Assignment 1

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Hands and face tracking for VR applications

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Introduction

Fig. 1. Interactive 3D-space.

- Workbench
- Two projection screen
- Camera stereo pair

Motivation and Context

- Many previous related works have presented a different and various methods of motion tracking most of them required special equipment so it was a challenge for the author to come up with a new method that dose the same job with a almost the same accuracy but without all the complicated equipment to make it more user friendly

Research Questions

- Is it possible to make a 3D tracking system without the need for the user to put on any special suits or other equipment??
- If yes, then how can we replace these equipment ???

Critical Literature Review

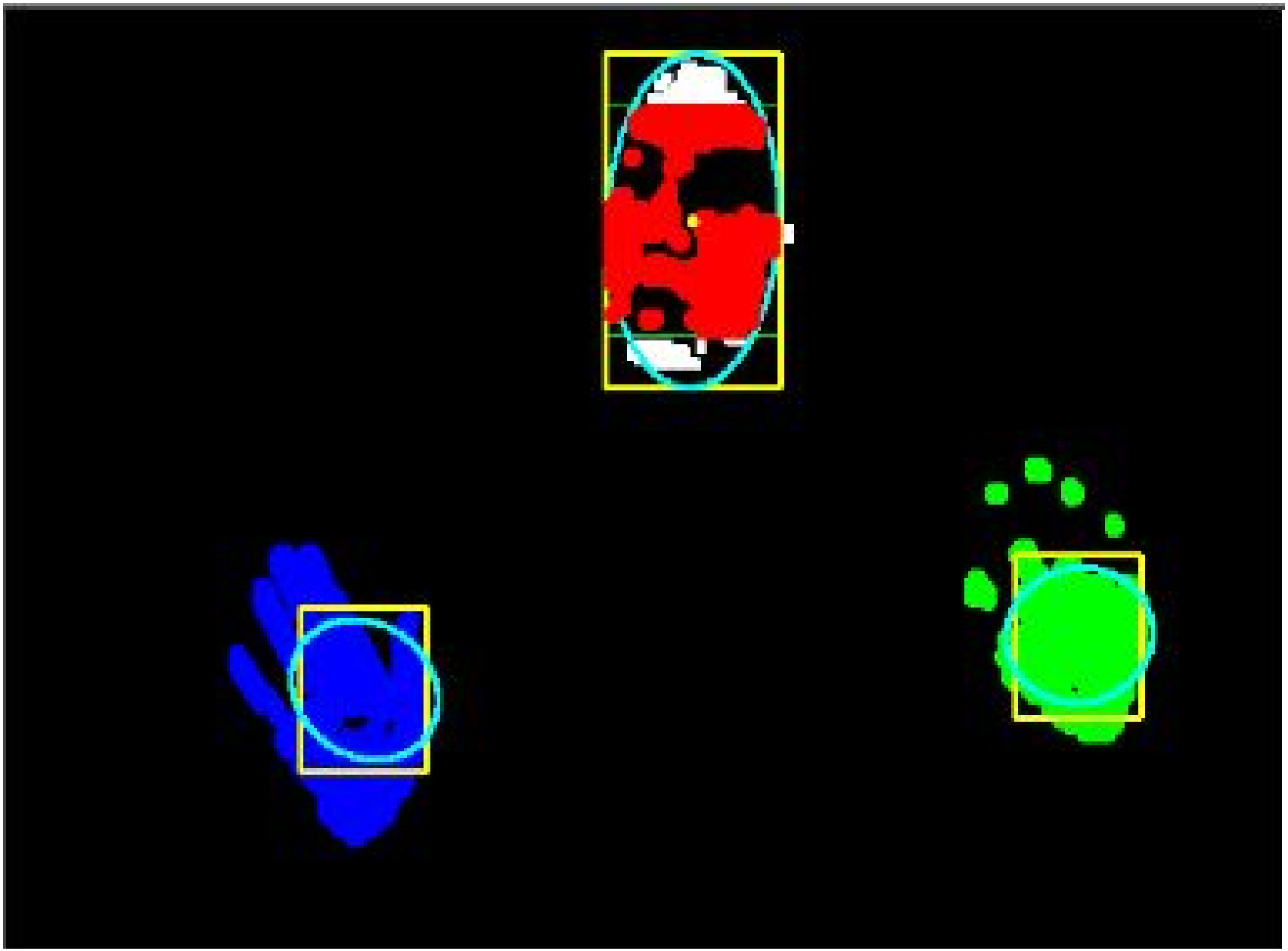
- Advantages and Disadvantages.
- Focusing on different matters at the same time.

What does the system do?

- Hands and face tracking algorithm
  1. Skin-color segmentation module
  2. Date association module
  3. 3D-point reconstruction

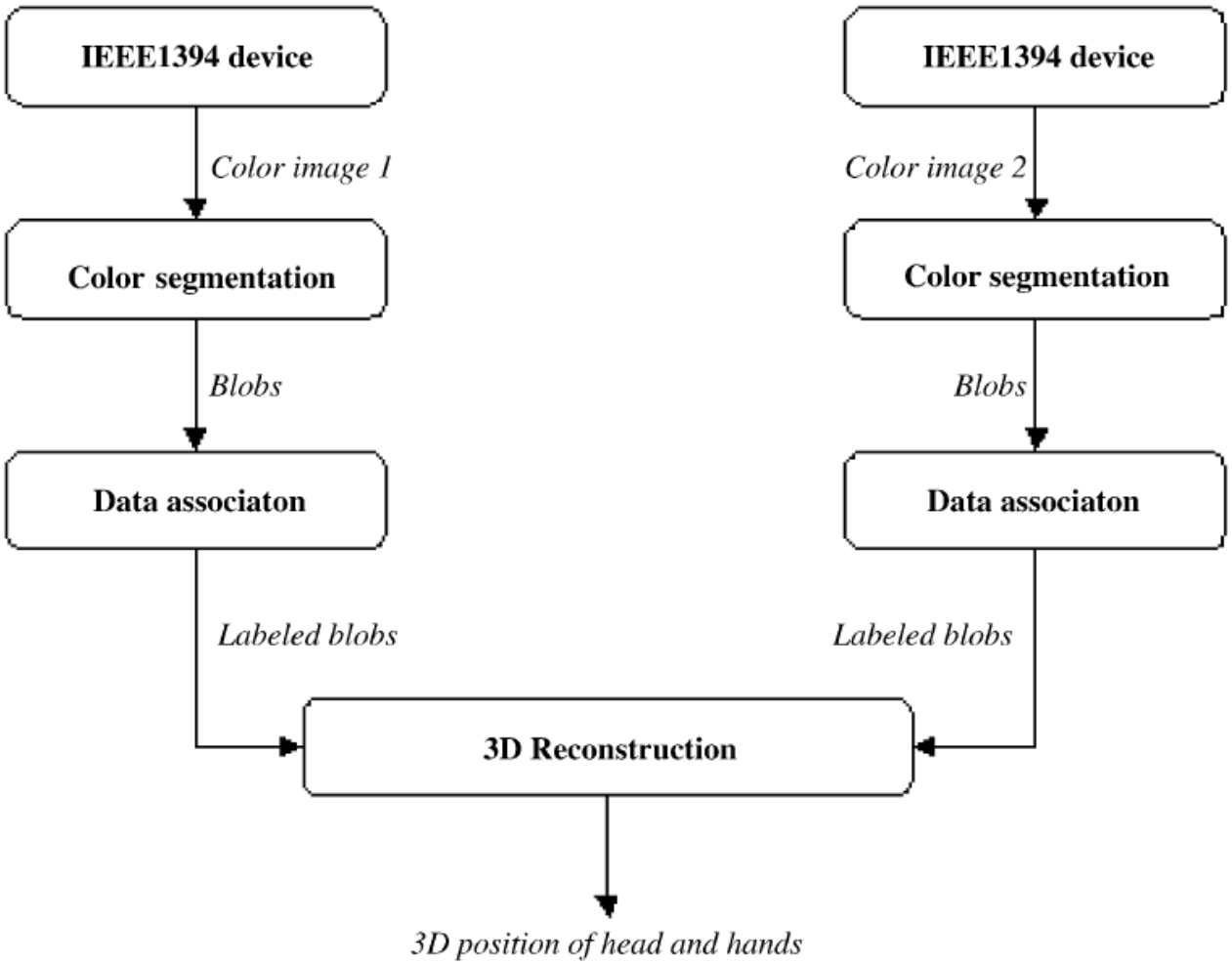
Research Method and Results

Skin-color segmentation module



Research Method and Results
Date association module

Fig. 6. 2D-tracking results. Left: Camera 1; Right: Camera 2.


IEEE1394 device
Color image 1
Color segmentation
Blobs
Data associaton
Labeled blobs
IEEE1394 device
Color image 2
Color segmentation
Blobs
Data associaton
Labeled blobs
3D Reconstruction
3D position of head and hands

Conclusion

We Conclude that:

- The author came up with new method for 3D motion tracking (the special things about it) :
  - No special suits or markers are needed (more freedom for the user)
  - cost much less than the previous methods
- The algorithm for the face and hands tracking is consist of three parts:
  - Skin-color segmentation module
  - Date association module
  - 3D-point reconstruction

Questions And Answers