

# NII International Internship program

# Segmented Fusion

Segmentation

20171006

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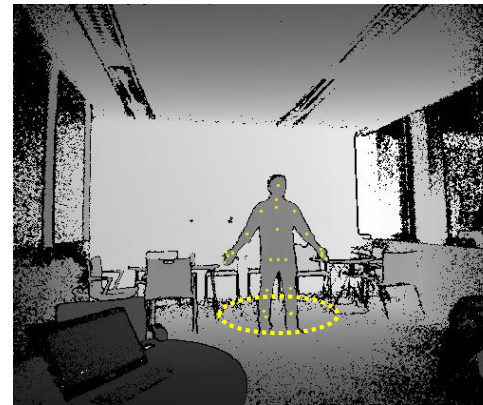
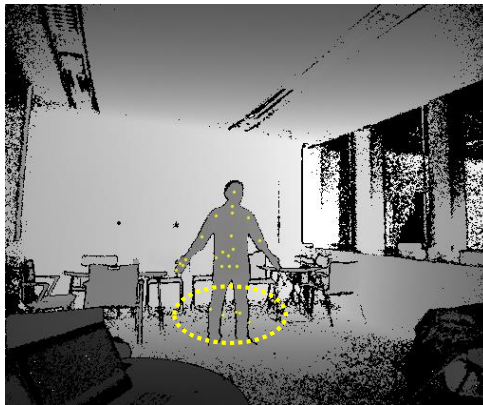
Ass.Prof. D.Thomas

# Last Meeting

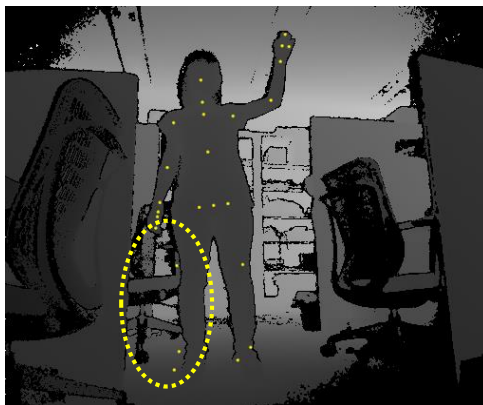
- ♣ Previously
  - ♣ Pipeline
  - ♣ Dataset
  - ♣ Problems in Segment and Tracking
  - ♣ Fusion4D
- ♣ To-do
  - ♣ Segmentation

# Wrong positions of skeleton

- ♣ The system crashed when Kinect get wrong positions of skeleton in the last version.



higher ankles



positions  
out of body

# Wrong positions of skeleton

- ♣ Solve the wrong segment by giving the maximum width of the leg.



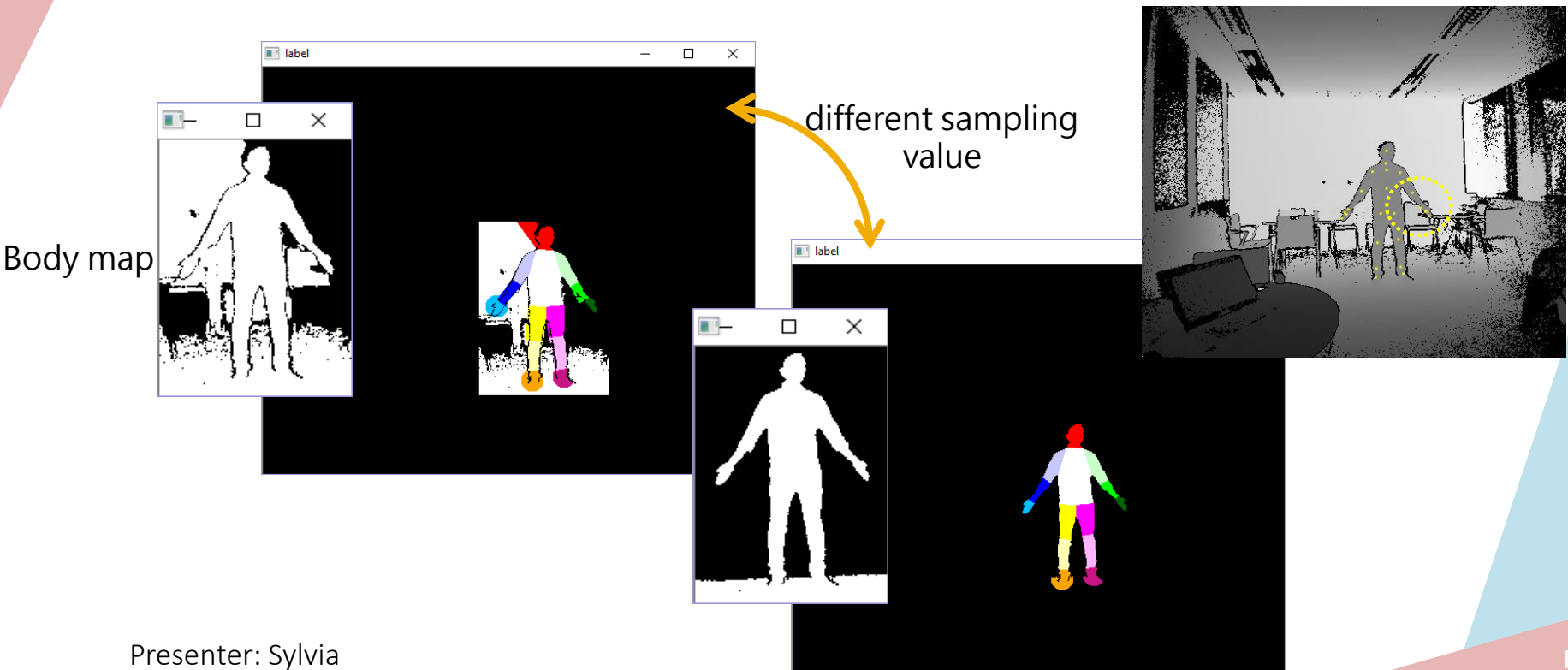
before



after

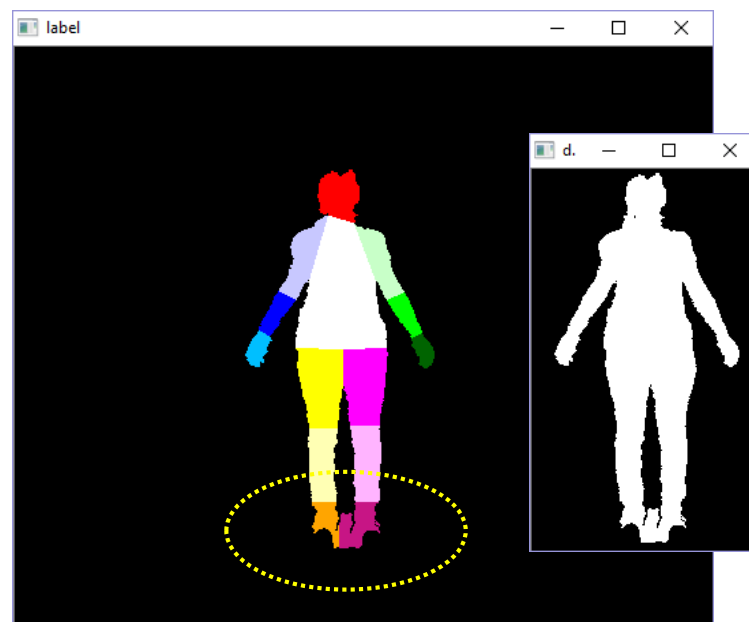
# Wrong positions of skeleton

- ♣ We get a bad body map when sampling since the junctions are out of body.
- ♣ The quality of body map depends on the sampling.



# Wrong positions of skeleton

- ♣ In order to make all cases suitable, we have to make some choices or we would get a big hole on the other dataset.



two examples for new sampling settings

# Radius of hand and foot

- ♣ Modify the radius of foot and hand by using the distance between junctions, instead of a fixed number.



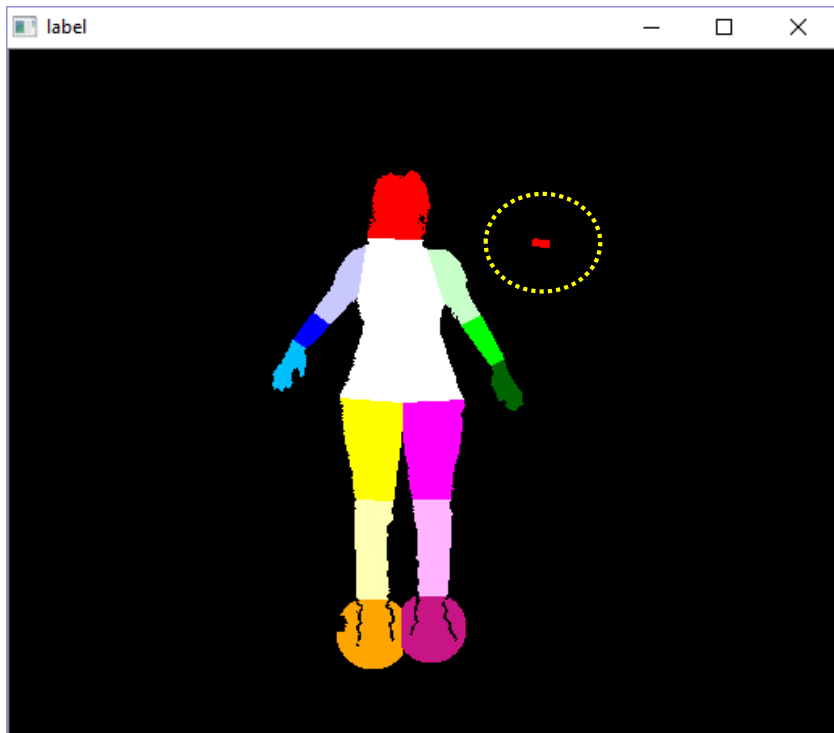
before



after

# The head bug

- ♣ Correct the bug when segmenting head.



before



after



- ♣ The system crashed when there are two parts which are too close in the last version.



New results for segmentation

# Segment Too close

- ♣ There are always wrong positions of junctions when hands are too close.

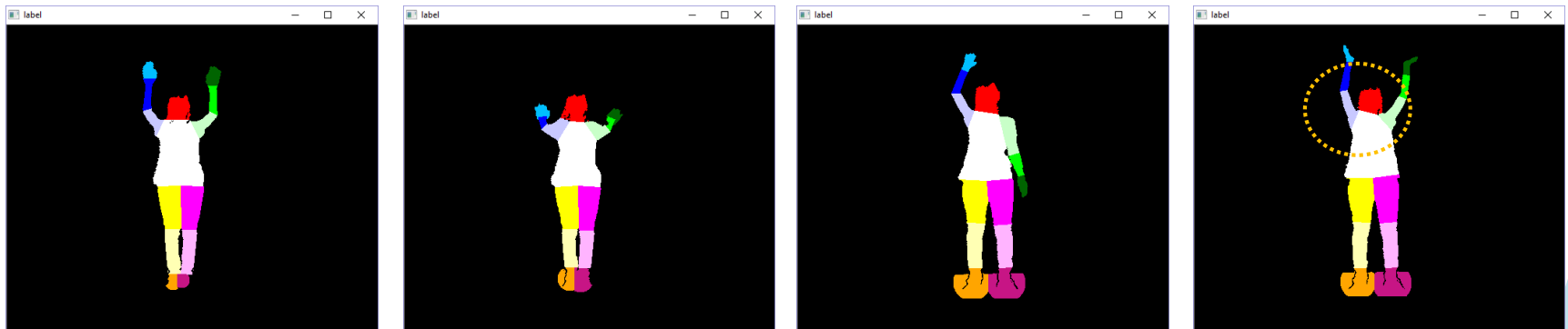


Green points are left part;  
Red points are right part

New result

# Find the peak points

- ♣ There is no need to always use five points to segment the upper arms or thighs.
- ♣ When the arm's up, there is no triangle in the armpit region so we are unable to get the armpit.
- ♣ The new method can handle these cases.

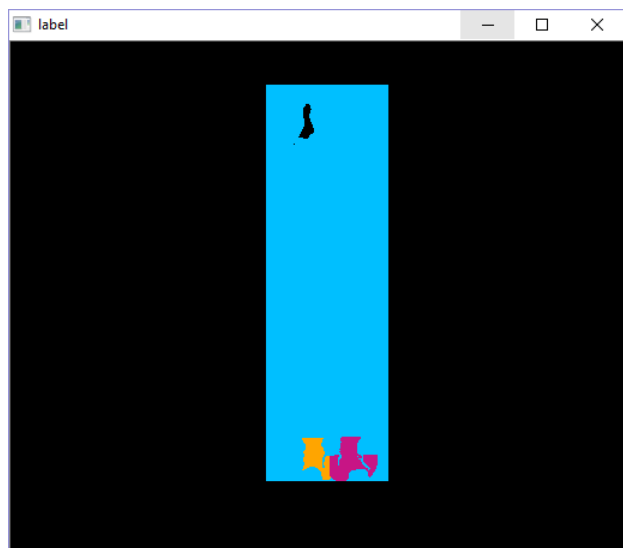


New results

have wrong segment near hair

# Noise on hands and feet

- ♣ There are many noises on the hands and feet that make the problem occur easily.
- ♣ Use many conditions to check on hands and feet, and we let system get nothing when segment is incorrect to avoid big segment error



before

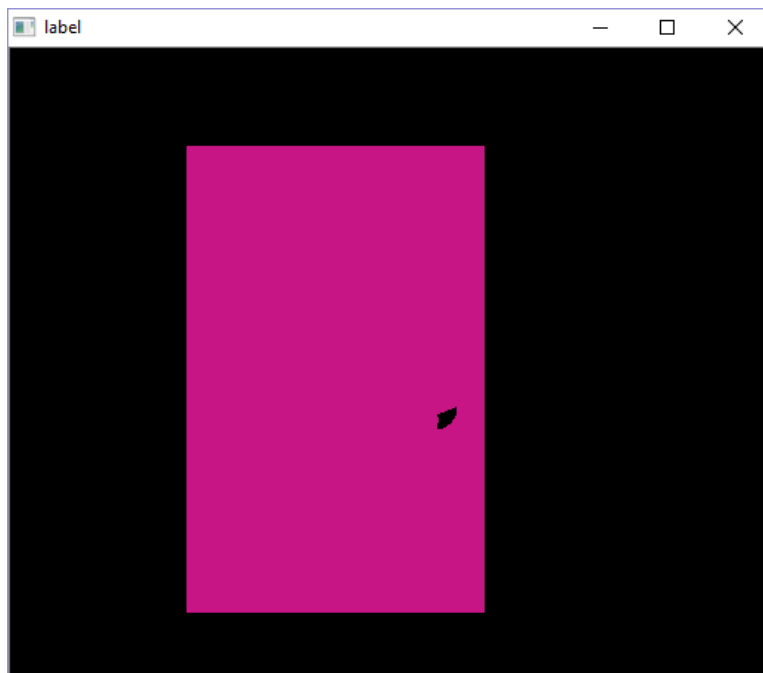


after

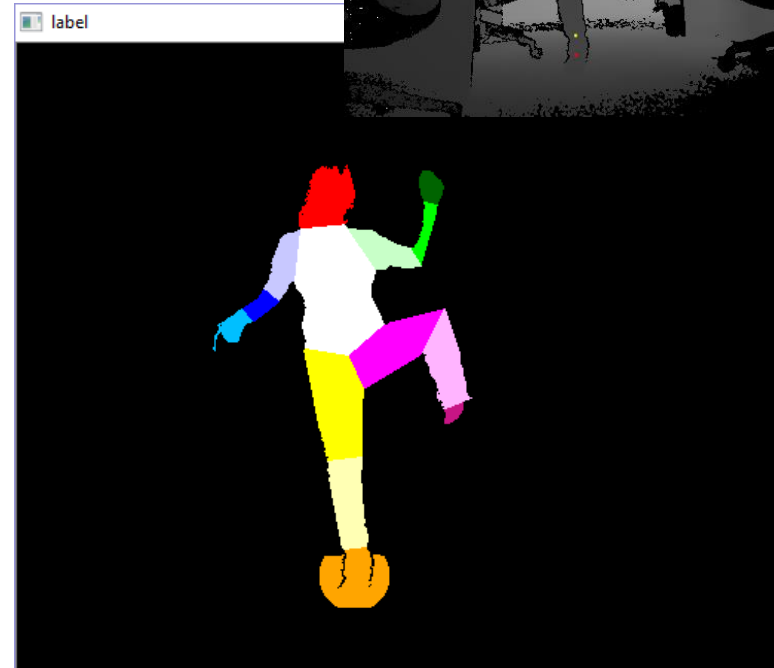


## Noise on hands and feet

- ♣ Another example for noises on feet.



before



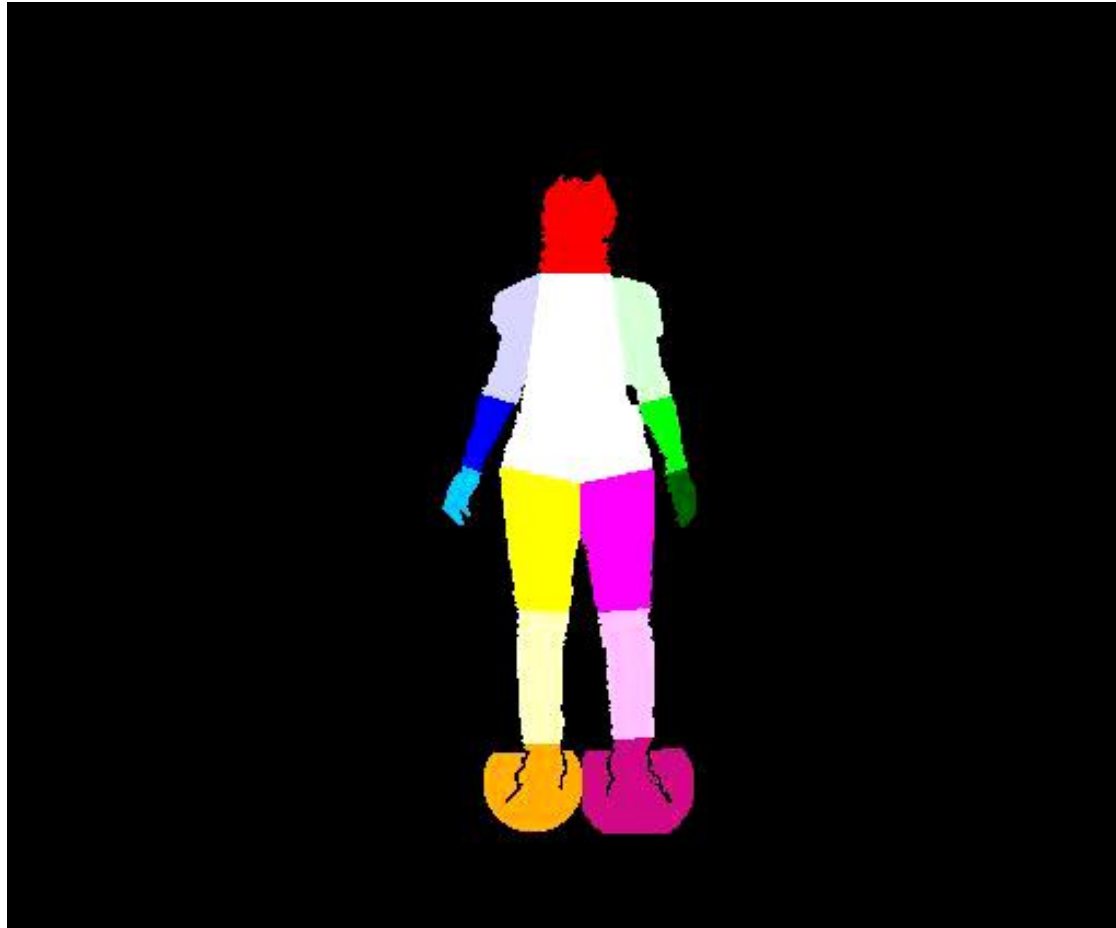
after

# Segment Problems

- ♣ There are still some cases we cannot handle when detecting wrong skeleton, or having occlusions.



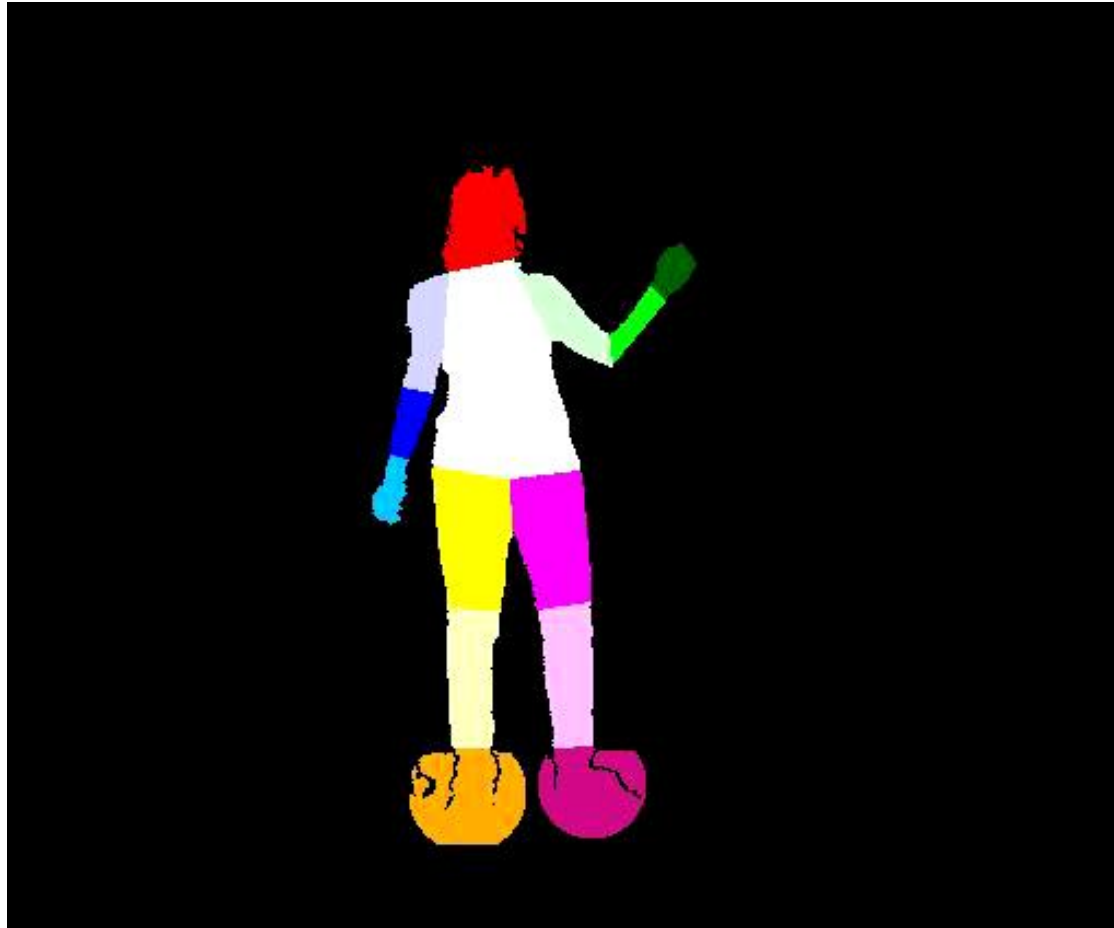
# Segment Results



Presenter: Sylvia

Advisors: Prof. A.Sugimoto, Ass.Prof. D.Thomas

# Segment Results

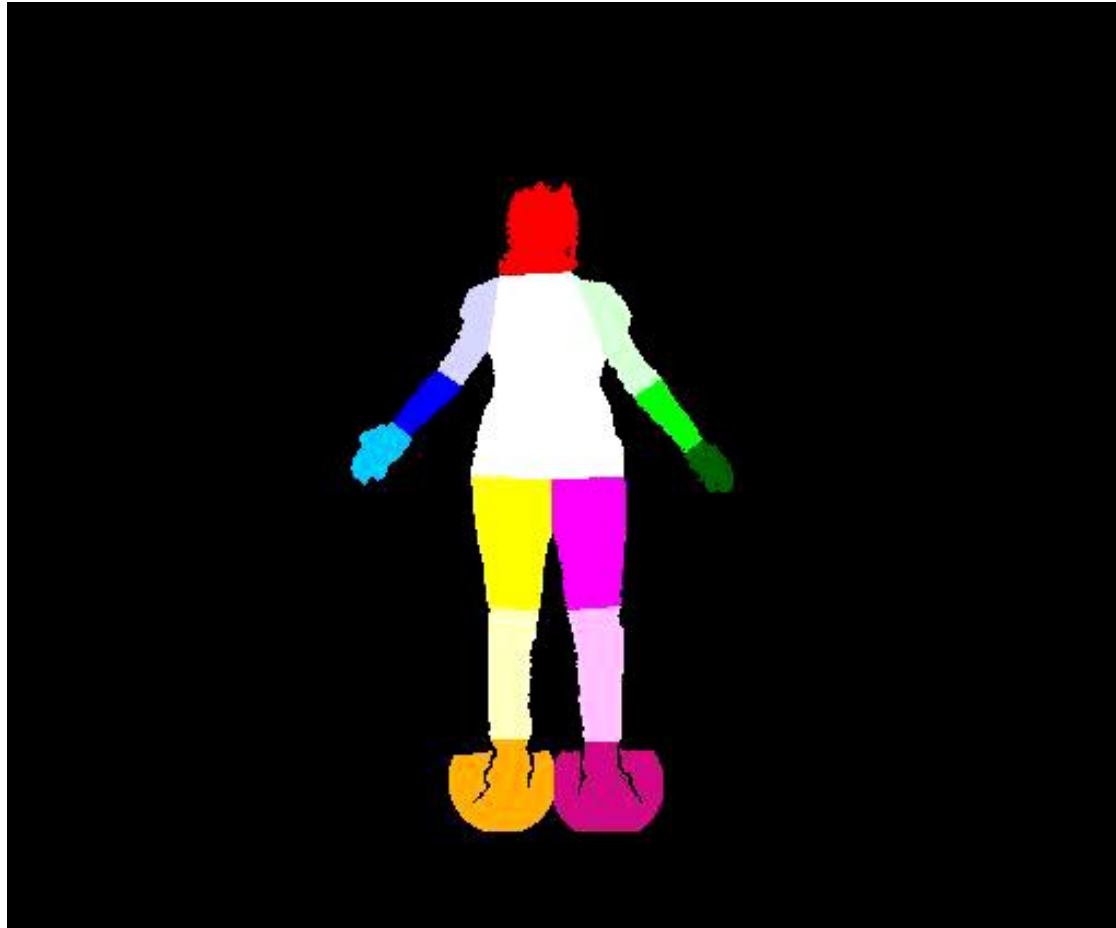


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# Segment Results



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## Next step

- ♣ Modify local and global tracking method
- ♣ Search stitching algorithms