Dynamic fusion

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Internship Week 23
Segmented Fusion
27th July 2017

Last meeting

- Previously
  - Stitching Puppet algo
  - Volume and local to global transform
  - Segmented fusion
- Plan for today's meeting:
  - Correct part based fusion
  - Add distance constraint on adjacent part
  - Clear explanation of Stitching Puppet

Segmented Fusion Pipeline

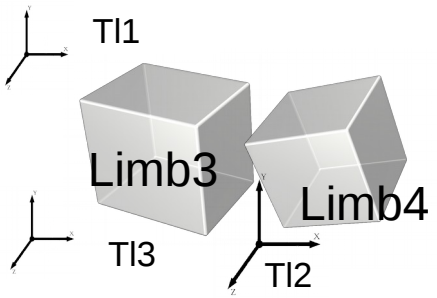
For each part

0 Bounding Box (PCA)

Compute dimensions

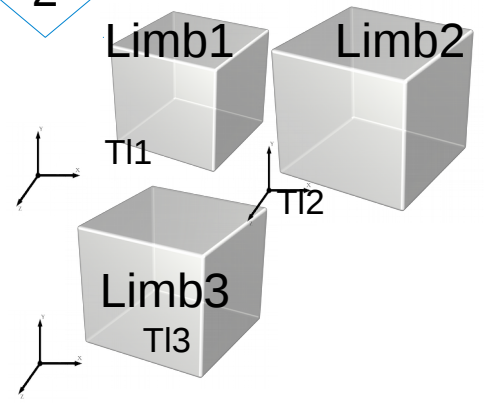
1 Create Volumes

Limb1



Local to Global coordinates

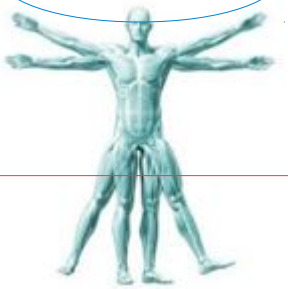
2



Transform in current pose

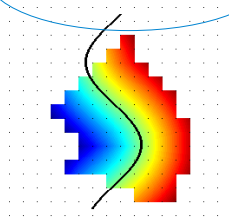
3

Align Pose

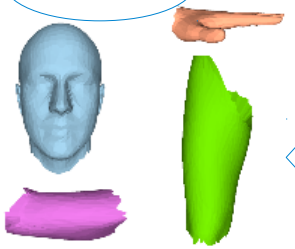


Projection in current image

4 TSDF Fusion

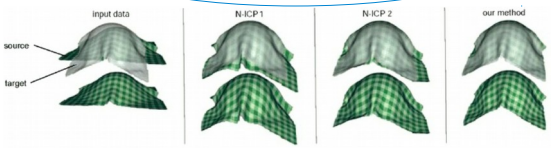


5 Mesh



6 Assembling mesh

7 Rigid Alignment



End of 1

Naive Stitching results

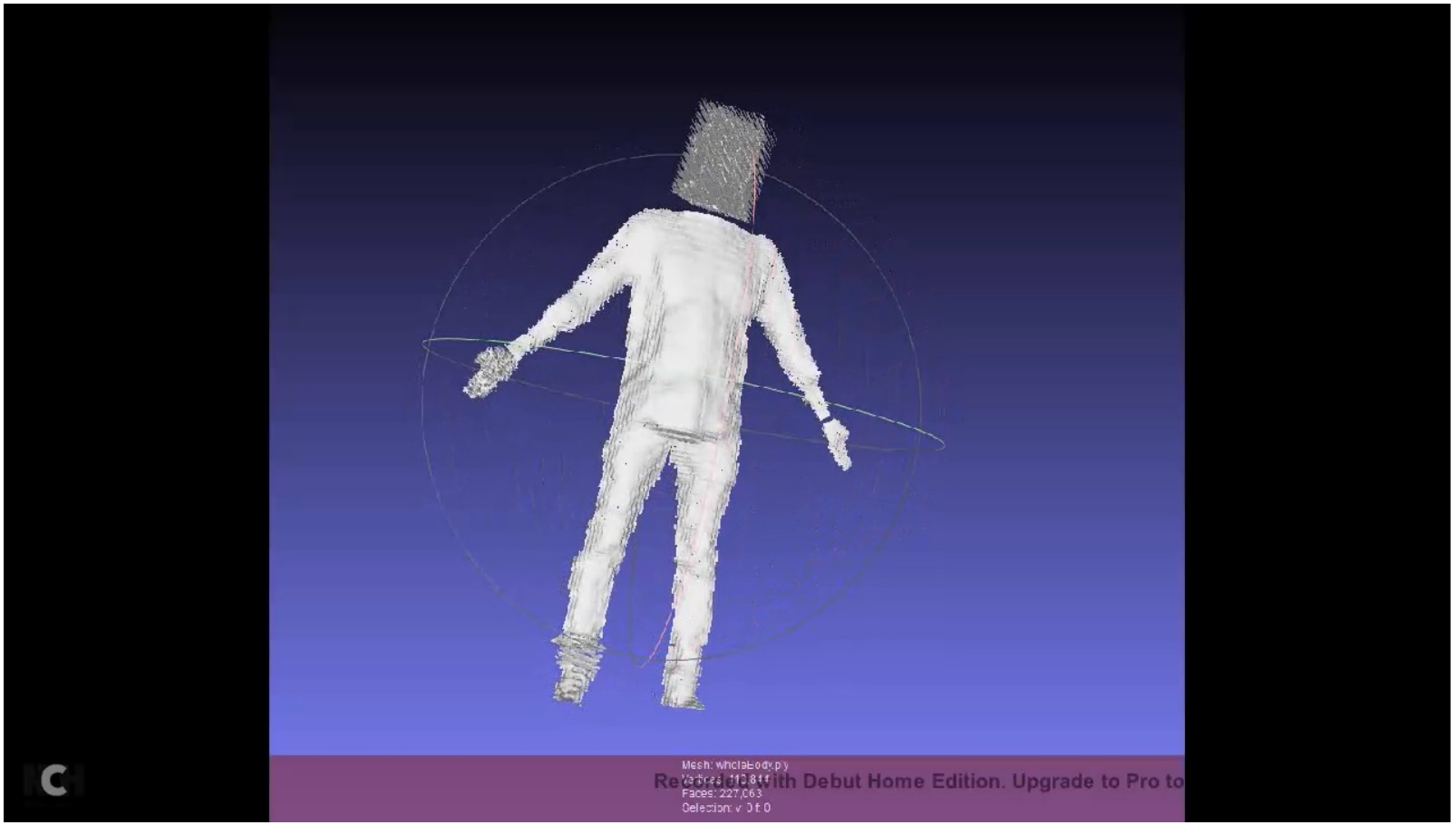
Stitching image 15

Depth map chopped too!

To Get the neck : make the bounding boxes longer of 5 voxels and do not separated head from torso in depth image

Naive Stitching results

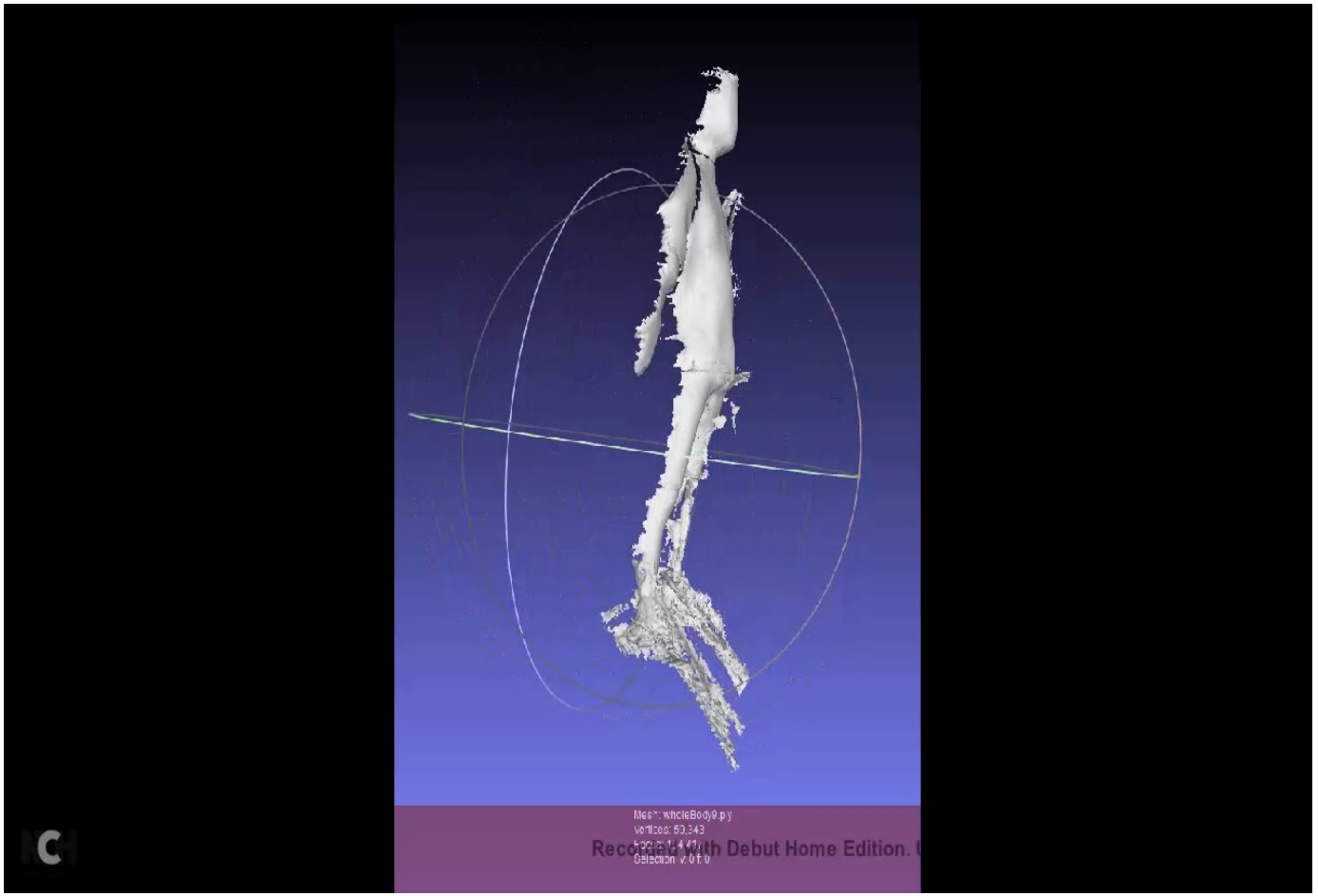
Last week bug



List of My_MC object instead of overwriting it

Segmented tracking results

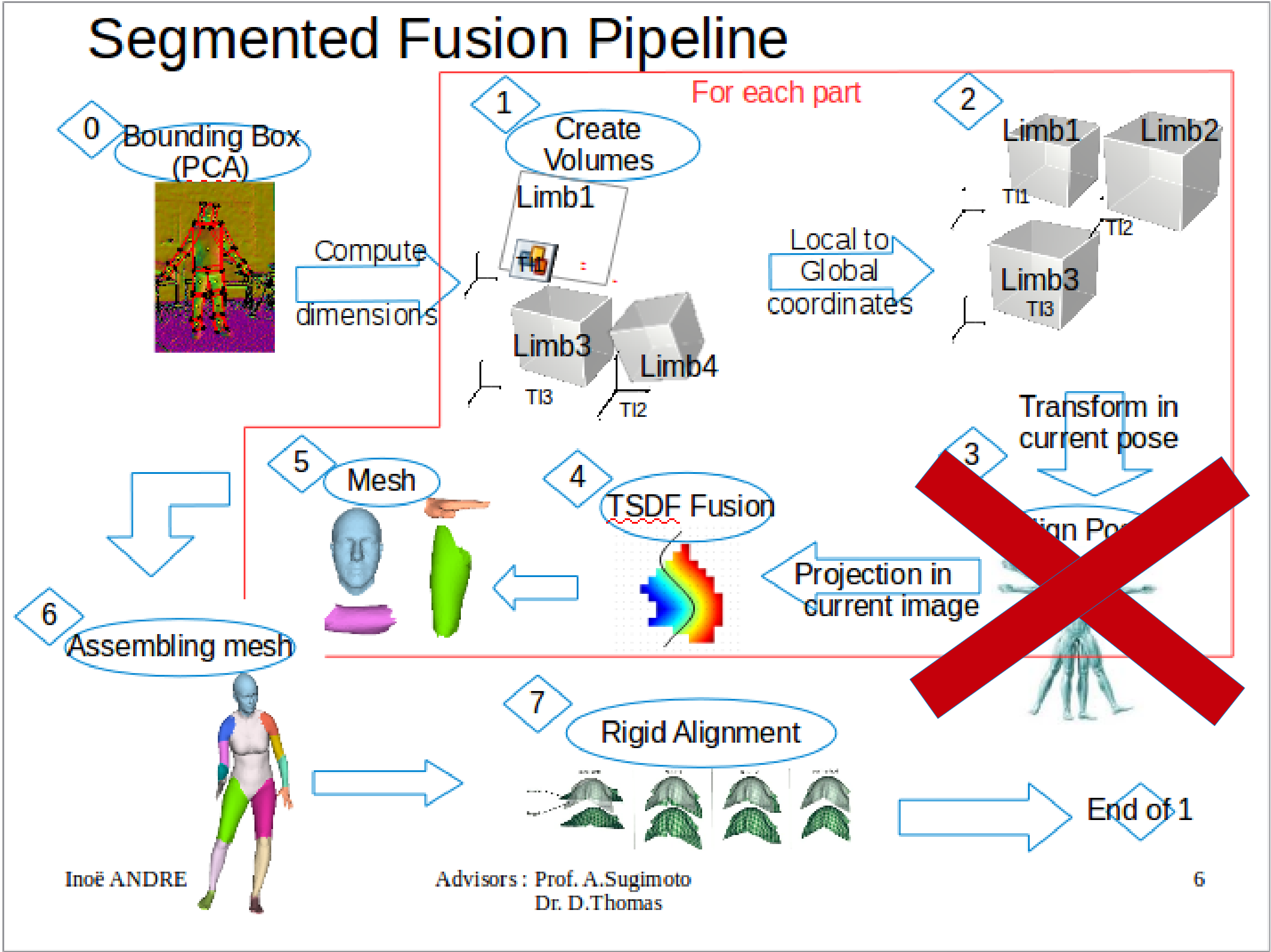
Tracking image 0-9



Last week : in pipeline
Go back to 0 instead of end of 1.

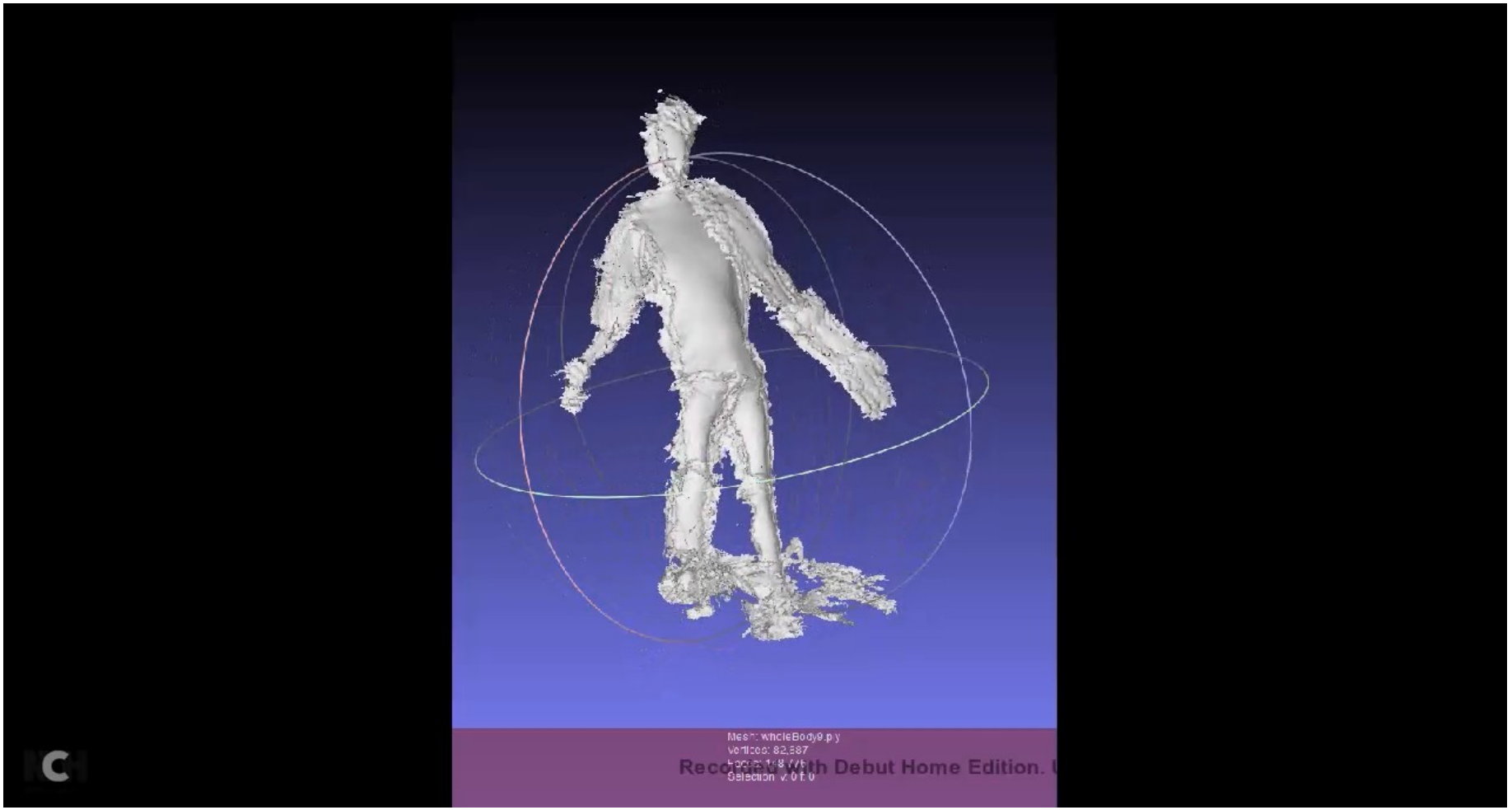
Inversed orientation
T_loc→glo of the current image used for former mesh => inversion

Segmented Fusion Pipeline



Segmented tracking results

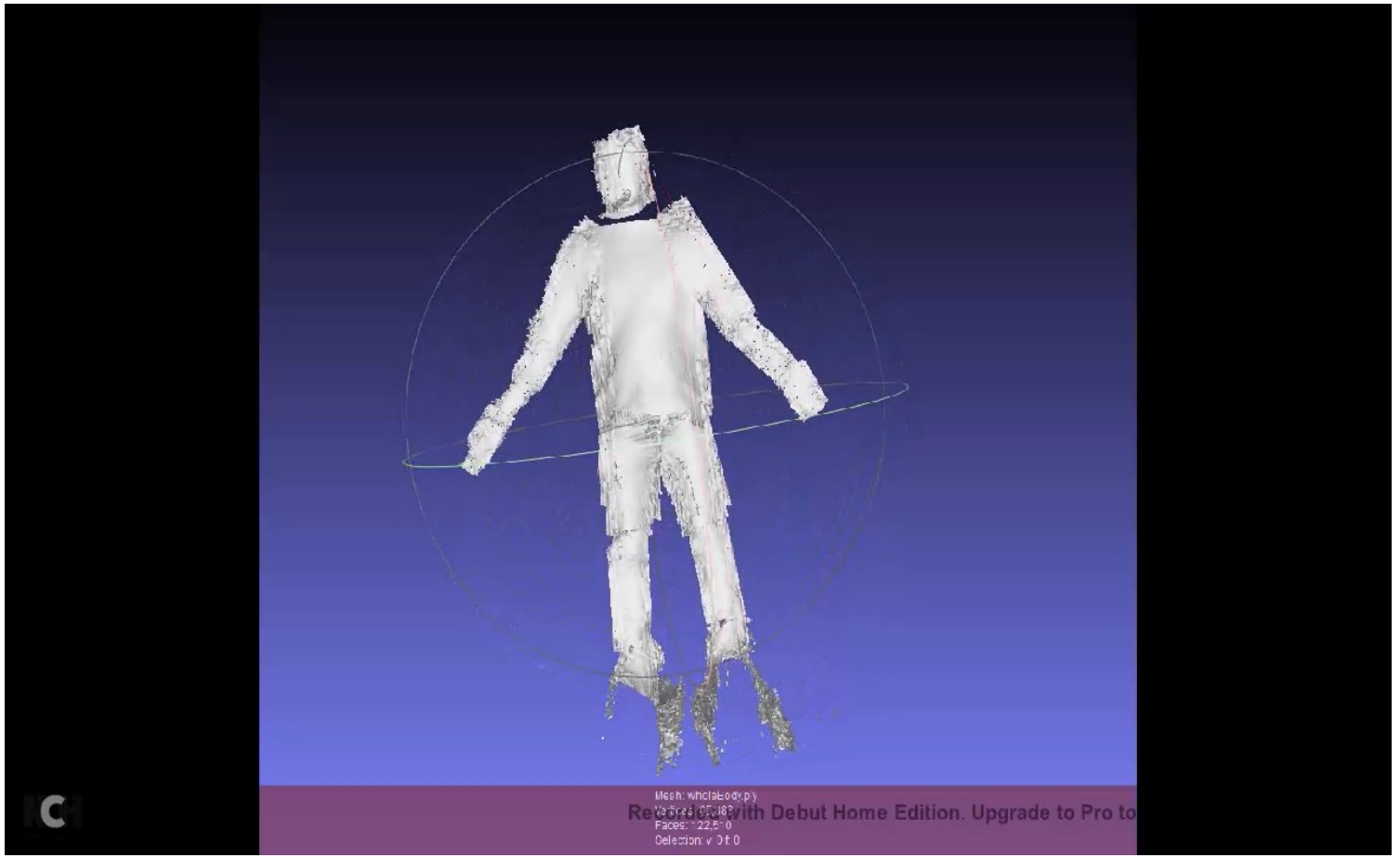
Tracking image 0-9 using tracking on T_loc→glo updated



Tracking error

Segmented tracking results

Tracking image 0-9 using tracking on T_loc→glo non updated

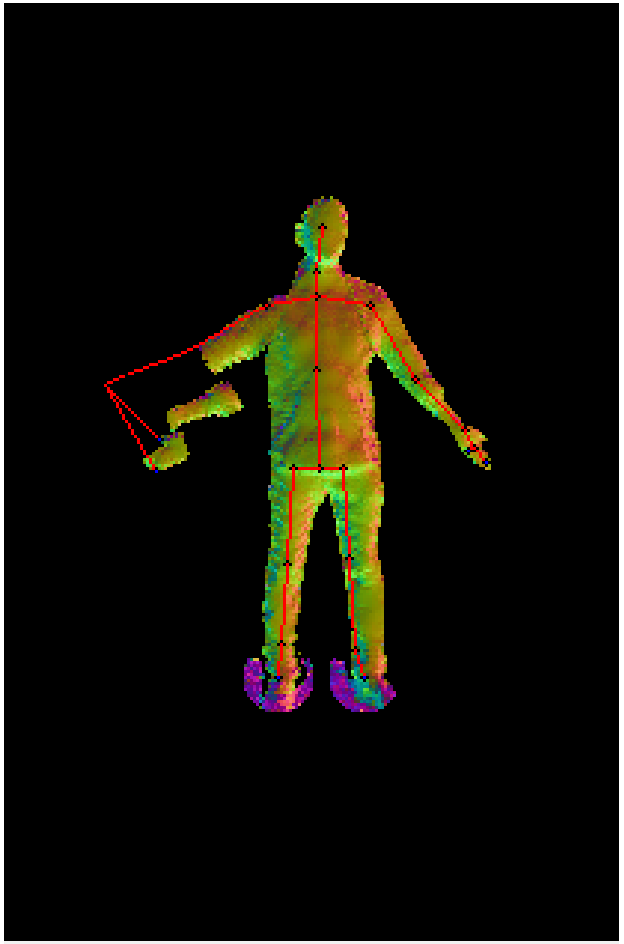


Still error in the tracking.
Seems like duplicate

Tracking not adapted for each body part?

Moving arm results

Nothing realist yet



```
angley = 0.5  # pi * 2. * delta_x / float(self.Size[0])
RotZ = np.array([[cos(angley), -sin(angley),   0.0, 0.0], \
                 [sin(angley),  cos(angley),   0.0, 0.0], \
                 [0.0,          0.0,           1.0, 0.0], \
                 [0.0,          0.0,           0.0, 1.0]])
```

Dataset

Action plan

- Segmented fusion
  - Alignment
- Report for NII
- Report for Grenoble INP
- Joints