II. PETITIONERS’ GROUNDS DO NOT DISCLOSE OR RENDER OBVIOUS “DETERMINING A CONTEXT OF THE USER, WHEREIN DETERMINING USES THE FIRST DATA AND THE SECOND DATA” (ALL CHALLENGED CLAIMS, ALL GROUNDS).

Every challenged claim requires “determining a context” using both “first data” from a “first sensor ... incorporated into [an] eyewear device” and “second data” from a “second sensor, wherein the second sensor is an external sensor.” *See* Ex. 1001 [’339 Patent] cls. 1, 6, 11 (independent claims). The specification expressly distinguishes sensors “embedded in the eyewear device” from sensors “external to the eyewear device.” *Id.*, 21:23-35; *see also id.*, 28:45-52. During prosecution of the ’339 patent, the Examiner identified the use of data from both recited sources as a distinction from the prior art. *See* Ex. 1002 [Prosecution History] 34-35.

Petitioners rely on Asukai and Liu as primary references for that requirement. Grounds 1-2 rely on Asukai, while Grounds 3-4 rely on Liu. *See, e.g.*, Pet., 9. Grounds 5-8 add Lisy’s disclosures concerning the fusion of sensor data to those same Asukai and Liu theories. *See, e.g., id.*, 75-79. Shan is added in Grounds 2, 4, 6, and 8 for claim 11’s “voice interface,” not to supply the disputed use of “the first data and the second data.” *Id.*, 43, 63-69, 77, 79. As shown below, neither of Petitioners’ single-reference theories establishes the required context determination, and Petitioners’ multiple-reference theories do not cure these defects.

Showing that components were independently known does not, by itself, establish that their claimed combination was obvious. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Petitioners must explain why a POSITA would have made the proposed modification, with reasoning grounded in the evidence—not merely restate the result needed to meet the claims. *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (requiring specific, evidence-based reasoning rather than conclusory assertions).

A. Petitioners Do Not Show That Their Asukai Grounds Disclose Or Render Obvious “determining a context of the user, wherein determining uses the first data and the second data” (Grounds 1-2, 5-6).

The Asukai grounds incorporate Ground 1’s claim 1 analysis of “determining a context of the user, wherein determining uses the first data and the second data.”

Pet., 29 (claim 6); *id.*, 34 (claim 11). Ground 2 adds Shan for claim 11’s “voice interface” but states that the combination “does not alter Asukai’s disclosure of the remaining limitations.” *Id.*, 43. Grounds 5-6 carry forward that analysis while adding Lisy. *Id.*, 75-77. Petitioners’ analysis of this limitation therefore focuses on Asukai, either alone or in combination with Lisy.

Asukai describes an “information processing system” that “recognizes an action of the user in a specific situation,” estimates a user’s emotion, and “gives feedback” according to that emotion. Ex. 1005 [Asukai] ¶ 67. Within that system, Asukai’s “situation recognition unit 101” “recognizes an environment in which the user is placed as a situation” based on data sensed by Asukai’s “sensor unit 122.” *Id.*, ¶ 79. Asukai separately states that its “action recognition unit 102” “recognizes the action of the user” based on data sensed by Asukai’s sensor unit 122. *Id.*, ¶ 84. Asukai states that its situation recognition unit may use data from a nearby “surveillance camera” or “surveillance microphone” “in addition to” data sensed by Asukai’s sensor unit 122. *Id.*, ¶ 81. Petitioners identify Asukai’s recognition of a “situation” and an “action” as the claimed “determining a context of the user.” *See* Pet., 21-22 (citing Ex. 1005 [Asukai] ¶¶ 79, 81, 84). The question is whether the data used in those operations comes from both a sensor “incorporated into the eyewear device” and an “external sensor,” as Petitioners’ mapping requires. It is not enough to assert that Asukai discloses sensors that may occupy both locations;

Petitioners must show that data from both specified sensor sources is used in the operation they map to the claimed context determination.

To support their mapping of particular Asukai disclosures to the claimed “first sensor” and “second sensor,” Petitioners rely on passages identifying possible sensor locations. Pet., 13-17 (citing Ex. 1005 [Asukai] ¶¶ 69, 72, 97, 103). Asukai states that its sensors may be in “information processing device 10” or in “another wearable device, a smartphone, or the like” connected to it. Ex. 1005 [Asukai] ¶ 69. Asukai permits several implementations of its system, including a “spectacle-type HMD that includes earphones and a see-through display unit.” *Id.*, ¶ 72. Asukai also states that its “sensor unit 122 may be provided in the external device, or may be provided in both the information processing device 10a and the external device.” *Id.*, ¶ 103. Those options permit sensors in both locations but do not specify which sensors supply the data used in each example. From those separate statements, Petitioners assert that “where sensor-unit data includes first data from the eyewear-incorporated sensor and external-sensor data includes second data,” Asukai discloses determining a context using both. Pet., 22 (citing Ex. 1003 [Feland-Decl.] ¶ 110). This conditional clause simply assumes the disputed pairing; it does not show where Asukai allegedly teaches it. *See* Ex. 2007 [Davies-Decl.] ¶ 63.

Petitioners’ expert states that “User-worn data” may provide “motion, orientation, speech, or activity information,” while “external data” may provide

“location, room, or environmental information.” Ex. 1003 [Feland-Decl.] ¶ 111. He characterizes the sources as providing “different but complementary perspectives” and says combining them would reduce the risk that “an ambiguous cue from one source” would be misinterpreted. *Id.*, ¶ 112. As explained below, those general benefits do not establish why a POSITA would select the particular sources Petitioners identify in what the Petition calls the “Commuting Example,” Pet., 23, and the “Parenting Example,” *id.*, 24-25. These examples are addressed in Sections II.A.1-2, *infra*; Section II.A.3 addresses Petitioners’ supplementation of Asukai with Lisy; and Section II.A.4 addresses Petitioners’ reliance on the Japanese prosecution of a related application (*see* Pet., 5-6).

1. Asukai’s Commuting Example Does Not Disclose Or Render Obvious “determining a context of the user, wherein determining uses the first data and the second data” (Grounds 1-2, 5-6).

Petitioners first rely on an example in which Asukai’s “situation recognition unit 101” recognizes from “location information” that a user is “commuting.” *See* Ex. 1005 [Asukai] ¶ 115. In this example, Asukai discloses that its “action recognition unit 102” can use information from an acceleration sensor to recognize that the user is walking, and information from “an acceleration sensor on the head” to recognize that the user is facing downward. *Id.* Petitioners assign Asukai’s acceleration information to “first data” from a sensor “incorporated into the eyewear

device” and Asukai’s location information to “second data” from an “external sensor.” Pet., 23 (citing Ex. 1003 [Feland-Decl.] ¶¶ 113-114; Ex. 1005 [Asukai] ¶ 115). Petitioners’ mapping therefore depends on assigning the acceleration and location information to the two claimed sensor sources because Asukai does not expressly make that assignment.

Petitioners also rely on Asukai’s general disclosures about sensors in the HMD and connected devices. Pet., 23 (citing Ex. 1005 [Asukai] ¶¶ 69, 72, 103). Those placement options, discussed above, do not identify the source of the location information in Asukai’s paragraph 115. Asukai elsewhere states that its sensor unit may include “a location information acquisition unit of a global navigation satellite system (GNSS)” or obtain location information through communication with a smartphone. Ex. 1005 [Asukai] ¶ 97. Listing these alternatives does not identify which source supplies the commuting example’s location information. Asukai’s separate permission to use nearby surveillance data “in addition to” sensor-unit data likewise does not identify that source. *Id.*, ¶ 81; *see also* Ex. 2007 [Davies-Decl.] ¶¶ 61, 66.

Nor is Petitioners’ selected external source necessarily present in any implementation of Asukai. In a different example involving a train, Asukai expressly uses “location information of a GPS of the HMD” together with acceleration-sensor information. Ex. 1005 [Asukai] ¶ 160. Thus, the presence of

location and acceleration information alone does not establish Petitioners’ proposed pairing of data sources. To the extent Petitioners’ disclosure theory depends on that pairing being inherent, the mere possibility of this arrangement in an embodiment of Asukai’s system is insufficient: the unstated feature must necessarily be present. *See PAR Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1195-96 (Fed. Cir. 2014). Petitioners make no such showing.

Even assuming that Asukai’s acceleration sensor satisfies “the first sensor is incorporated into the eyewear device,” Petitioners must still establish that the location information comes from an “external sensor.” Their expert identifies GNSS or smartphone location sensing as potential “external sensor” options based on general disclosures of the possibility of such sensing in Asukai. Ex. 1003 [Feland-Decl.] ¶ 97 (citing Ex. 1005 [Asukai] ¶¶ 69, 97, 103). But identifying an available option does not establish that Asukai uses it in its commuting example—and in any event, Petitioners’ designation of which data comes from an eyewear sensor and which data comes from an external sensor is Petitioners’ expert’s own hindsight interpretation, not a disclosure in Asukai. *See, e.g.*, Ex. 2007 [Davies-Decl.] ¶ 66. Petitioners must identify where the relied-upon art teaches the limitation; an unsupported expert conclusion cannot supply the missing relationship. 37 C.F.R. § 42.104(b)(4); *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-16 (Aug. 24, 2022) (precedential) (giving little weight to conclusory, unsupported

testimony). *See* Section II.B, *infra*.

Petitioners therefore must support their alternative obviousness theory with a reason for selecting the proposed sensor arrangement. The relevant question is not whether location and acceleration information could be provided to the same system. Asukai describes both. Ex. 1005 [Asukai] ¶ 115. The question is whether Petitioners' stated reasons support obtaining the location information from an external sensor while using eyewear acceleration information.

Petitioners state that, "[t]o the extent PO disputes that placement," Asukai renders it obvious by teaching sensors in the spectacle-type HMD and connected external devices. Pet., 23 (citing Ex. 1003 [Feland-Decl.] ¶ 114; Ex. 1005 [Asukai] ¶¶ 69, 72, 103). Their expert states that location information identifies the commuting environment while acceleration information identifies walking and downward head orientation. Ex. 1003 [Feland-Decl.] ¶ 114. Identifying what the two types of data reveal does not explain why the location information would be obtained from Petitioners' selected external source.

The expert's more general placement opinions do not resolve that question. He states that external sensors may provide information "costly to integrate into the HMD from a weight and a power standpoint," giving "GPS off a mobile phone" as an example. Ex. 1003 [Feland-Decl.] ¶ 102. But he also identifies reasons to put location sensors on the eyewear, including simplified design and portability, *id.*,

¶ 77, and alignment between sensed movement and displayed content, *id.*, ¶ 78. He does not explain how those competing considerations support the selected external source in the commuting example; his discussion of that example returns to the usefulness of location and acceleration information. *Id.*, ¶ 114.

Petitioners also rely on their expert's assertions that each component was "already known," Ex. 1003 [Feland-Decl.] ¶ 83, that the sensors would "continue performing their ordinary and expected functions," *id.*, ¶ 84, and that integrating external sensors involved "routine application of known sensor-fusion and synchronization techniques," *id.*, ¶ 85. *See* Pet., 15 (citing Ex. 1003 [Feland-Decl.] ¶¶ 83-85). Those assertions concern whether the components could work together, not why a POSITA would obtain the commuting location information from Petitioners' selected external source. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (distinguishing what a skilled artisan "could have made" from what the artisan "would have been motivated" to make).

Petitioners cite Tanaka as support for using Asukai's sensor data together because "user-worn data provides motion, orientation, speech, or activity information, while external data supplies complementary location, room, or environmental context." Pet., 22 (citing Ex. 1003 [Feland-Decl.] ¶¶ 111-112; Ex. 1009 [Tanaka] ¶¶ 12, 45-46). Tanaka describes wearable platforms that may include eyeglasses, Ex. 1009 [Tanaka] ¶ 45, with sensors inside or outside those platforms

“as is desired and/or suitable for the function(s)” of the device, *id.*, ¶ 46. Tanaka explains that readings from sensors on several wearable devices may improve measurements of a body parameter “in some settings,” such as temperature measurements at different body locations. *Id.*, ¶ 12. But where multiple wearable devices measure the same body parameter, such as heart rate or skin temperature, Tanaka states that “a single reading from any one of them would provide enough sensor data.” *Id.*, ¶ 8. Tanaka therefore permits deactivating unnecessary sensors, *id.*, ¶ 18, and identifies tradeoffs such as the choice between “longer battery life and higher measuring performance,” *id.*, ¶ 19. Tanaka does not explain why a POSITA would obtain Asukai’s commuting location information from Petitioners’ selected external source.

Identifying alternative measurement arrangements in the art does not, by itself, establish any reason to substitute one for another. *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 886 (Fed. Cir. 2024). “It does not suffice to simply be known. A reason for combining must exist.” *Id.*, 888. Here too, identifying an external location sensor as an available alternative does not explain why a POSITA would select it for Asukai’s commuting example.

2. Asukai's Parenting Example Does Not Disclose Or Render Obvious "determining a context of the user, wherein determining uses the first data and the second data" (Grounds 1-2, 5-6).

Petitioners' second Asukai-based argument relies on what the Petition calls the "Parenting Example," involving a parent scolding a child about the condition of the child's room. Pet., 24-25. Petitioners identify the child's room and its condition as the user's environment, the parent's scolding as an activity, and, alternatively, the parent's orientation toward the child as a physical orientation; Petitioners then identify this information with the claimed "context of the user." Pet., 24 (citing Ex. 1003 [Feland-Decl.] ¶¶ 115-116; Ex. 1005 [Asukai] ¶¶ 196-197). Asukai states that its "situation recognition unit 101" may analyze video from a camera in the child's room to calculate a "degree of achievement of cleaning." Ex. 1005 [Asukai] ¶ 196. Asukai's "action recognition unit 102" separately analyzes the parent's voice "collected from a microphone" and recognizes that "the parent is scolding the child," while its "emotion recognition unit 105" may identify negative emotion from facial expression, pulse rate, or voice data acquired from "a microphone installed in the room or a microphone of an HMD worn by the parent." *Id.*, ¶ 197. Even assuming the HMD microphone is incorporated into eyewear, Asukai does not identify it as the microphone used to recognize scolding. *Id.*, ¶ 197. Petitioners nevertheless map voice data from that microphone to the claimed "first data" and input from a room

camera and/or room microphone to the claimed “second data” from an “external sensor.” Pet., 24-25 (citing Ex. 1003 [Feland-Decl.] ¶¶ 115-117; Ex. 1005 [Asukai] ¶¶ 196-197).

Petitioners’ expert states that a context determination in this example uses room-camera video and voice data from the HMD microphone “and/or the room microphone.” Ex. 1003 [Feland-Decl.] ¶ 117. The inference does the work that the disclosure does not: it assigns to scolding recognition the HMD microphone identified for emotion recognition. Asukai neither expressly makes that assignment, Ex. 1005 [Asukai] ¶ 197, nor requires it. *See PAR Pharm.*, 773 F.3d at 1195-96.

On their alternative obviousness theory, Petitioners must therefore explain why a POSITA would select Asukai’s HMD microphone as the source used by action recognition unit 102 to recognize scolding and then use that HMD-microphone data with either the room-camera data or the room-microphone data that Petitioners map to the claimed “second data” from an “external sensor.” Pet., 24-25 (citing Ex. 1003 [Feland-Decl.] ¶¶ 115-117; Ex. 1005 [Asukai] ¶¶ 196-197).

Petitioners’ expert offers several reasons for placing a microphone in Asukai’s HMD. He invokes alignment with the wearer’s “direction of speech” and improved audio acquisition. Ex. 1003 [Feland-Decl.] ¶ 78. He also states that integrating sensors into Asukai’s HMD would “simplif[y] system architecture,” reduce wiring, and improve portability. *Id.*, ¶¶ 77-79. Petitioners cite those opinions as a reason to

place Asukai's microphone in the HMD. Pet., 15 (citing Ex. 1003 [Feland-Decl.] ¶¶ 76-82, 92). But Asukai's parenting example already uses room cameras to observe the interaction and expressly identifies a room microphone that can acquire the parent's voice. Ex. 1005 [Asukai] ¶¶ 191, 196-197. Petitioners do not connect those general advantages to selecting the HMD microphone, rather than the available room microphone, for recognizing scolding in this example. As Dr. Davies explains:

A POSITA in 2018 would have understood that recordings from microphones on different devices or in different parts of an environment are not automatically suitable for joint audio processing.

Asukai's disclosure is consistent with that understanding. For emotion recognition, Asukai states that uttered voice data may be acquired from "a microphone installed in the room or a microphone of an HMD worn by the parent." Ex. 1005 [Asukai] ¶ 197. For recognizing scolding, however, Asukai says only that the voice is "collected from a microphone." *Id.* . . .

A POSITA would understand that distinction as leaving the source of audio data for scolding recognition unspecified, not as requiring the HMD microphone identified for a different operation. The general observations about speech direction and audio acquisition offered by Petitioners' expert, Ex. 1003 [Feland-Decl.] ¶¶ 78, 92, do not explain why a POSITA would select the HMD microphone for recognizing scolding.

Ex. 2007 [Davies-Decl.] ¶¶ 69-71.

The room-camera alternative does not cure that defect. Petitioners assert that

data from the room camera and the HMD microphone provide “complementary information about the same episode”: the parent’s “utterance/activity” and the “room condition/visual scene.” Pet., 25 (citing Ex. 1003 [Feland-Decl.] ¶ 117). Petitioners’ expert also asserts that Asukai’s room camera could determine whether the parent is oriented toward the child, which could help attribute speech, facial expression, and conduct to the parent-child interaction. Ex. 1003 [Feland-Decl.] ¶ 116. Those assertions explain why the parent’s speech and the camera’s room information might both be useful. They do not connect that usefulness to selecting the HMD microphone rather than the room microphone Asukai also identifies. Ex. 1005 [Asukai] ¶ 197.

The room-microphone alternative requires a different showing. Where Petitioners identify that microphone as the “external sensor,” their proposal requires using its audio together with the HMD audio in “determining a context of the user.” Under Petitioners’ mapping, data from the HMD microphone supplies “first data” and data from the room microphone supplies at least part of the “second data.” Pet., 25 (citing Ex. 1003 [Feland-Decl.] ¶ 117; Ex. 1005 [Asukai] ¶¶ 196-197). But Asukai identifies both microphone locations only in its separate discussion of emotion recognition, where voice data may be acquired from “a microphone installed in the room *or* a microphone of an HMD worn by the parent.” Ex. 1005 [Asukai] ¶ 197. Asukai does not describe using both recordings together; Petitioners

propose that additional use.

Petitioners' expert invokes "robustness" and "cross-validation" for multiple sensing sources, Ex. 1003 [Feland-Decl.] ¶ 102, and "fault tolerance" for redundant sensing, *id.*, ¶ 103. His discussion of the parenting example also identifies the parent's utterance, the room's visual scene, and "ambient speech or audio" as information the sensors could provide, but does not explain what the second microphone would contribute to the proposed determination. *Id.*, ¶ 117.

As Dr. Davies explains:

Microphones at different locations typically do not yield recordings that are easily combined for joint analysis. Even when they record the same sound, signals from different microphones will differ in volume level, their frequency response, the amount and nature of noise, and the relative levels of the signal of interest and the noise, and their timing. Integrating the different data streams from two distinct and separate microphones requires signal processing, which involves a real-world cost. . . .

For at least these reasons, a POSITA would not understand Asukai's references to different locations of microphones as a teaching to use both microphones together. Asukai's paragraph 197, for example, presents the room microphone and the HMD microphone as alternative sources for the separate operation of recognizing emotion and does not describe synchronizing or combining the room-

microphone and HMD-microphone recordings for recognizing scolding. Ex. 1005 [Asukai] ¶ 197.

Ex. 2007 [Davies-Decl.] ¶¶ 72, 76 (footnote omitted).

Tanaka likewise supports an application-specific inquiry, not a presumption that more inputs are always better. *See* Section II.A.1 *supra*. Tanaka identifies circumstances in which multiple readings may help, circumstances in which one reading suffices, and a battery-life/performance tradeoff. *See id.*

The two proposed combinations thus present distinct questions: why would a POSITA select the HMD microphone when combining speech with room-camera information, and why use the room microphone’s recording together with HMD audio? Petitioners’ general assertions about complementary information do not answer either source-specific question. Pet., 25 (citing Ex. 1003 [Feland-Decl.] ¶ 117).

The law requires that missing connection. *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (rejecting reasons to “build something better” or make a system “more efficient, cheaper, or more user-friendly” as too general to provide a motivation to combine). The required explanation must address the proposed combination, not simply the desirability of improvement in the abstract. *See PersonalWeb Techs. LLC v. Apple Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (requiring “a clear, evidence-supported account of the

contemplated workings of the combination” in a motivation-to-combine analysis). Nor does simply characterizing a proposed modification as routine supply the missing analysis. *DSS Tech. Mgmt., Inc. v. Apple Inc.*, 885 F.3d 1367, 1374 (Fed. Cir. 2018) (rejecting an unexplained assertion that a POSITA “would have known how” to make the modification); *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362-63 (Fed. Cir. 2016) (“common sense” cannot be “a wholesale substitute for reasoned analysis and evidentiary support”). Here, Petitioners do not explain why their selected microphone sources would be used together in the claimed context determination.

Asukai does not disclose that the HMD microphone supplies the voice data used to recognize scolding, and Petitioners do not adequately explain why a POSITA would select that source and use its data with data from an external sensor. Asukai’s parenting example accordingly does not establish “determining a context of the user, wherein determining uses the first data and the second data,” where the data comes from both a sensor “incorporated into the eyewear device” and an “external sensor.” *See* Ex. 2007 [Davies-Decl.] ¶¶ 68, 71, 74-76.

3. Lisy Does Not Cure The Defects In Petitioners’ Showing Of “determining a context of the user, wherein determining uses the first data and the second data” (Grounds 5-6).

For Grounds 5-6, Petitioners add Lisy as an “additional obviousness basis.” Pet., 75. Lisy states that its system “fuses data from the sensors on ... various

devices” to provide a “more complete and robust set of data.” Ex. 1008 [Lisy] 4:2-9. Petitioners contend that applying Lisy would improve Asukai’s situation and action recognition, emotion analysis, and feedback selection by combining the inputs mapped to “determining a context of the user.” *See* Pet., 76-77 (citing Ex. 1003 [Feland-Decl.] ¶¶ 280-284; Ex. 1008 [Lisy] 4:2-9, Figs. 13-14). Petitioners’ expert similarly proposes that a POSITA would “incorporate Lisy’s multi-sensor fusion into the eyewear of Asukai” so the two sources would be used together. Ex. 1003 [Feland-Decl.] ¶ 280. Petitioners’ mappings of the sources of the “first data” and “second data” remain the same in the Lisy grounds: Petitioners select external location information with HMD acceleration information for commuting, Pet., 23, and HMD speech with room-camera or room-microphone information for parenting, *id.*, 25. But Lisy’s general disclosures about combining information do not themselves explain why Petitioners’ particular source selections would improve Asukai’s commuting or parenting operations.

Petitioners’ expert notes that both references disclose temperature, galvanic skin response, and pulse oximetry sensors and asserts that, because they disclose similar sensors for similar purposes, “the teachings of Lisy could be applied to the sensors in Asukai.” Ex. 1003 [Feland-Decl.] ¶ 282. That discussion of biological measurements does not explain the selected location, acceleration, speech, and room inputs on which Petitioners’ context theories depend. Nor does Petitioners’ expert’s

assertion that “the more data points that are provided about [a] user’s emotional state, the more precise the determination will be” establish this conclusion for Petitioners’ proposed inputs to what Petitioners identify as the claimed context (or state) determinations. *Cf. id.*, ¶ 283 . As Dr. Davies explains:

The extent to which additional different and diverse data sources from sensors that provide the basis for determining a user’s context or state provide greater “precision” depends on both the characteristics of the data sources and the specific circumstances. Some data sources may introduce additional noise, or when processed may provide confounding or conflicting information, which may in turn increase the ambiguity or reduce the confidence with which a result can be determined. And . . . combining different and disparate data sources necessarily involves careful and thoughtful design of the system, its algorithms, and hardware and software, and involves real-world costs. This is particularly the case when combining data from sensors on an HMD, with their real-world constraints in terms of sensing, processing and storing data, with data from external sensors, such as sensors on other devices or in other locations. Petitioners’ aspirational statement that Lisy would provide a “more complete and robust set of data” in the context of Asukai, Pet., 76 (quoting Ex. 1008 [Lisy] 4:2-9), does not address these considerations.

Ex. 2007 [Davies-Decl.] ¶ 80 (citations and footnote omitted).

Petitioners’ expert further calls “applying Lisy’s sensor-fusion architecture to the eyewear of Asukai” “a straightforward use of known data-processing

techniques.” Ex. 1003 [Feland-Decl.] ¶ 284. Lisy’s Figures 13-14 describe acquiring and processing sensor signals, deriving measurements, and fusing data for feedback and other outputs. Ex. 1008 [Lisy] 51:49-52:49, Figs. 13-14. Identifying available processing techniques addresses what could be done, not why the particular inputs would be selected and combined. *See Belden*, 805 F.3d at 1073. As Dr. Davies explains:

Lisy depicts and describes signals being acquired from physiological or secondary/environmental sensors, subjected to filtering, artifact detection and removal, processed through biological-signal or spectrum analysis, and passed through derivation algorithms *before* “Data from sensors [is] fused.” Ex. 1008 [Lisy] 51:49-52:49, Fig. 14. A POSITA would understand from that sequence that an implementation of Lisy could involve a significant amount of signal processing, that this signal processing would depend on the signal types and intended output, and that unit cost, processing requirements, storage capacity, power management and battery life concerns would be involved in making these decisions.

Although Lisy describes a very broad spectrum of potential combinations of devices (10 types of devices), sensors (15 types of sensors) as data sources, to provide several possible derived measurements (9 types of derived measurements) and several types of actuators (7 types of actuators) for a very broad variety of use cases, Lisy provides no guidance on how these decisions would be made in Petitioners’ proposed example. Nor do I see Petitioners or Petitioners’

expert providing any such analysis. Without such analysis—that is, without an identification of exactly *how* Petitioners propose to apply Lisy’s “fusion teachings” to Asukai (Pet., 76)—I cannot assess Petitioners’ argument that a POSITA would have been motivated to make such an application, let alone do so with a reasonable expectation of success.

Ex. 2007 [Davies-Decl.] ¶¶ 82-83.

Thus, Lisy’s fusion discussion does not provide sensor- or source-specific support for Petitioners’ Asukai theories. Petitioners still must explain why a POSITA would select and combine the particular Asukai inputs on which their context arguments depend. General and speculative predictions of improvement cannot replace an explanation of why the particular inputs would be combined in the claimed manner. *ActiveVideo*, 694 F.3d at 1327-28; *TQ Delta, LLC v. Cisco Sys., Inc.*, 942 F.3d 1352, 1359-60 (Fed. Cir. 2019). Petitioners’ Ground 5 therefore fails to establish “determining a context of the user, wherein determining uses the first data and the second data.” Petitioners’ Ground 6 adds Shan for the “voice interface” and carries forward the same analysis of Asukai and Lisy; it therefore fails for the same reasons. Pet., 77. *See also, e.g.*, Ex. 2007 [Davies-Decl.] ¶¶ 53, 77-83.

4. Petitioners’ Reliance On The Japanese Prosecution Does Not Establish The Disputed Use Of “the first data and the second data” (Grounds 1-2, 5-6).

Petitioners invoke the prosecution of a related Japanese patent application,

stating that a Japanese examiner rejected “nearly identical claims” based on a PCT counterpart of Asukai and that, “[r]ather than dispute that disclosure,” Patent Owner added limitations absent from the challenged claims to its Japanese application. Pet., 1; *see also id.*, 5-6. Petitioners quote the examiner’s conclusion that Japanese claim 1 was “the invention described in Cited Document 1” and “could have been easily invented” from Asukai’s PCT counterpart. *Id.*, 6 (quoting Ex. 1013 [Japanese Prosecution] 15). They further state that Patent Owner added a “risk level” aspect to the Japanese claims and argued that these added limitations were “neither disclose[d] nor suggest[ed].” *Id.*, 6 (citing Ex. 1013 [Japanese Prosecution] 20-32). A foreign rejection followed by a claim amendment, however, does not supply the missing explanation for Petitioners’ proposed sensor assignments in Asukai. Nor does this foreign prosecution history show any admission that Asukai would satisfy the disputed claim requirements.

Claim 1 in the application discussed by the Japanese examiner did not require “the second sensor is an external sensor” or “a step in which a context of the user is determined.” Ex. 1013 [Japanese Prosecution] 9-10, 15. More pertinent requirements appeared in Japanese claim 25, which depended from Japanese claim 20 and required that “the second sensor is an external sensor,” that “the determination uses the first data and the second data,” and that “the analysis uses the first data and the second data.” *Id.*, 12-13. The examiner rejected that claim as

well—but the examiner’s additional explanation for a group of claims including Japanese claim 25 was only: “*See* paragraph [0025] of Cited Document 1.” *Id.*, 16. That paragraph in Asukai’s PCT counterpart supplies the same general disclosures Petitioners invoke here: it describes recognition using various sensing data, user-entered information, externally acquired information, or machine learning; it lists possible sensor types; and it permits sensors in its “information processing device 10” or connected wearable devices and smartphones. *See* Ex. 1014 [Asukai PCT] ¶ 25; *see also* Ex. 1017 [Asukai Priority Translation] ¶ 25; Ex. 1005 [Asukai] ¶ 69. Those disclosures do not identify the commuting example’s location information as externally sourced or the microphone used to recognize scolding as the parenting example’s HMD microphone. Nor does the examiner explain why a POSITA would select those sources for those operations. *See* Sections II.A.1-2, *supra*.

Patent Owner’s response likewise does not concede that Asukai disclosed the disputed requirements. Patent Owner identified the added risk provisions as “at least the following differences” between amended Japanese claim 1 and the PCT counterpart of Asukai, *see* Ex. 1013 [Japanese Prosecution] 30, without stating that those were the *only* differences. *Id.*, 30-31. An argument identifying at least one distinction is not an admission that no other distinction exists. Patent Owner’s reliance on the added risk provisions therefore does not establish that Asukai satisfies the requirements disputed here. The Federal Circuit has rejected

comparable attempts to rely on foreign prosecution to show obviousness. *See, e.g., Heidelberg Druckmaschinen AG v. Hantscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072 n.2 (Fed. Cir. 1994) (stating that the weight placed on a European examiner's rejection was "not appropriate" because patentability laws and examination practices differ across jurisdictions); *see also, e.g., AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1279 (Fed. Cir. 2011) (cautioning against "indiscriminate reliance" on foreign prosecution in claim construction). Neither the Japanese examiner's cross-reference nor Patent Owner's response to the Japanese examiner supports the particular source selections in Petitioners' Asukai grounds.

B. Petitioners Impermissibly Rely Upon Expert Testimony To Fill Gaps In Their Cited Grounds (All Challenged Claims, All Grounds).

The gaps in identifying sources also expose a problem with Petitioners' reliance on expert testimony to supply what the cited publications do not disclose. Rule 42.104(b)(4) requires a petition to "specify where each element of the claim is found in the prior art patents or printed publications relied upon," 37 C.F.R. § 42.104(b)(4), and expert testimony that does not disclose its underlying facts or data is entitled to "little or no weight." 37 C.F.R. § 42.65(a). The Office's July 2025 Memorandum similarly confirms that expert testimony may explain the art or support a motivation, but "may not be used to supply a missing claim limitation." Ex. 2005 [July 2025 Memorandum] 1-2. *Xerox Corp. v. Bytemark, Inc.* likewise

explains that conclusory testimony is “particularly problematic” when it is offered “not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art.” IPR2022-00624, Paper 9, 16 (Aug. 24, 2022) (precedential). The Federal Circuit has similarly held that, although alleged common sense and general knowledge may inform an obviousness determination, “references to ‘common sense’ . . . cannot be used as a wholesale substitute for reasoned analysis and evidentiary support.” *Arendi*, 832 F.3d at 1362. When a challenger implicitly appeals to general knowledge to supply a missing limitation, the conclusion “must still be supported by evidence and a reasoned explanation.” *Id.*, 1363. When common sense supplies a missing limitation rather than a reason to combine, the inquiry must be “searching.” *Id.*

Every independent claim requires “determining a context of the user” or “determining a context for the user,” using “the first data and the second data,” where “the first data” comes from a sensor “incorporated into the eyewear device” and “the second data” comes from an “external sensor.” This relationship—a relationship that is not disclosed in the cited art, *see* Section II.A.1 *supra*; *see* Section II.C.1 *infra*—is central to the recited step: the claims require the use of both specified sources, not merely the presence of sensors in two locations. The prosecution history confirms the significance of this limitation to the claimed inventions: in allowing claim 1, for example, the Examiner stated that the prior art did not disclose or suggest

“receiving second data from a second sensor, wherein the second sensor is an external sensor,” “wherein the analyzing uses the first data and the second data,” and “determining a context of the user, wherein determining uses the first data and the second data,” “along with other claim limitations.” Ex. 1002 [Prosecution History] 34-35. The Examiner gave materially similar reasons for allowing independent claims 6 and 11 (then numbered claims 8 and 15). *Id.*, 35. As Dr. Davies confirms, this limitation is technically significant:

A POSITA would have understood that at the time of the invention, making both of the claimed types of data available to a system would not by itself accomplish “determining a context of the user” (or “analyzing a state of the user”) using data from both the claimed “first data” and the “second data,” and that using both data sources in a single determination could be considerably technically different from simply “determining a context of the user” in some other way (for example, from the “first data” only, or from the “second data” only). A POSITA would have understood the claimed determination to potentially involve an array of technical issues—including, for example, determining whether two kinds of data captured information about the same user, event, or time interval; accounting for potential differences in the kinds of data (such as sampling rate, latency, reliability, units, coordinate systems, and datums); and selecting a method for combining the data (whether at the level of raw measurements, derived features, or separate decisions). None of these issues need to be addressed when processing data only from a single

sensor, and a POSITA would not have regarded addressing these issues as unusually simple at the relevant time.

Ex. 2007 [Davies-Decl.] ¶ 44.

Petitioners alternatively invoke obviousness where their asserted disclosures are disputed. For claim 1's "analyzing a state of the user," for example, Petitioners state that, "[t]o the extent PO argues that an embodiment does not expressly state that emotion analysis uses both eyewear-sensor and external-sensor data," the implementation would have been obvious. Pet., 19 (citing Ex. 1003 [Feland-Decl.] ¶¶ 101-103). For claim 1's "determining a context of the user," Petitioners similarly state that, "[t]o the extent PO disputes that an example uses that pairing," doing so would have been obvious. Pet., 22 (citing Ex. 1003 [Feland-Decl.] ¶¶ 111-112). For Liu, Petitioners twice state that, "[t]o the extent PO argues Liu does not expressly state" that eyewear and terminal information are jointly used in the same state analysis or context determination, the claimed use would have been obvious. Pet., 51, 54. Petitioners offer Grounds 5-8 as an "additional obviousness basis to the extent PO disputes" the same joint uses of sensor data. Pet., 75. But offering arguments in the alternative does not relieve Petitioners of explaining their proposed modifications and why a POSITA would make them. *See Magnum Oil Tools*, 829 F.3d at 1380.

Petitioners characterize the proposed combinations as "predictable," Pet., 19,

22, as involving “conventional” processing, *id.*, 52, 55, and as using known techniques for their ordinary purposes, *id.*, 77-79. Those labels do not substitute for evidence and reasoning supporting the proposed source assignments. *See DSS Tech. Mgmt., Inc. v. Apple Inc.*, 885 F.3d 1367, 1374-75 (Fed. Cir. 2018) (applying *Arendi* to an attempt to supply a missing limitation through “ordinary creativity”). The relevant showing concerns the identified sensor sources and their use in Petitioners’ proposed determinations—not whether sensors, communication links, and data-processing techniques existed in the abstract. As Dr. Davies explains:

The data from each of the claimed sensor sources will likely differ in spatial origin and frame of reference, field of view and orientation, and will likely also differ in the type of data, the accuracy of the data, the timing and noise characteristics, and the processing path for these signals. As a result, in order to use “the first data and the second data” in the same “analyzing” or “determining” operation, a designer would need to decide which measurements corresponded to the same user event, synchronize or otherwise associate them, transform them into suitable representations, account for latency and missing or conflicting data, and determine how much weight to give each source; all of these operations would take time and incur costs in processing and storing the data, and hence in size, weight and power consumption.

Whether performed in eyewear or in combination with eyewear, these tasks are further constrained by the small size, low weight, battery

capacity, limited processing resources, heat dissipation, and communications bandwidths available in eyewear at the time of the invention. These were significant considerations at the time of the invention, and indeed these remain important considerations to the present day.

Ex. 2007 [Davies-Decl.] ¶¶ 57-58.

Petitioners' generalized testimony therefore supplies neither the missing use of "the first data and the second data" in "determining a context" nor a reasoned basis for the proposed modifications, and all eight grounds fail for that reason.

C. Petitioners Do Not Show That Their Liu Grounds Disclose Or Render Obvious "determining a context of the user, wherein determining uses the first data and the second data" (Grounds 3-4, 7-8).

The Liu grounds repeat the same error in a different system. *See* Ex. 2007 [Davies-Decl.] ¶ 84. Petitioners rely on Liu for Grounds 3-4 and add Lisy's teachings on combining sensor data in Grounds 7-8. *Pet.*, 9-10, 52-55, 78-79. Across those grounds, Petitioners must establish "determining a context of the user, wherein determining uses the first data and the second data," with "first data" from a sensor "incorporated into the eyewear device" and "second data" from an "external sensor." The passages describing the mapped determinations identify inputs from components within Liu's eyewear. The passages concerning terminal sensors do not establish their use in those determinations. Petitioners do not establish the asserted use of both sources. *See* Section II.C.1 *infra*. Lisy expressly teaches combining data

from sensors on different devices, but Petitioners do not adequately connect that teaching to their proposed use of Liu's terminal information. *See* Section II.C.2 *infra*.

1. Liu Does Not Disclose Or Render Obvious “determining a context of the user, wherein determining uses the first data and the second data” (Grounds 3-4).

In Grounds 3-4, Petitioners identify Liu's movement, orientation, location, and environment determinations with “determining a context of the user.” Pet., 52-54 (citing Ex. 1006 [Liu] ¶¶ 16-17, 35, 47, 59, 61). They contend that those determinations use information from Liu's “smart eyewear 110” and “terminal 130.” *Id.*, 53-54 (citing Ex. 1006 [Liu] ¶¶ 17, 22-24, 34-38, 47-49, 59, 61; Ex. 1003 [Feland-Decl.] ¶ 211). The cited descriptions of those determinations identify data from within Liu's eyewear, not data from its terminal. Petitioners rely on separate disclosures that Liu's terminal may contain sensors, communicate with the eyewear, and participate in processing. *Id.*, 54 (citing Ex. 1006 [Liu] ¶¶ 22-23, 30, 53). The issue is whether those disclosures establish the asserted use, or a reason to modify Liu accordingly.

Petitioners rely on Liu's determinations of movement, angular orientation, location, and emergencies. *Id.*, 53-54 (citing Ex. 1006 [Liu] ¶¶ 47-49, 59, 61). Liu identifies the components supplying that data as part of its eyewear. Figure 3 is “a block diagram of an exemplary smart eyewear 110,” and Liu states that smart

eyewear 110 may include “controller 320,” “sensor module 350,” “imaging module 360,” “locating module 370,” and “telecommunication module 380.” Ex. 1006 [Liu] ¶ 41. Liu’s controller, in turn, includes “processing component 326.” *Id.*, ¶ 42. Liu then describes processing component 326 as receiving data generated by sensor module 350, imaging module 360, and locating module 370 and performing the relevant determinations. *Id.*, ¶¶ 45-50. Liu’s sensor module supplies “IMU signals” from its inertial measurement unit to determine movement and angular orientation. *Id.*, ¶ 47. Liu’s locating module provides GPS signals that Liu combines with movement information to determine trajectory. *Id.*, ¶ 48. Liu’s imaging module provides environmental image data used to determine movement, *id.*, ¶ 49, and, together with other “above-described signals,” whether an accident occurred, *id.*, ¶ 50. These passages expressly trace the inputs to modules within Liu’s eyewear; they do not identify inputs from its terminal.

Liu likewise describes Figure 5 as a “sports management method performed by the smart eyewear shown in FIG. 3.” Ex. 1006 [Liu] ¶ 14.

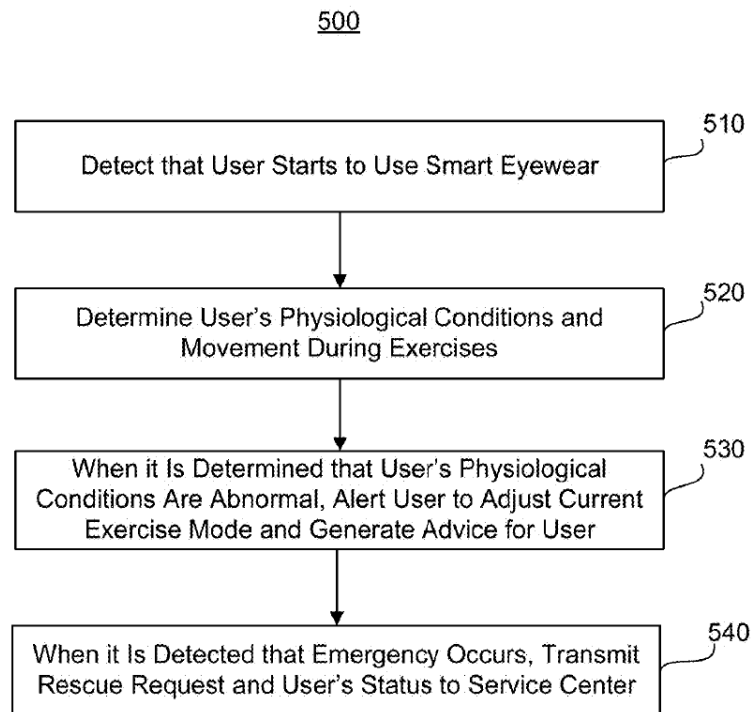


FIG. 5

Ex. 1006 [Liu] Fig. 5. At step 520, Liu’s smart eyewear processes data generated by “sensor module 350, imaging module 360, and locating module 370” and, “[b]ased on these data and signals,” determines the user’s physiological conditions, movement, and location. *Id.*, ¶ 59. At step 540, Liu’s controller determines whether an emergency occurred based on physiological conditions, movement, position, and/or environmental images. *Id.*, ¶ 61. Neither passage identifies data from a sensor in terminal 130 as an input to the determination.

Petitioners attempt to establish the use of both sources by relying on Liu’s separate disclosures concerning terminal 130. Pet., 54 (citing Ex. 1006 [Liu] ¶¶ 22-

23; Ex. 1003 [Feland-Decl.] ¶ 211). Liu states that its terminal may be a smartphone, smartwatch, smart bracelet, smart camera, medical device, or another electronic device. Ex. 1006 [Liu] ¶ 21. Its terminal may include “additional biosensors” and “high-resolution cameras,” and may provide GPS navigation. *Id.*, ¶ 22. Liu further states that its terminal may form a “binding relationship” with the eyewear and “share the burden of collecting, storing, and/or processing data.” *Id.*, ¶ 23. The transmission examples in that paragraph send detected physiological reactions, exercise advice, or entertainment content to the eyewear “for displaying on virtual display 120.” *Id.*, ¶ 23. Those capabilities do not establish the asserted use: terminal-sensor information together with eyewear-sensor information in the determinations that Petitioners identify as “determining a context of the user.”

Petitioners also rely on Liu’s broader processing and storage disclosures. Pet., 54-55 (citing Ex. 1006 [Liu] ¶¶ 30, 53). Liu’s paragraph 30, for example, states that Liu’s “controller 220” may communicate with components of the eyewear and terminal 130, exchange data and signals with them, and “filter, analyze, process, and store these data and signals.” Ex. 1006 [Liu] ¶ 30. Paragraph 53 similarly states that Liu’s “memory 328” may store data received from the eyewear “and/or terminal 130,” as well as instructions to process the received data. *Id.*, ¶ 53. While these passages do discuss processing data, and not merely displaying it, they do not identify any terminal information being used with information from the eyewear in

the particular operations Petitioners map to “determining a context of the user.”

Petitioners’ expert’s conclusion does not bridge that gap. He collects Liu’s disclosures concerning eyewear-generated context information, terminal sensors, and cross-device communication, then concludes that “[i]n view of these disclosures,” Liu determines context using data from both sources. Ex. 1003 [Feland-Decl.] ¶ 211. But the conclusion does not explain where Liu teaches the disputed use of a terminal sensor’s data in the identified determinations. Restating the claimed relationship is not evidence that the reference discloses it. *See Xerox*, IPR2022-00624, Paper 9, 15-16; Section II.B, *supra*.

Nor would inherency supply the missing use. Liu’s disclosure that its terminal may exchange data with its eyewear does not show that any particular determination ***necessarily*** uses sensor information from both devices. *See* Ex. 1006 [Liu] ¶¶ 23, 30. Inherency requires necessity, not possibility or probability. *PAR Pharm.*, 773 F.3d at 1195-96. As Dr. Davies explains:

A POSITA would distinguish between a component’s general ability to receive or process data and the inputs used for a particular determination. Liu makes that distinction. For movement and orientation, Liu identifies IMU signals from its sensor module 350. Ex. 1006 [Liu] ¶ 47. For trajectory, it identifies GPS signals from its locating module 370 together with movement data. *Id.*, ¶ 48. For movement and accident determinations involving the surroundings, it

identifies imagery from its imaging module 360 and, for the accident determination, movement data. *Id.*, ¶¶ 49-50. Those descriptions of the inputs tell a POSITA what data the disclosed determinations use.

Liu’s paragraph 30 does not expressly add terminal data to those determinations. It states more generally that Liu’s controller may exchange data with its terminal and process or store the received data. Ex. 1006 [Liu] ¶ 30. A POSITA would not understand that general capability, without more, to establish that a determination described as using data from Liu’s eyewear also uses data from a sensor in its terminal.

Ex. 2007 [Davies-Decl.] ¶¶ 86-87.

Petitioners alternatively argue that, “[t]o the extent PO argues Liu does not expressly state that eyewear- and terminal-sensor data are jointly used in the same context determination, using them together would have been obvious.” Pet., 54 (citing Ex. 1003 [Feland-Decl.] ¶ 212). Petitioners reason that Liu discloses “overlapping, complementary context-related sensor categories” in the eyewear and terminal, *id.*, 54, and that a POSITA would evaluate the two sources together because they provide “complementary information about the same exercise event from different device locations and sensing perspectives.” *Id.*, 55 (citing Ex. 1003 [Feland-Decl.] ¶ 212). As one example, Petitioners propose evaluating eyewear movement or orientation data together with terminal position or location, image, or environmental data “to better determine context.” *Id.* (citing Ex. 1003 [Feland-

Decl.] ¶ 212). Petitioners further predict improved “accuracy, reliability, and completeness” and reduced ambiguity from missing or noisy measurements. *Id.* (citing Ex. 1003 [Feland-Decl.] ¶ 212). Dr. Davies disagrees with this generalized prediction of improvement: he explains that the benefits of additional data depend on the sources and the operation, while combining the data entails design work and communications, processing, storage, and power costs in ways that Petitioners and their expert do not address (let alone show) in the specific context of Liu. Ex. 2007 [Davies-Decl.] ¶¶ 44, 54-58, 80, 89-90.

Liu already combines the relevant categories of information using data generated within its eyewear. Its paragraph 48 combines GPS information from Liu’s locating module 370 with movement information to determine trajectory. Ex. 1006 [Liu] ¶ 48. Its paragraph 50 combines movement information with environmental imagery from Liu’s imaging module 360 in determining whether an accident occurred. *Id.*, ¶ 50. The question is therefore not whether those categories of information are complementary; Liu already uses them together. The question is why and how a POSITA would be motivated to involve Liu’s terminal in these determinations. Petitioners’ general account of complementary data does not answer that question.

Petitioners’ expert also invokes different “device locations and sensing perspectives.” Ex. 1003 [Feland-Decl.] ¶ 212. But he does not connect a particular

difference in those “perspectives” to Petitioners’ proposed modification of Liu. Labeling the sensor inputs as “perspectives” does not explain what the proposed use of Liu’s terminal as an input would contribute to Petitioners’ determination, or why a POSITA would be motivated to modify Liu in that way. *See TQ Delta*, 942 F.3d at 1359-60; 37 C.F.R. § 42.65(a).

Liu’s other disclosures address different considerations. Paragraph 23 states that Liu’s terminal may share collection, storage, or processing so the eyewear can be made “smaller and lighter.” Ex. 1006 [Liu] ¶ 23. That supports distributing functions between devices, but does not itself specify why a determination should use sensor information from both. Likewise, Petitioners’ expert invokes Bluetooth data sharing, Ex. 1003 [Feland-Decl.] ¶ 203, and conventional processing, *id.*, ¶¶ 204, 213. But these disclosures at most relate to the feasibility of what a motivated POSITA would have been able to do, not why a POSITA would have been motivated to select the terminal information Petitioners rely upon in their claim mapping. *See Belden*, 805 F.3d at 1073 (distinguishing capability from motivation).

Petitioners therefore do not establish “determining a context” using “the first data and the second data” in Ground 3. Ground 3 expressly relies on its claim 1 context analysis for claim 6. Pet., 62. Ground 4 likewise relies on the claim 1 analysis for limitations 11[e]-11[i], while Shan is added for the separate “voice interface” requirement. *Id.*, 63-69. The same deficiency thus applies throughout

Grounds 3-4. Grounds 7-8 add Lisy, which is addressed below.

2. Lisy Does Not Cure The Defects In Petitioners’ Showing Of “determining a context of the user, wherein determining uses the first data and the second data” (Grounds 7-8).

Ground 7 adds alleged teachings from Lisy about combining sensor data to Liu. Petitioners cite their expert’s proposal to apply Lisy’s fusion techniques to Liu “so that the eyewear-sensor data and external-sensor data were jointly used in analyzing user state and determining context.” Ex. 1003 [Feland-Decl.] ¶ 287 (cited at Pet., 78). As with the Asukai combination, the question is whether Petitioners explain how Lisy’s teaching supports their proposed use of information from Liu’s terminal. *See* Section II.A.3, *supra*.

Lisy expressly teaches pairing its head-mounted system with other worn devices and combining their sensor data. Its system “fuses data from the sensors on the various devices.” Ex. 1008 [Lisy] 4:2-9. Lisy also describes processing and combining its physiological and environmental sensor signals. *Id.*, 51:49-52:49, Figs. 13-14. But Petitioners fail to explain the proposed application of those teachings to Liu’s operations, including those that *already* combine information from sensors within Liu’s eyewear without input from Liu’s terminal. Ex. 1006 [Liu] ¶¶ 47-50; *see* Section II.C.1, *supra*. Petitioners must explain how the proposed combination—not merely a feature of Lisy in isolation—renders the challenged claims unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed.

Cir. 2016).

Petitioners contend that applying Lisy would have “predictably enhanced” Liu’s determinations. Pet., 78 (citing Ex. 1003 [Feland-Decl.] ¶¶ 287, 289). Petitioners’ expert asserts that better analysis and determinations would result from combining the data in the proposed way. See Ex. 1003 [Feland-Decl.] ¶¶ 287, 289. But those predictions do not explain what Liu’s terminal information would add to the movement, location, or emergency determinations they identify. See Ex. 2007 [Davies-Decl.] ¶ 93. The mere characterization of a proposed combination as an improvement does not explain why the proposed terminal input would produce it. See *ActiveVideo*, 694 F.3d at 1327-28 (rejecting testimony that failed to explain why the specific references would be combined “in the way the claimed invention does”).

Petitioners’ expert separately relies on Lisy’s teachings concerning placement of sensors on the head. He cites what Lisy terms “natural anchor points” for sensors, Ex. 1003 [Feland-Decl.] ¶¶ 288, 290 (citing Ex. 1008 [Lisy] 2:27-44), and Liu’s placement of its sensor module at “a temple or brow bar,” *id.*, ¶ 290 (quoting Ex. 1006 [Liu] ¶ 28). This discussion addresses where to mount sensors on Liu’s eyewear. It does not explain how or why a POSITA would have been motivated to use information from Liu’s terminal in the identified determinations. Ex. 2007 [Davies-Decl.] ¶ 93.

Petitioners therefore do not establish “determining a context of the user,

wherein determining uses the first data and the second data” in Ground 7, or cure the same deficiency in Ground 8, which incorporates that analysis. Pet., 79; *see also* Ex. 2007 [Davies-Decl.] ¶ 94.

III. CONCLUSION

Petitioners have not shown a reasonable likelihood of prevailing as to any challenged claim. Patent Owner therefore requests that institution be denied.

Respectfully submitted,

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Colette Woo, *pro hac vice* forthcoming

LOWENSTEIN & WEATHERWAX LLP

Date: September 23, 2026

CERTIFICATE OF COMPLIANCE

This Patent Owner Preliminary Response (the “POPR”) consists of 9,147 words, excluding table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The POPR complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Respectfully submitted,

/Michael Cosley/

Date: September 23, 2026

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the following documents were served
by electronic service, by agreement between the parties, on the date below:

PATENT OWNER'S PRELIMINARY RESPONSE

EXHIBIT 2007

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Respectfully submitted,

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