



2 - 1 , (1)  
Mandala 가 , (2)  
[9]. Videoplace Mandala 3 ,

MIT (3) 가  
ALIVE [6] 3 [3,11,12].

가

, , 3 가

[1,8]. , 가

2  
3 ,

가 가

가

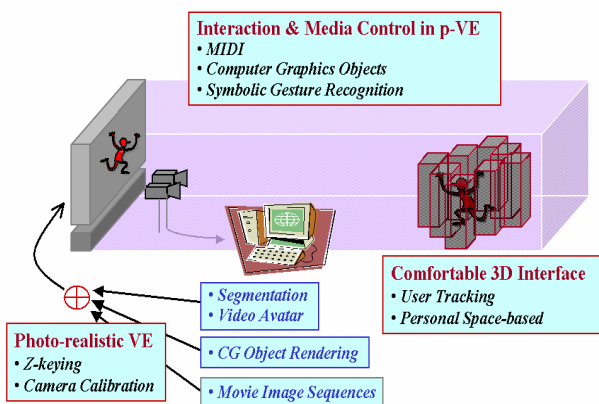
2 ( 2 3  
3 3 ) 가 , 3 가

, 가

## 2. 3

2.1 가 가 (1)

3 , (2) , (3) 3  
가



## 1. 3

가 , 가

가

$N(m, \mathbf{s})$

$m$

**S**  
가

3 ,  
가

, bluescreen  
chroma-key

3

RGB

RGB

가

가

, 3

(brightness)

RGB

RGB

$$I_{\{r,g,b\}}^k$$

(Z-Keying)

$$I_{\{r,g,b\}}^k = \frac{I_{\{R,G,B\}}^k}{I_R^k + I_G^k + I_B^k}$$

가 가 3  
, 가

k 2

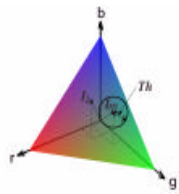
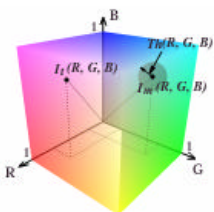
, 3 RGB

(Calibration)

가

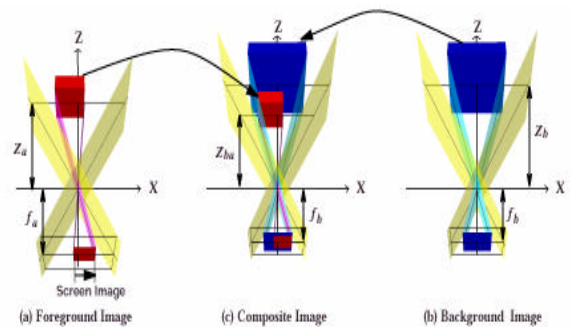
가

RGB



2. (a) RGB  
(b)

RGB



3. (a) (b) 가

3 , 가

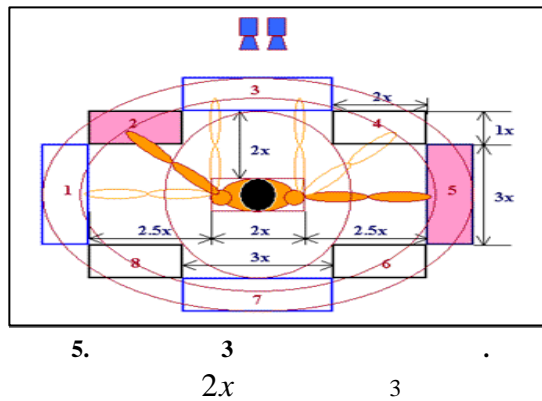
$f_a, f_b$

$f_b$

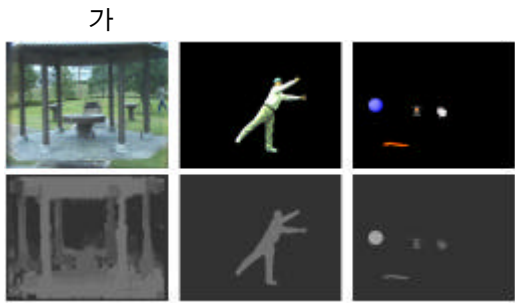
$$Z_{ba} = Z_a \times \frac{f_b}{f_a}$$

Intel CPU  
OpenCV

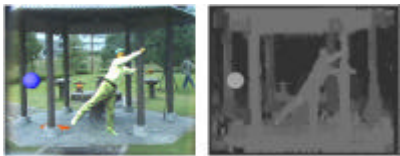
[4]



가



(a) (b) (c)



(d)

가 (a) 3

(b) (c) (d)

2.2

가

2.3

가

( ), 가 , 가

가

가

(a), (b), (c), (d)

4

가

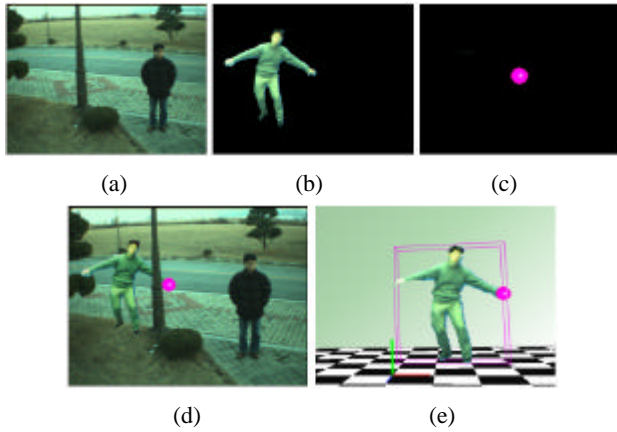
가

3

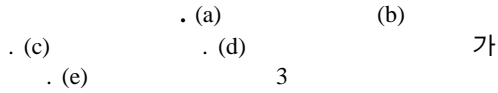
(e)

3

[10].



6.



3

8

가

가

PC

, 가

3-5

3.

가

가

가

가

가

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- [1] F. Sparacino, G. Davenport, A. Pentland, "Media in performance: Interactive spaces for dance, theater, circus, and museum exhibits", IBM Systems Journal, vol 39, pp. 479-510, 2000.
- [2] M. Krueger, "Artificial Reality II", Addison-Wesley, 1991.
- [3] N. Kim, W. Woo and M. Tadenuma, "Photo-realistic Interactive 3D Virtual Environment Generation Using Multiview Video", Proc. SPIE PW-EI-VCIP'01, vol. 4310, pp245-254, Jan. 2001.
- [4] Open source computer vision (OpenCV) library, <http://www.intel.com/research/mrl/research/opencv/>
- [5] P. Jenny, "Human Computer Interaction", Addison-Wesley, 1994.
- [6] P. Maes, T. Darrell, B. Blumberg, A. Pentland, "The ALIVE System: Wireless, Full-Body Interaction with Autonomous Agents", The ACM Special Issue on Multimedia and Multisensory Virtual Worlds, Spr. 1996.
- [7] R. Azuma et. al, "Augmented Reality: The interface is everywhere", SIGGRAPH course note, no. 27, 2001.
- [8] R. Suzuki, Y. Iwadate, M. Inoue, W. Woo, "MIDAS: MIC Interactive Dance System", Proc. IEEE SMC 2000, pp. 751-756, Oct. 2000.
- [9] V. J. Vincent, "Mandala: Virtual Village", SIGGRAPH Visual Proceeding, ACM SIGGRAPH, pp. 207, 1993
- [10] W. Woo, N. Kim, K. Wong and M. Tadenuma, "Sketch on Dynamic Gesture Tracking and Analysis Exploiting Vision-based 3D Interface", Proc. SPIE PW-EI-VCIP'01, vol. 4310, pp. 656-666, Jan. 2001.
- [11] W. Woo, N. Kim and Y. Iwadate, "Object Segmentation for Z-keying Using Stereo Images", in Proc. IEEE WCC-ICSP'00, pp. 1249-1254, Aug. 2000.
- [12] W. Woo, N. Kim and Y. Iwadate, "Stereo Imaging Using a Camera with Stereoscopic Adapter", Proc. IEEE Systems, Man, and Cybernetics (SMC) 2000, pp. 1512-1517, Oct. 2000.

