NII International Internship program

Segmented Fusion

Warping method

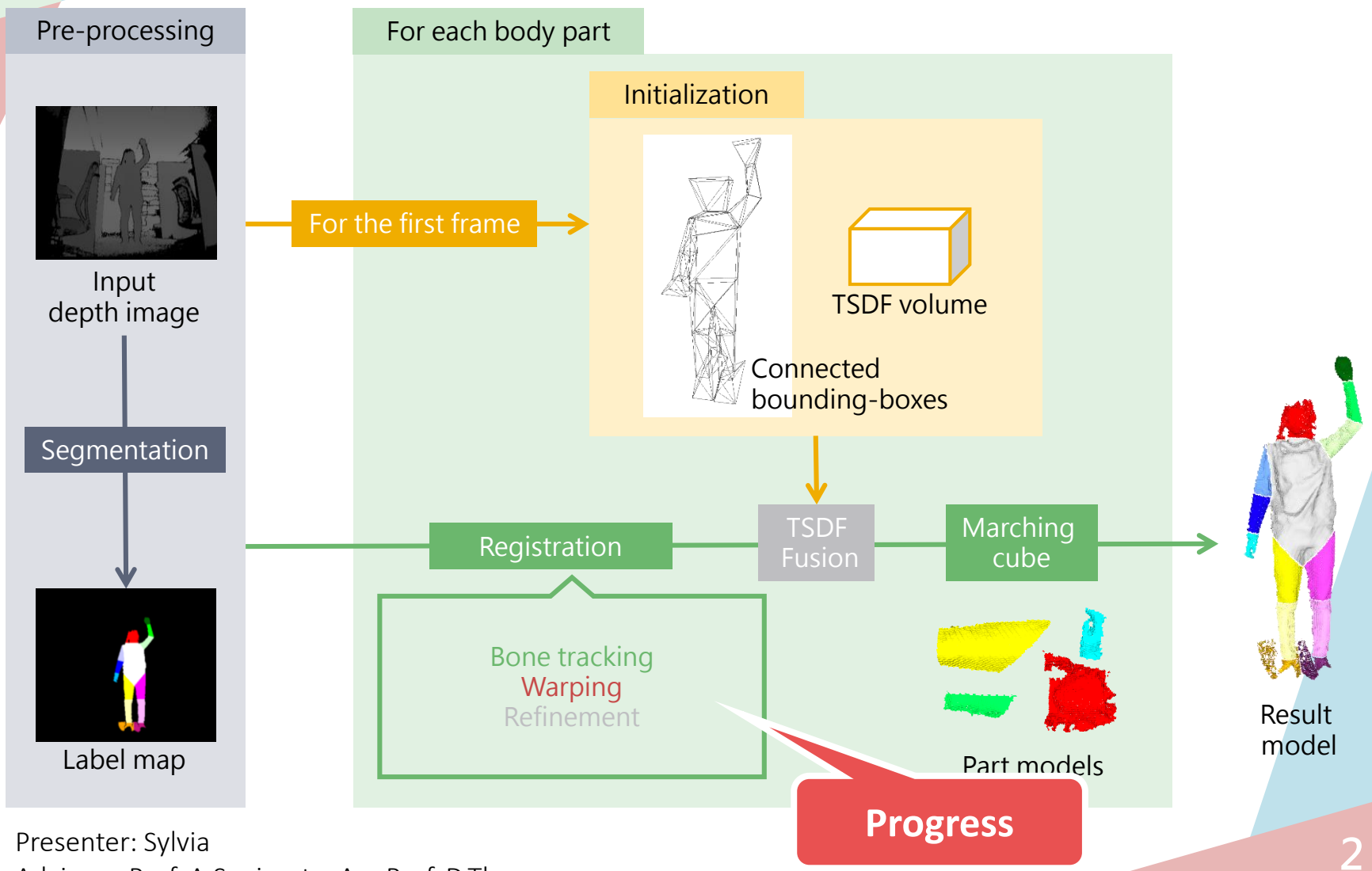
20180130

Sylvia

Advisors: Prof. A.Sugimoto

Ass.Prof. D.Thomas

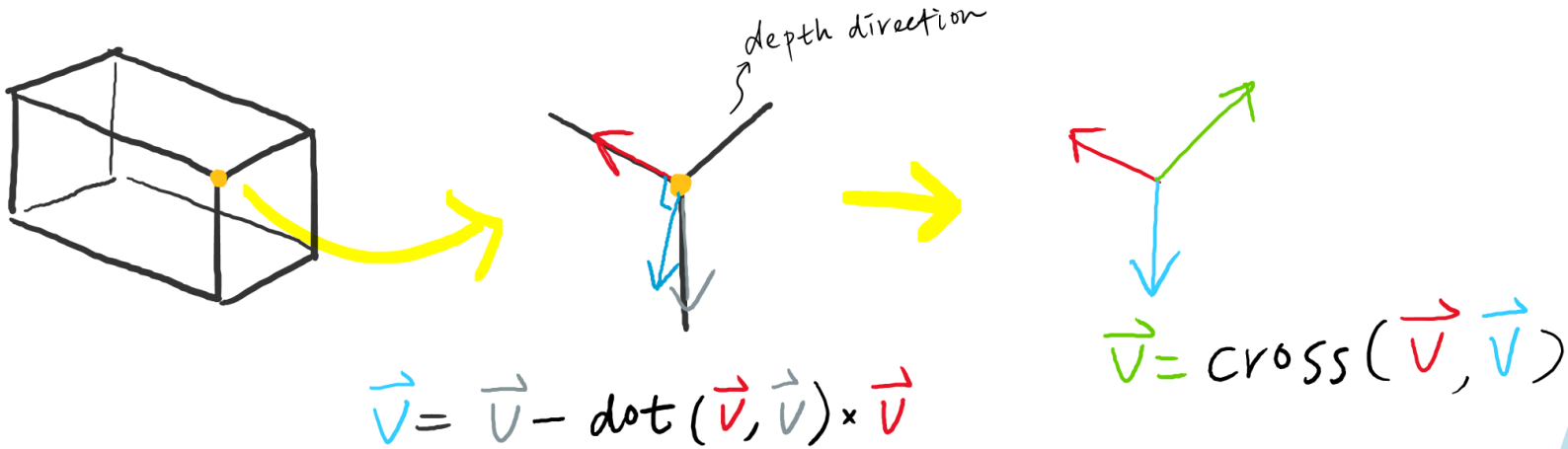
Summary



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

Corner's transform

- For each corner, I compute the coordinate system by long edge as main direction, and getting other two orthogonal unit vectors.



- For the corners which between two body parts, the transform is computed by using parent's bounding-box.

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

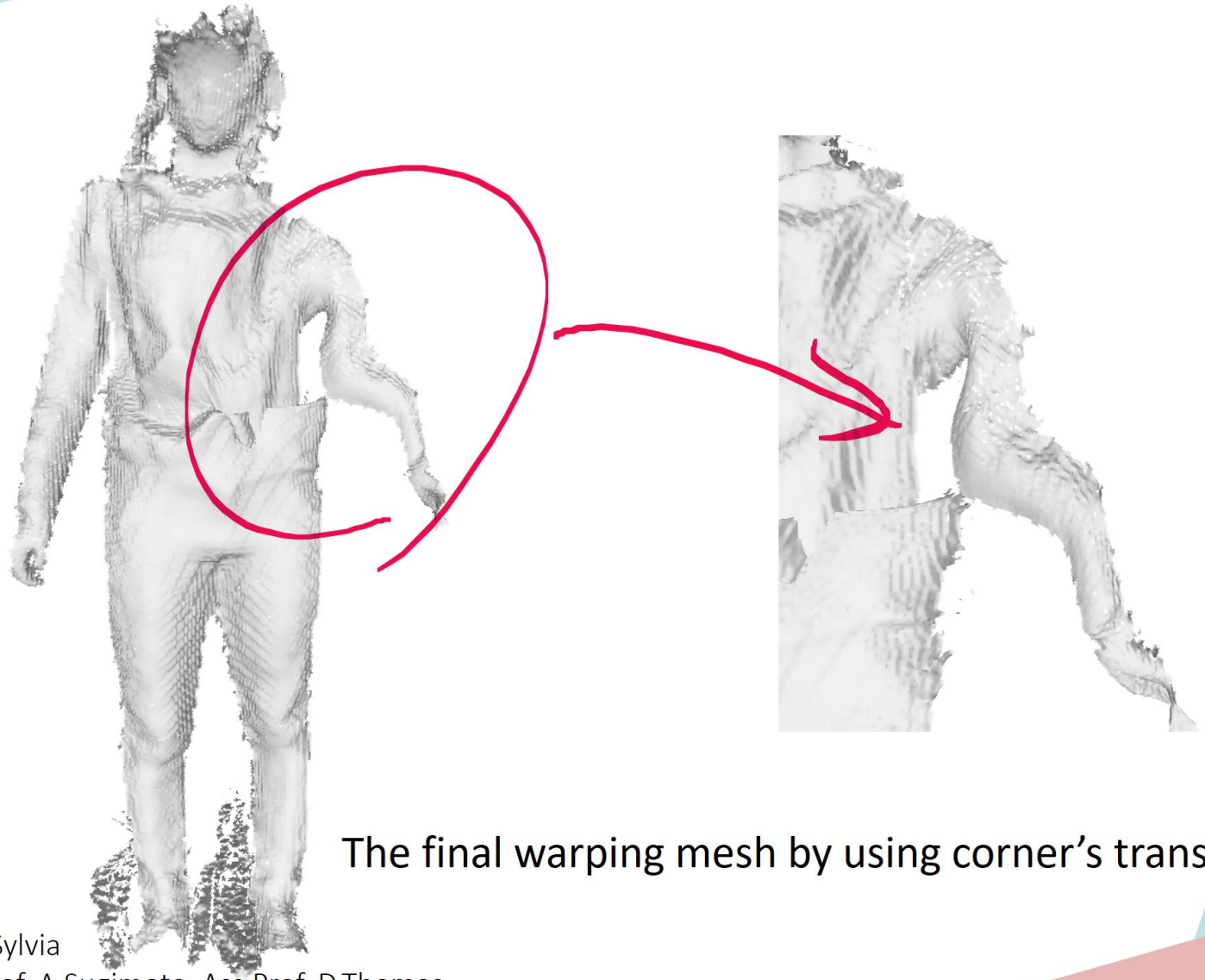
Corner's transform

- By using function in [1] , I get the transform matrix between canonical corner and the new frame's corner. I use **all corners** to warp one body part's vertices in warping step.
- The results[2] show that this algorithm can capture the distortion of clothes, but still have distortion in the large motion part. I think this is because the influence of each corner should not be same.

Reference:
[1] http://www.meshola.com/Articles/converting-between-coordinate-systems
[2] 031_cornerTr.avi, and page 5 in this slide

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

Corner's transform results

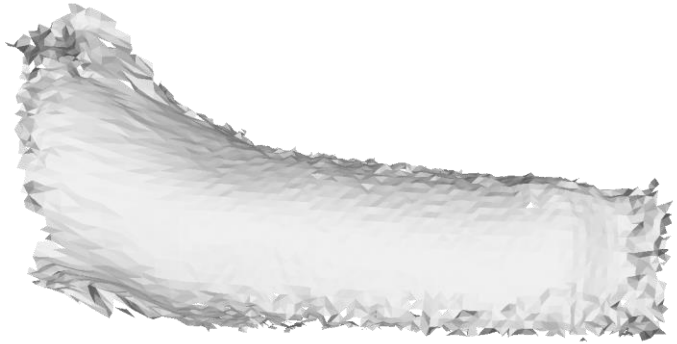


The final warping mesh by using corner's transform

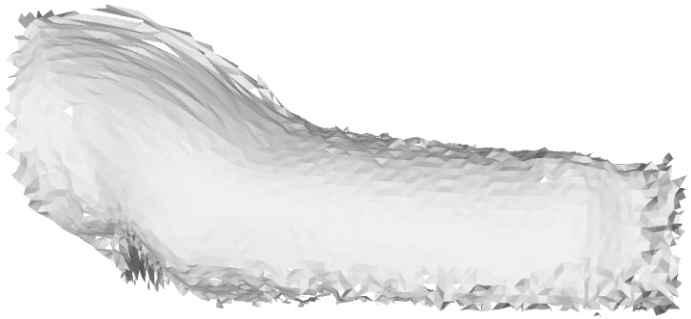
Presenter: Sylvia
Advisors: Prof. A.Sugimoto, Ass.Prof. D.Thomas

Standard mesh

- If we deform the volume in the first frame and want to save the meshes without deformation, we get the non-straight meshes in volume. However, after fusion, we get more better meshes in volume than the results which we don't warping volume at first frame.



Arm mesh in volume
with deforming volume



Arm mesh in volume
without deforming volume

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

Standard mesh

Final mesh with deforming volume

Final mesh without deforming volume

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