

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioners

v.

CHIAN CHIU LI,

Patent Owner

Case No. IPR2023-00560

Patent No. 11,016,564 B2

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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I. INTRODUCTION

Through his Patent Owner Response, Li advances nothing more than the arguments from his preliminary response the Board has already rejected. Li has not provided new arguments or supplemented his POPR arguments with a single piece of new evidence to address the flaws highlighted by the Board. In short, Li has not given the Board any reason to reconsider its preliminary findings and determination at Institution. Li's failure to do so is reason alone for the Board to reaffirm its initial determination and cancel the Challenged Claims.

More importantly, as the Board correctly observed, Li's arguments rest on an impermissibly narrow scope of the Challenged Claims and argue for a reading of the '564 Patent and prior art that is not supported in fact or law. As explained below, the Board should reaffirm its preliminary finding and cancel the Challenged Claims as obvious in view of Ryu, Hodge, and Stalling.

II. THE "ONLY AFTER" LIMITATION DOES NOT PRECLUDE THE CLAIMED ELECTRONIC DEVICE FROM BEING CAPABLE OF PERFORMING PROXIMITY DETECTIONS

Li characterizes the '564 Patent as describing three distinct embodiments of its electronic device, each having a separate and—critical to Li's arguments—*unique* detecting functionality: Scenario #1, where gaze detection is performed continuously without a trigger; Scenario #2, where gaze detection is performed after the user approaches the device or moves the device; and Scenario #3, where gaze

detection is performed **only after** the user makes physical contact with or physically moves the device, but not when a user approaches the device. *See* POR, 2–4. Li's responsive arguments hinge on the central contention that the “performing gaze detection **only after** detecting the act” limitation precludes the device from having *the capability* to perform gaze detection continuously or after a user approaches, thereby restricting the claims to devices that are *only capable* of operating in Scenario #3. *See generally id.* at 2–3.

As explained below, Li's argument fails on the facts and the law.

A. Li's Three Scenarios are not Supported by the '564 Patent

All of the arguments in Li's POR rest on his assertion that the invention claimed in the Challenged Claims must be **incapable of** performing gaze detection after detecting any act **except** those acts involving physical contact with, or physical movement of, the electronic device. *See generally*, POR, at 2–5. The basis for that assertion is Li's characterization of the '564 Patent's teachings and its three purported gaze detection scenarios. *Id.* More specifically, Li argues that the '564 Patent distinguishes between “Scenario #2,” where gaze detection is performed after detecting **either** a proximity event or shaking the device, and “Scenario #3,” where gaze detection is performed **only after** an act that involves physical contact with or movement of the device. POR, at 2–3. Li then claims that because the Challenged Claims are directed to Scenario #3 only, the Challenged Claims are also limited to a

method/device that only is capable of Scenario #3 detections. *Id.* Li's assertions and the bases supporting them are not supported by the '564 Patent's disclosure.

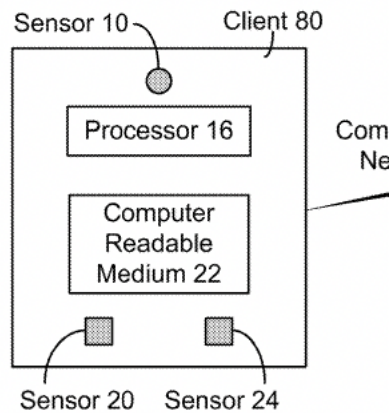
First, Li's characterization of the '564 Patent's detection scenarios is incorrect. While Li correctly characterizes the '564 Patent's "Scenario #1" where gaze detection is performed continuously, his "Scenario #2" and "Scenario #3" are not supported by the '564 Patent. Instead, the '564 Patent describes four scenarios (relevant to this proceeding):

1. Scenario #1 – Gaze detection is performed continuously (Ex. 1001, 4:29–6:30);
2. Scenario #2 – Gaze detection is performed after a user approaches the device (proximity event) (*Id.*, at 6:31–35);
3. Scenario #3 – Gaze detection is deactivated when sensor **24** detects the device's position is unstable (*Id.*, at 6:43–46); and
4. Scenario #4 – Gaze detection is performed when sensor **24** detects the device is shaken or physically moved in a number of ways (*Id.*, at 6:58–7:14).

Contrary to Li's assertion, the '564 Patent does not distinguish between a scenario that performs gaze detection after *either* a proximity event or shaking the device and a scenario that performs gaze detection *only after* shaking the device. Instead, the '564 Patent describes *distinct scenarios* for each type of detection: Scenario #2, where gaze detection is performed after a proximity event, and Scenario #4, where gaze detection is performed after detecting the device was shaken or physically moved. *Id.* Thus, the only purported factual basis for Li's narrow interpretation of

the Challenged Claims is wrong.

The '564 Patent's express teachings confirm that Li's characterization of the Challenged Claims is indisputably incorrect. The '564 Patent teaches that its electronic device (i.e., client **80**) includes the *capability* to perform each of Scenarios #1–#4. The '564 Patent depicts an exemplary block diagram of client **80** in Figure 1:



Ex. 1001, at Fig. 1. As shown, the mobile device **80** may include each of sensors **10**, **20**, and **24**, where sensor **10** “tracks the eye of a user[,]” sensor **20** “functions as a motion detector[,]” and sensor **24** “detect[s] its own movement by sensing acceleration, deceleration, and rotation.” *Id.*, at 3:65, 4:12–13, 4:22–24. Moreover, sensor **10** may also perform the motion detector functionality of sensor **20**, “which is desirable when small size is required.” *Id.* at 4:18–21. Thus, the *only* embodiment of the electronic device depicted in the '564 Patent is equipped with each of sensors **10**, **20**, and **24**, confirming it has the *capability* to perform all four scenarios.

Finally, the '564 Patent also expressly teaches that both proximity events and shaking/physical movement events are ***user inputs*** to control the device. Ex. 1001, at 6:35–36 (“[P]hysical movement of a user may be considered as a user input to control the device”), 6:58–59 (“Let us assume shaking is selected as an input signal”), 7:13–20 (“Besides shaking, there are many other acts or other physical movements which may be employed as the first step . . . For instance, tapping, scribbling or sliding on a touch-sensitive screen, or tapping on [a] certain area of a device where sensitive sensors may be placed, may also be incorporated as a first indicator”). The '564 Patent even teaches that selection of the specific user input “may depend on a specific app or program to specify what kind of physical move may be taken as an input for the device” and that when “there is more than one option, a user may select a method which may seem more convenient and effective.” *Id.* at 7:20–24. Thus, a POSITA would have understood that the '564 Patent described an electronic device that allowed a user to (1) enter no user inputs resulting in a device that operates in Scenario #1, (2) enter the physical movement of a user as the user input resulting in a device that operates in Scenario #2, or (3) enter a physical movement of the device as the user input resulting in a device that operates in Scenario #4. Ex. 1010, ¶¶ 4–7.

In sum, because Li's unsupported narrow interpretation of the Challenged Claims, if adopted, “would omit a disclosed embodiment”—in fact, ***the only***

disclosed embodiment shown in Figure 1—and because Li has no “clear evidence to the contrary[,]” the Board should reject Li’s arguments and his narrow interpretation of the Challenged Claims. *See Apple Inc. v. Corephotonics, Ltd.*, 81 F.4th 1353, 1359 (Fed. Cir. 2023) (citing *Sequoia Tech., LLC v. Dell, Inc.*, 66 F.4th 1317, 1328 (Fed. Cir. 2023)).

B. Properly Construed, the Challenged Claims do not Preclude the Capability to Detect Proximity Events

Beyond the ’564 Patent’s express teachings that support Apple’s understanding of the alleged invention, the plain language of the Challenged Claims further supports Apple’s interpretation. As a threshold matter, each of independent Claims 1, 8, and 14 recites a method or device “comprising” the limitations enumerated. Under black letter law, this “creates a presumption that the body of the claim is open” and “that the claim does not exclude additional unrecited elements.” *Crystal Semiconductor Corp. v. TriTech Microelectronics Intern., Inc.*, 246 F.3d 1335, 1348 (Fed. Cir. 2001); *Solvay S.A. v. Honeywell Int’l, Inc.*, 742 F.3d 998, 1005 (Fed. Cir. 2014) (“The well-established meaning of ‘comprising’ in a method claim indicates that the claim is open-ended and allows for additional steps.”). As explained above, Li’s only purported support for his narrow interpretation of the Challenged Claims is wrong. For that reason alone, Li cannot rebut the presumption that the Challenged Claims are open-ended. Moreover, the Challenged Claims themselves confirm they should be treated as open-ended.

The first limitation of the independent claims requires “detecting an act,” where the act is expressly defined as those “made by a user” and “involving physical contact with the electronic device or physical movement of the electronic device[.]” Ex. 1001, at Claim 1. No language in this limitation precludes the device from being able to detect other, unclaimed acts, only that the device must *at least* be able to detect the specific act recited.

After defining what detection act the device must perform, the claims then require “performing gaze detection only after detecting the event.” *Id.*, at Claims 1, 8, 14. Contrary to Li’s argument, the “only after” language results in a **temporal limitation**, not a negative structural limitation. *Id.*, Claim 1. The structure of the sentence confirms that “only after” is a temporal clause that informs the reader when the claimed “performing” occurs: “only after” detecting the act. *Id.*

Thus, because the Challenged Claim rely on “comprising” in their preambles, and because nothing in the Challenged Claims expressly forecloses performing other detection events, as long as a prior art teaches a device that “can—and does—perform the claimed [] method, it is of no consequence that it can also perform other [] methods.” *See Boesen v. Garmin Int’l, Inc.*, 455 F. App’x 974, 977 (Fed. Cir. 2011) (“Both independent claims 1 and 10 are open ended ‘comprising’ claims. . . . The district court correctly explained that as long as the [accused] navigation system

can—and does—perform the claimed input method, it is of no consequence that it can also perform other input methods.”).

III. RYU IN VIEW OF HODGE RENDERS OBVIOUS CLAIMS 1, 8, AND 14

A. Li's Recognition of Ryu's Express Teachings is Fatal to Li's Opposition Arguments

Li's overly narrow characterization of the Challenged Claims leads him to make a number of key admissions regarding Ryu's teachings. Specifically, Li acknowledges that Ryu discloses (1) a device having a movement sensor; (2) when the movement sensor senses the device has been rotated, it changes to active mode and executes an application relating to the front camera; and (3) determines whether the user looks at the device and, if so, the processor controls the device to perform a function. POR, at 6. Following his recitation of these key teachings, Li readily admits that Ryu “discloses gaze detection is performed **after** detecting an act.” *Id.* Under the proper interpretation of the Challenged Claims discussed above, this admission confirms that Apple's obviousness mapping, as laid out in the Petition, discloses the limitations of the Challenged Claims. *See, e.g.*, Pet., at 17–24. Li's arguments to the contrary—already once rejected by the Board—do nothing to alter this conclusion.

First, Li repeats his contention that Ryu's teaching of performing gaze detection **after** detecting an act is insufficient to satisfy the claim limitation of

performing gaze detection **only after** detecting an event. POR, at 6. Li's contention is wrong on the law and the facts. It is well-established that "prior art references need not parrot precisely the same words as in the claim to support an obviousness determination." *In re Miller*, No. 21-1599, 2022 WL 594417, at *3 n.2 (Fed. Cir. Feb. 28, 2022) (citing *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 727 (Fed. Cir. 2002) and *Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1070 (Fed. Cir. 2017)); see also *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) ("[T]he reference need not satisfy an *ipsissimis verbis* test[.]"). Instead, the question is whether a POSITA, reading the prior art, would have envisaged the claimed arrangement. *Microsoft Corp.*, 878 F.3d at 1068. As Li acknowledges, Ryu expressly teaches that its device does not perform gaze detection **unless and until** the device detects the act—in other words, **only after** detecting the act. POR, at 6. To the extent there remains any doubt as to Ryu's express teachings, Dr. Bederson also confirmed this is how a POSITA would have understood Ryu's teachings. Pet., at 24; Ex. 1003, Dec., at ¶¶ 58–59. Li's conclusory assertion to the contrary, lacking supporting expert opinion, cannot rebut Apple's intrinsic and extrinsic evidence.

Second, Li again attempts to rely on a distinct embodiment in Ryu that includes a proximity sensor to suggest that a POSITA "would have understood that the device 100, like the device 1100, **may** also have a proximity sensor." POR, at 6–7 (emphasis added), 8 (arguing that Ryu is silent as to whether it has a proximity

sensor or may include other triggers). But as the Board correctly observed at Institution, Li's argument based on the embodiment of Ryu's device containing a proximity sensor "is not supported by the record." ID, at 8. "When Ryu discloses sensor 1102 that may include both a proximity sensor and a motion sensor, it does so as part of 'another exemplary embodiment,' thus distinguishing that approach from Ryu's primary embodiment, which does not include a proximity sensor. [...] Similarly, Patent Owner's argument that rely on Ryu's asserted behavior in response to a proximity sensor are inapposite." *Id.*

The Board was correct. In its Petition, Apple relied on Ryu's embodiment where the electronic device contained sensor 101 having a plurality of sensors for sensing various types of movement of the device 101 (e.g., a gyro, an accelerometer, a magnetic field sensor, an orientation sensor a GPS sensor, and a rotation number sensor). Pet., at 17. Li has identified no support in Ryu or through expert testimony to support his bare assertion that this embodiment "may" also include a proximity sensor, especially in light of Li's express concession that Ryu is "silent" as to whether device 100 has a proximity sensor or includes other triggers. POR, at 8.

Regardless, even if Ryu's embodiment relied on by Apple did include a proximity sensor either as part of sensor 100 or as a separate component, that would not negate Apple's obviousness mapping. As explained above, a multi-sensor device including an eye tracking, proximity, and motion sensor is *exactly* what the '564

Patent contemplates and expressly discloses. *See supra* Section II. Thus, it is immaterial whether Ryu also discloses the additional capability to detect other types of events because the Challenged Claims do not require the electronic device be *incapable* of performing gaze detection after detecting other types of events (e.g., proximity), only that the device *at least* performs gaze detection only after detecting physical contact or movement with the device. *Id.*

Finally, because the intrinsic and extrinsic evidence conclusively establish that Ryu expressly discloses the “only after” limitation, Li’s remaining arguments—that Ryu does not inherently disclose the “only after” limitation or that it would not be obvious to modify Ryu to perform gaze detection “only after” detecting the event—may be summarily rejected, as they each require a lack of express disclosure in the prior art. POR, at 7–10.

B. Li’s Conclusory and Unsupported Criticisms of Apple’s Petition do not Undermine Apple’s Persuasive Showing of Obviousness

Turning to obviousness, Li dedicates just five pages of his POR to Apple’s actual obviousness grounds. POR, at 13–18. But Li’s only arguments against Apple’s grounds are largely the same arguments it made against Ryu individually. POR, at 13–17. And as before, Li never explains *why* Apple’s characterizations are inaccurate, nor does Li provide even one citation to Ryu to support his claims. *Id.* Thus, as a threshold matter, Li’s assertions, made without explanation and lacking supporting evidence, “do[] not undermine [Apple’s] persuasive showing[,]” and

should be rejected on that basis alone. *See, e.g., Home Depot U.S.A., Inc. v. Lynk Labs, Inc.*, IPR2021-01368, *Final Written Decision*, Paper 49, at 22, 26 (noting that the Patent Owner's assertions, made without a supporting explanation, do "not undermine Petitioner's persuasive showing," and, as a result, finding the Challenged Claims unpatentable).

C. Apple's Obviousness Mappings are Supported by Ryu's Teachings and Dr. Bederson's Expert Testimony

Li argues that because Ryu does not state *verbatim* Apple's assertions in its Petition, Apple's assertions fail. POR, 13–17. As already explained, the law is not so strict. *See supra* Section III.A (citing *Miller*, 2022 WL 594417, at *3 n.2 (citations omitted) *Gleave*, 560 F.3d at 1334. Nonetheless, each of Apple's challenged assertions finds express support in Ryu's disclosure and, when necessary, in the supporting testimony of Dr. Bederson.

First, Li contends that Apple did not adequately support its argument in its Petition that Ryu's front camera is activated "to obtain an image of the user" and then "determines whether the user is looking at the device 100." POR, at 14, 15 (same). As explained above, Apple supported its characterization with Ryu's Figure 8, showing the camera obtaining an image of the user, and Ryu's express teaching that its camera determines the user is looking at the device by performing face recognition or eye activation on the user's *image*. *See supra* Section III.A; Pet., at 22–24 (citing and quoting Ryu's express teachings to support its obviousness

mapping).

Second, Li's claim that Apple's characterization that Ryu activates its camera "to determine if a user is looking at the device prior to performing a function" is not supported by Ryu's teaching is rebutted on the very page of the Petition he cites. *Id.* at 7 (quoting Ryu's teaching "that the processor of the device may 'determine[] whether the user looks at the device 100 **before performing the preset function.**'") (emphasis added).

Finally, Li relies on these imagined mischaracterizations of Ryu's teaching to claim that Apple's conclusion that "'a PHOSITA would have understood that Ryu teaches that gaze detection is performed **only after** detecting the act as claimed' is defective and wrong" because it lacks support. POR, at 14, 16. But that conclusion is supported by Ryu's express teachings—including Ryu's aforementioned teachings that Apple accurately characterized—and *Dr. Bederson's unrebutted supporting testimony*. Pet., at 20–24.

Apple's obviousness contentions and characterizations of Ryu's teachings are well-explained and supported by the evidence of record. Because Li has not meaningfully contested Apple's evidence and arguments, the Board should conclude that Apple has met its burden of establishing that a POSITA would have understood that Ryu teaches that gaze detection is performed only after detecting the act as claimed. *See, e.g., Apple Inc. v. Zipit Wireless, Inc.*, IPR2021-01124, *Final Written*

Decision, Paper 17, at 19–24 (PTAB Apr. 20, 2023) (holding that Petitioner's "persuasive analysis and citation[s] mapping the limitations" to the prior art, unchallenged by Patent Owner, were sufficient to meet Petitioner's burden that the challenged claims were unpatentable).

D. Li has not Challenged that a PHOSITA Would Have Been Motivated to Combine Hodge and Stallings with Ryu as Proposed by Apple

Finally, Li argues that, like Ryu, Hodge and Stallings fail to disclose performing gaze detection "only after" detecting the act. POR, at 11–13. But as the Board correctly observed, Apple did not rely on either Hodge or Stallings for this limitation. ID, at 6 (noting Apple relied on Hodge only for gaze detection that specifically recognizes an authorized user), 9 (noting Apple relied on Stallings RSS feeds as a service providing multiple content items to be displayed on a device). So whether Hodge or Stallings teach this limitation is of no moment to Apple's obviousness ground. *See Provisur Techs., Inc. v. Weber, Inc.*, 50 F.4th 117, 125 (Fed. Cir. 2022) (holding the Board erred in holding the challenged claims patentable where the Board focused only on the teachings of one prior art reference, even though the Petition "did not rely on [that reference] as teaching the claimed" arrangement, but instead relied on a secondary reference as teaching that arrangement).

Nor has Li challenged Apple's assertion that a POSITA would have been

motivated and found it obvious to combine Ryu with Hodge and/or Ryu with Hodge and Stalling as proposed by Apple. POR, at 13–18. Thus, Apple's arguments on the motivation to combine, supported by Dr. Bederson's uncontested expert testimony, are un rebutted and satisfy Apple's burden of showing the Challenged Claims are obvious, and the Board should order the Challenged Claims unpatentable. *See, e.g., KEYnetik, Inc. v. Samsung Elecs. Co., Ltd.*, 841 F. App'x 219, 227 (Fed. Cir. 2021) (affirming PTAB's determination of a motivation to combine because Petitioner's proposed motivation "was 'un rebutted' and supported by 'convincing' expert testimony"); *Lightspeed Commerce & Clover Network, LLC v. Cloudfchange, LLC*, IPR2022-00997, *Final Written Decision*, Paper 29, at 44–45 (PTAB Oct. 19, 2023) (ruling that Petitioner's "un rebutted contentions and supporting evidence" of a motivation to combine "supports Petitioner's challenge to claim 8 on this basis alone").

IV. CONCLUSION

In view of the foregoing, Petitioner respectfully requests the Board find all Challenged Claims unpatentable.

Respectfully submitted,

BY: /s/ Adam P. Seitz

Adam P. Seitz, Reg. No. 52,206

Clifford T. Brazen, Reg. No. 72,927

Paul R. Hart, Reg. No. 59,646

COUNSEL FOR PETITIONER

APPENDIX OF EXHIBITS

Exhibit 1001	U.S. Patent No. 11,016,564 (“’564 Patent”)
Exhibit 1002	File History of U.S. Patent No. 11,016,564 (“ <i>File History for ’564 Patent</i> ”)
Exhibit 1003	Declaration of Benjamin B. Bederson, PhD (“ <i>Dec.</i> ”)
Exhibit 1004	U.S. Patent No. 10,540,013 to Ryu et al. (“ <i>Ryu</i> ”)
Exhibit 1005	U.S. Patent Publication No. 2010/0079508 to Hodge et al. (“ <i>Hodge</i> ”)
Exhibit 1006	U.S. Patent No. 8,331,992 to Stallings et al. (“ <i>Stallings</i> ”)
Exhibit 1007	U.S. Patent Publication No. 2013/0015946 to Lau et al. (“ <i>Lau</i> ”)
Exhibit 1008	File History of U.S. Patent No. 10,540,013 (“File History for ’013 Patent”)
Exhibit 1009	Order Extending Patent Case Schedule
Exhibit 1010	Supplemental Declaration of Benjamin B. Bederson, PhD

CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. §42.24 that the foregoing Petitioners' Reply to Patent Owner's Response, excluding any table of contents, mandatory notices under 37 C.F.R. §42.8, certificates of service or word count, or appendix of exhibits, contains 3,549 words according to the word-processing program used to prepare this document (Microsoft Word).

Dated: January 10, 2024

BY: /s/ Adam P. Seitz
Adam P. Seitz, Reg. No. 52,583
ATTORNEY FOR PETITIONER

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on January 10, 2024, Petitioners' Reply to Patent Owner's Response was served via electronic service on the Patent Owner:

Chian Chiu Li (xccli2002@yahoo.com)

BY: /s/ Adam P. Seitz
Adam P. Seitz, Reg. No. 52,583
ATTORNEY FOR PETITIONER