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12/879,482	09/10/2010	Sheldon Katz	40189/02102(11-DIS-073)	7065
94470	7590	12/26/2019	EXAMINER	
DISNEY ENTERPRISES, INC. c/o Fay Kaplun & Marcin, LLP 150 Broadway Suite 702 New York, NY 10038			HUANG, FRANK F	
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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* SHELDON KATZ, GREGORY HOUSE, and  
HOWARD KENNEDY

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Appeal 2019-000936  
Application 12/879,482  
Technology Center 2400

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Before KRISTEN L. DROESCH, JENNIFER L. McKEOWN, and  
JAMES W. DEJMEK, *Administrative Patent Judges*.

McKEOWN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1, 2, 5, 6, 10–25, 29, 30, and 33–37. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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<sup>1</sup> Disney Enterprises, Inc. (“Appellant”) is the applicant as provided in 37 C.F.R. § 1.46 (2017) and is identified as the real party in interest. App. Br. 2.

## STATEMENT OF THE CASE

Appellant's disclosed and claimed invention relates to "virtual insertions into 3D video." Spec. ¶ 1.

Claim 1 is illustrative of the claimed invention and reads as follows:

1. A method comprising:
  - determining a first camera data parameter of a first camera model associated with a first channel of a 3D video, wherein the first camera model describes the field of view of the first channel;
  - determining a second camera data parameter of a second camera model associated with a second channel of the 3D video, wherein the second camera model describes the field of view of the second channel,
    - wherein determining the first camera data parameter and second camera data parameter is based on a search analysis of at least the first channel,
    - wherein the search analysis is based on voxels corresponding to at least the first channel and,
    - wherein the search analysis is constrained within a region of at least the first channel that is less than the field of view of at least the first channel and the region is based on a relationship between the first channel and the second channel of 3D video;
  - generating a composite camera model by reconciling the first camera data parameter of the first camera model and the second camera data parameter of the second camera model; and
  - inserting an enhancement into the 3D video based on the composite camera model.

## REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Hoffmann	US 2008/0144924 A1	June 19, 2008
Masayuki Kanbara et al., <i>A Stereoscopic Video See-through Augmented Reality System Based on Real-time Vision-based Registration</i> , IEEE, (2000).		

### REJECTION

The Examiner rejected claims 1, 2, 5, 6, 10–25, 29, 30, and 33–37 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Kanbara and Hoffmann. Final Act. 3–21.

### ANALYSIS

Based on the record before us, we are persuaded that the Examiner erred in rejecting claims 1, 2, 5, 6, 10–25, 29, 30, and 33–37 as unpatentable over Kanbara and Hoffmann.

The Examiner relies on Hoffmann and Kanbara combined as teaching a “search analysis [] constrained within a region. . .” and that “the region is based on a relationship between the first channel and the second channel of 3D video.” Final Act. 7–8. The Examiner explains that Hoffmann’s object tracking satisfies the limitation of constraining the region of the search analysis. *See* Ans. 21–22; Final Act. 10. For example, once the object is detected in the first image, “the following object detection and tracking can be ‘tracked by using the results – extracted regions – obtained in the previous frame’, i.e. search around the region of the object.” Ans. 21. The Examiner combines Hoffmann’s object tracking with Kanbara’s search analysis based on a relationship between the first and second channel. Ans. 22. Namely, Kanbara matches “left and right images in the first frame

[] to determine the stereo pair of markers between the current left and right images.” Ans. 22 (emphasis omitted).

Appellant, however, asserts “Kanbara’s stereo matching has no correlation to a region within which a search is constrained.” Reply Br. 4. According to Appellant, Kanbara uses stereo matching to identify markers, but only after a search on the entirety of both images of the stereo pair. Reply Br. 4 (citing Kanbara, p. 257 § 3.1.1). In other words, the first search is not *based on* the relationship between the first and second channels because the relationship is not determined until after the search is performed. Appellant also maintains that the second search, i.e. tracking the stereo paired markers, is also not “based on a relationship between a first and second channel” because the second search area is “based on the results of a search conducted on a previous frame.” Reply Br. 4.

We find Appellant’s argument unpersuasive. Kanbara describes a first search on the entirety of the pair of images to identify blue markers. The coordinates are then determined based on analysis of the pair of images. Then, a second search, limited to the region of the markers, is performed based on the previously identified coordinate of the markers. As such, although we agree that Kanbara’s first search is not based on a relationship between the first and second channel, the second search is based on the matched location of the markers, i.e., a relationship between the two channels. Merely asserting that the search is “based on the results of a search conducted on a previous frame” fails to consider the Examiner’s finding that Kanbara’s identification of the blue marker location is the relationship between the first and second channel. Therefore, based on the record before us, we find Appellant’s arguments unpersuasive.

Nevertheless, we are persuaded by Appellant's argument that the combination of Hoffmann and Kanbara fails to teach or suggest "a search analysis...based on voxels corresponding to at least the first channel." Appeal Br. 9–10; Reply Br. 6–7. In particular, Appellant maintains that the Examiner fails to demonstrate a correlation between a search and a voxel. Reply Br. 7.

We agree. We understand a voxel to be a three dimensional pixel, e.g., a pixel with volume, that is represented with x, y, and z coordinates. *See, e.g.*, Reply Br. 6 (noting that "[a] 'voxel' is term of art that represents an element of an image with defined characteristics. A person having ordinary skill in the art would understand that a voxel is a 3D pixel with particular coordinates within an image. (See Specification, ¶¶[0031]-[0032].)"). Kanbara describes searching in subsequent frames (where the blue marker has already been located in the first frame) based on the position of the marker in the previous frame and *then* performing stereo matching. *See, e.g.*, Kanbara, p. 258. In other words, Kanbara teaches searching based on the coordinates for the blue marker in the previous 2D left and right images and subsequently stereo matching the pairs, not searching based on the previously matched pairs. As such, we are persuaded that the Examiner fails to sufficiently show that Kanbara teaches or suggests a search analysis based on voxels corresponding to at least the first channel.

Accordingly, based on the record before us, we reverse the rejection of claims 1, 2, 5, 6, 10–25, 29, 30, and 33–37 as unpatentable over Kanbara and Hoffmann.

DECISION SUMMARY

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, 6, 10–25, 29, 30, 33–37	103	Hoffmann, Kanbara	1, 2, 5, 6, 10–25, 29, 30, 33–37	

REVERSED