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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* WEIFENG ZHOU, NORMAN WEYRICH, and  
JIA HE

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Appeal 2019-000229  
Application 13/462,826  
Technology Center 2400

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Before ERIC S. FRAHM, JENNIFER S. BISK, and  
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

DIRBA, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>2</sup> seeks review of the Examiner's rejection of claims 1–5, 11–15, 17, 26–28, and 30–31. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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<sup>1</sup> This Decision uses the following abbreviations: “Spec.” for the original Specification, filed May 3, 2012; “Final Act.” for the Final Office Action, mailed December 6, 2017; “Appeal Br.” for Appellant’s Appeal Brief, filed May 7, 2018, which includes an appendix of the claims (“Claims App.”); “Ans.” for Examiner’s Answer, mailed August 7, 2018; and “Reply Br.” for Appellant’s Reply Brief, filed October 8, 2018.

<sup>2</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. According to Appellant, the real party in interest is Harman International Industries, Incorp. Appeal Br. 1.

## BACKGROUND

Appellant's disclosed embodiments and claimed invention relate to a multiple-view virtual camera system that displays images "configured according to image-related parameters input by a user." Abstract.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A multiple-view camera system for a motor vehicle, the multiple-view camera system comprising:

one or more image source units;

an image processing unit including an electronic processing component and being in signal communication with each of the one or more image source units, the image processing unit being configured to receive multiple images from each of the one or more image source units;

a parameter setting unit including memory and being in signal communication with the image processing unit, configured to transmit to the image processing unit, image-related parameters input by a user of the multiple-view camera system, where the image-related parameters are utilized by the image processing unit to generate images including a first image of a motor vehicle for display to the user; and

a display in signal communication with the image processing unit, configured to display to the user the first image of the motor vehicle generated by the image processing unit,

where the image-related parameters are used to position a virtual camera of the multiple-view camera system relative to the motor vehicle,

where the virtual camera is translated along each of its three axes by one of a single-touch gesture and a multi-touch gesture that is input by the user,

*where a type of the multi-touch gesture is determined at least on a ratio of a first magnitude of a horizontal movement*

*and a second magnitude of a vertical movement of at least one finger in motion on a touch screen, and*

*where the ratio of the first magnitude of the horizontal movement and the second magnitude of the vertical movement is compared to predetermined thresholds to determine whether the multi-touch gesture is one of a multi-touch vertical gesture and a multi-touch horizontal gesture.*

Claims App. 1 (emphases added).

### REJECTIONS

R1. Claims 1–2, 5, 11–13, 26–28, and 30–31 stand rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Lee (WO 2006/022630 A1, published Mar. 2, 2006), Okamoto (US 7,307,655 B1, issued Dec. 11, 2007), Bratton (US 2010/0304731 A1, published Dec. 2, 2010), Mangum (US 8,769,438 B2, filed Dec. 21, 2011, issued Jul. 1, 2014), and Sherwani (US 7,870,496 B1, issued Jan. 11, 2011). Final Act. 3–16.

R2. Claims 3, 14, and 15 stand rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Lee, Okamoto, Bratton, Mangum, Sherwani, and Chinomi (US 2007/0003108 A1, published Jan. 4, 2007). Final Act. 16–17.

R3. Claims 4 and 17 stand rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Lee, Okamoto, Bratton, Mangum, Sherwani, and Lee '730 (US 2012/0249730 A1, filed Mar. 31, 2011, published Oct. 4, 2012). Final Act. 18–19.

### ANALYSIS

We review the appealed rejections for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

To the extent Appellant has not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. 37 C.F.R. § 41.37(c)(1)(iv).

We have considered all of Appellant's arguments and any evidence presented. We highlight and address specific findings and arguments for emphasis in our analysis below.

*Obviousness Rejection R1 of Claims 1–2, 5, 11–13, 26–28, and 30–31*

The Examiner rejects claims 1–2, 5, 11–13, 26–28, and 30–31 as obvious over Lee, Okamoto, Bratton, Mangum, and Sherwani. Final Act. 3–16. Appellant argues claims 1–2, 5, 11–13, 28, and 31 together as a group (*see* Appeal Br. 3–7), and Appellant presents separate arguments directed to dependent claims 26 and 30 as a group (*see id.* at 7–10, 14) and dependent claim 27 (*see id.* at 11–14). Therefore, consistent with the provisions of 37 C.F.R. § 41.37(c)(1)(iv), we limit our discussion to independent claim 1 and dependent claims 26 and 27. Independent claim 12 and dependent claims 2, 5, 11, 13, 28, and 31 stand or fall with claim 1; dependent claim 30 stands or falls with claim 26.

*Claim 1*

Claim 1 recites “a type of the multi-touch gesture is determined at least on a ratio of a first magnitude of a horizontal movement and a second magnitude of a vertical movement of at least one finger in motion on a touch screen.” Claims App. 1 (the “determining limitation”). The claim further recites “the ratio . . . is compared to predetermined thresholds to determine whether the multi-touch gesture is one of a multi-touch vertical gesture and a multi-touch horizontal gesture.” Claims App. 1 (the “comparing

limitation”). The Examiner found that Mangum teaches the determining limitation and that Sherwani teaches the comparing limitation. Final Act. 6–7 (citing Mangum, Fig. 3B, 14:37–15:15; Sherwani, Fig. 6B, 13:5–26).

Appellant argues that the references fail to teach or suggest the comparing limitation. Appeal Br. 3–7. According to Appellant, Sherwani, “[a]t best,” uses a threshold to determine “whether touch points are translated horizontally or vertically in the same direction,” and Appellant argues Sherwani fails to “employ *a ratio*” or to “*compare the ratio to predetermined thresholds*” to determine the type (i.e., vertical or horizontal) of multi-touch gesture. *Id.* at 4.

Appellant’s arguments do not persuade us of Examiner error. The Examiner found that Mangum teaches determining a type of gesture based on a ratio of a first magnitude of a horizontal movement and a second magnitude of a vertical movement. Final Act. 6 (pointing to Mangum for the determining limitation). Appellant neither responds to this finding nor addresses the teachings of Mangum. *See generally* Appeal Br.; Reply Br. Because Appellant alleges (and we perceive) no error in the Examiner’s finding that *Mangum* teaches the claimed ratio, we are not persuaded by Appellant’s argument that *Sherwani* fails to teach this feature.

Moreover, we agree with the Examiner that the determining and comparing limitations are taught or suggested by the combination of Mangum and Sherwani. In particular, Mangum describes different types of finger gestures that can be accepted from a touch-screen. *See* Mangum 13:14–37 (describing examples of figure gestures). According to Mangum, “the horizontal and vertical components [of a gesture] may be used to determine a direction” of the finger gesture. 14:66–67. As an example,

Mangum describes a “substantially horizontal gesture.” *Id.* at 14:67–15:6. According to Mangum, a “critical angle” can be used “to determine whether a swipe gesture . . . should be considered a horizontal navigation command, or a vertical command.” *Id.* at 15:51–55. In particular, if the angle is less than the critical angle, the swipe is considered to be a horizontal gesture; if it is greater, the swipe is considered to be vertical. *Id.* at 15:55–64; *see* Fig. 4B (illustrating critical angle 450, horizontal swipe 440, and vertical swipe 430). Mangum’s critical angle teaches both a ratio of a first magnitude of horizontal movement and a second magnitude of vertical movement and a determination of a type of gesture based on that ratio.

Sherwani tracks multiple contact points (or “touch points”) simultaneously. Sherwani 6:36–43. When the multiple touch points are “moved in the vertical direction, the motion may be interpreted as a vertical scroll event,” and when they are moved horizontally, it is interpreted as a horizontal scroll event. *Id.* at 9:7–11; *see id.* at 9:11–14 (also describing panning which can “occur in all directions . . . rather than just the horizontal and vertical directions”). According to Sherwani, “there may be a threshold for determining whether both touch points are being translated horizontally in the same direction,” and “there may be a threshold for determining whether both touch points are being translated vertically in the same direction.” *Id.* at 13:5–26. Because the thresholds are used when the touch points have moved (but the distance between them has remained substantially constant),<sup>3</sup> we read Sherwani as using these thresholds to

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<sup>3</sup> Sherwani first detects two-touch movement (step 660). Sherwani, Fig. 6B. Then, Sherwani determines whether the movement is a zoom gesture (in step 662) prior to determining whether the movement is a horizontal swipe (step 668) or a vertical swipe (step 672). *Id.*; *see id.* at 12:33–44 (determining

determine the *direction* of movement (e.g., horizontal or vertical). *See id.* at 5:67–6:4 (explaining that touchscreen recognizes position of touch over the display, which is interpreted by computing device), 9:7–14 (identifying vertical, horizontal, and panning movements, where panning can “occur in all directions . . . rather than just the horizontal and vertical directions”).

The Examiner also found Sherwani’s thresholds are used to determine the direction of movement, and the Examiner found that a person of ordinary skill would understand this, in turn, involves comparing a ratio of vertical and horizontal movement to these thresholds. *See* Final Act. 2–3, 6–7; Ans. 20. We are not persuaded that this finding<sup>4</sup> is in error. Indeed, Appellant does not describe (and we do not perceive) a different interpretation of Sherwani. *See, e.g.*, Appeal Br. 4 (asserting Sherwani does not compare a ratio of horizontal to vertical movement, but failing to provide alternative explanation of how Sherwani allegedly uses the thresholds to determine direction); Reply Br. 2 (same). Indeed, Mangum supports the Examiner’s finding that an ordinary artisan would have this understanding of Sherwani’s

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whether movement is a zoom gesture by determining whether distance between points is increasing or decreasing).

<sup>4</sup> The Examiner also “note[d] that these are common techniques that may be seen elsewhere in the art, especially with the onset of smart-phones and tablets.” Final Act. 3; *see also* Ans. 21 (“The examiner maintains that this is not a novel idea and may be commonly seen in, for example, camera or map controls in video games and applications.”). Appellant argues these findings are conclusory and not supported by evidence of record. Appeal Br. 5; Reply Br. 3. We agree with Appellant that these findings are not supported by evidence and, thus, are in error. However, this error does not result in reversal because we perceive no error in the Examiner’s findings that Mangum and Sherwani teach or suggest the disputed limitations.

thresholds. *See* Mangum 15:55–64, Fig. 4B (determining the direction of movement by comparing to a critical angle).

Finally, Appellant argues that the Examiner failed to articulate a rationale to combine the teachings of the references “in the manner set forth in claim 1.” Appeal Br. 6 (emphasis omitted). Specifically, Appellant asserts that “it cannot follow that the addition of Sherwani to Lee provides” the benefits identified by the Examiner because Sherwani fails to disclose the claimed ratio. *See id.* at 6–7. We are not persuaded by this argument. The Examiner explained why a person of ordinary skill in the art would have been motivated to combine Mangum with Lee (Final Act. 6) and why that ordinary artisan would have been motivated to combine Sherwani with Lee (*id.* at 7). *See also* Ans. 21–22 (further explaining rationale to combine Sherwani with Lee to yield limitations of the claim); *see generally* Reply Br. (electing not to respond to the Examiner’s Answer). Appellant does not show error in the Examiner’s rationale. For example, Appellant identifies no errors or inaccuracies in this rationale, does not contend the Examiner’s proposals are beyond the level of skill of one of ordinary skill in the art, and does not submit that the proposed combination of references would yield undesirable, unpredictable, or unexpected results.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner’s reliance on the cited prior art combination to teach or suggest the disputed limitations of claim 1, nor do we find error in the Examiner’s resulting legal conclusion of obviousness. Accordingly, we sustain the Examiner’s obviousness rejection of independent claim 1, and grouped claims 2, 5, 11–13, 28, and 31.

*Claim 26*

Claim 26 depends from claim 1 and further recites: “where the ratio . . . is compared to a first predetermined threshold . . . , and the multi-touch gesture is determined to be the multi-touch vertical gesture if the ratio . . . is less than the first predetermined threshold.” Claims App. 4.

Appellant argues that the references fail to teach the limitations of claim 26. Appeal Br. 7–10. In support, Appellant presents the same arguments presented for independent claim 1, and Appellant concludes that Sherwani does not disclose the additionally recited features of claim 26.

*Compare id.* at 7–10 (arguing claim 26), *with id.* at 3–7 (arguing claim 1).

For the reasons explained above, we are not persuaded by Appellant’s arguments. Moreover, Appellant does not explain why the limitations additionally recited in claim 26 would not have been obvious in light of the references’ teachings. Accordingly, we perceive no error in the Examiner’s finding that the limitations of claim 26 are taught or suggested by the references.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner’s reliance on the cited prior art combination to teach or suggest the disputed limitations of claim 26, nor do we find error in the Examiner’s resulting legal conclusion of obviousness. Accordingly, we sustain the Examiner’s obviousness rejection of dependent claim 26 and grouped claim 30.

*Claim 27*

Claim 27 depends from claim 26 and recites: “where the ratio . . . is compared to a second predetermined threshold . . . , and the multi-touch

gesture is determined to be the multi-touch horizontal gesture if the ratio . . . is greater than the second predetermined threshold.” Claims App. 4.

Appellant argues that the references fail to teach the limitations of claim 27. Appeal Br. 11–14. In support, Appellant presents the same arguments presented for independent claim 1, and Appellant concludes that Sherwani does not disclose the additionally recited features of claim 27. *Compare id.* at 11–14 (arguing claim 27), *with id.* at 3–7 (arguing claim 1).

For the reasons explained above, we are not persuaded by Appellant’s arguments. Moreover, Appellant does not explain why the limitations additionally recited in claim 27 would not have been obvious in light of the references’ teachings. Accordingly, we perceive no error in the Examiner’s finding that the limitations of claim 27 are taught or suggested by the references.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner’s reliance on the cited prior art combination to teach or suggest the disputed limitations of claim 27, nor do we find error in the Examiner’s resulting legal conclusion of obviousness. Accordingly, we sustain the Examiner’s obviousness rejection of dependent claim 27.

*Obviousness Rejections R2 & R3 of Claims 3, 4, 14, 15, and 17*

The Examiner rejects claims 3, 4, 14, 15, and 17 over a combination of Lee, Okamoto, Bratton, Mangum, Sherwani, and either Chinomi or Lee ’730. Final Act. 16–19. These claims depend from either independent claim 1 or independent claim 12 (*see* Claims App. 2–3), and Appellant does not separately argue these claims (*see generally* Appeal Br.). Consequently,

because we sustain the Examiner's rejections of independent claims 1 and 12, we also sustain the Examiner's rejection of these dependent claims (i.e., claims 3, 4, 14, 15, and 17).

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-2, 5, 11-13, 26-28, 30-31	103	Lee, Okamoto, Bratton, Mangum, Sherwani	1-2, 5, 11-13, 26-28, 30-31	
3, 14, 15	103	Lee, Okamoto, Bratton, Mangum, Sherwani, Chinomi	3, 14, 15	
4, 17	103	Lee, Okamoto, Bratton, Mangum, Sherwani, Lee '730	4, 17	
<b>Overall Outcome</b>			1-5, 11-15, 17, 26-28, 30-31	

### TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED