

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 March 2005 (24.03.2005)

PCT

(10) International Publication Number
WO 2005/027038 A3

(51) International Patent Classification⁷: **G06T 15/10**

(21) International Application Number:
PCT/US2004/029262

(22) International Filing Date:
8 September 2004 (08.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/501,288 8 September 2003 (08.09.2003) US

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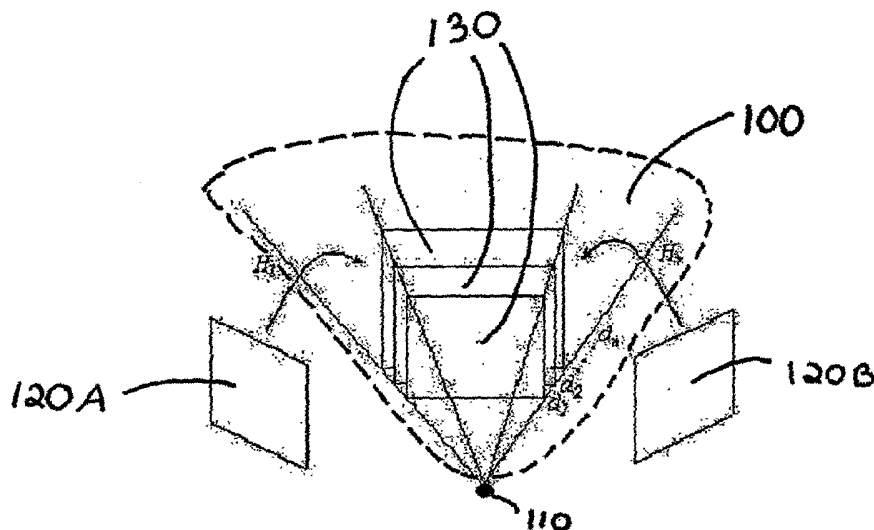
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) Title: SYSTEMS AND METHODS FOR DIRECTLY GENERATING A VIEW USING A LAYERED APPROACH



(57) Abstract: Apparatuses and methods are presented that use a direct synthesis approach using layers (130) in order to directly generate a virtual view from a pair of images (120A, 120B). In one embodiment, a range space (100) is discretized into a plurality of layers (130). For each layer (130), the first input image (120A) and the second input image (120B) are warped to the layer (130). A matching score is then determined for each pixel in the new view based on the warped input images (120A, 120B). For each pixel in the virtual view, a best layer is determined. After the best layer has been determined, the color of the pixel in that layer is used for that pixel in the generated view.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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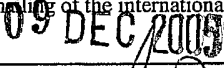


(88) Date of publication of the international search report:

23 February 2006

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/29262

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : G06T 15/10 US CL : 345/427 According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) U.S. : 345/629, 646, 647, 648</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST, WEST, NPL: virtual image range space, forward warping, backward warping, matching score, rectified images.</p>																	
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Ng et al. "generalized multiple Baseline Stereo and Direct Virtual View Synthesis Using Range-Space Search, match, and Render"; pages 1-14</td> <td>1-7,9-11,14-19</td> </tr> <tr> <td>Y</td> <td>Baker "A Layered Approach to Stereo reconstruction", page 1.</td> <td>1</td> </tr> <tr> <td>Y</td> <td>US 6,606,406 B1 (ZHANG et al) 12 August 2003 (12.08.2003), col. 14, line 57-col. 15, line 27.</td> <td>12,13</td> </tr> <tr> <td>Y</td> <td>Shade et al. "Layered Depth Images", page 4.</td> <td>8</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	Ng et al. "generalized multiple Baseline Stereo and Direct Virtual View Synthesis Using Range-Space Search, match, and Render"; pages 1-14	1-7,9-11,14-19	Y	Baker "A Layered Approach to Stereo reconstruction", page 1.	1	Y	US 6,606,406 B1 (ZHANG et al) 12 August 2003 (12.08.2003), col. 14, line 57-col. 15, line 27.	12,13	Y	Shade et al. "Layered Depth Images", page 4.	8
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<p>Date of the actual completion of the international search 14 October 2005 (14.10.2005)</p>		<p>Date of mailing of the international search report </p>															
<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230</p>		<p>Authorized officer  Kimbinh Nguyen Telephone No. (571-272-7644 </p>															