



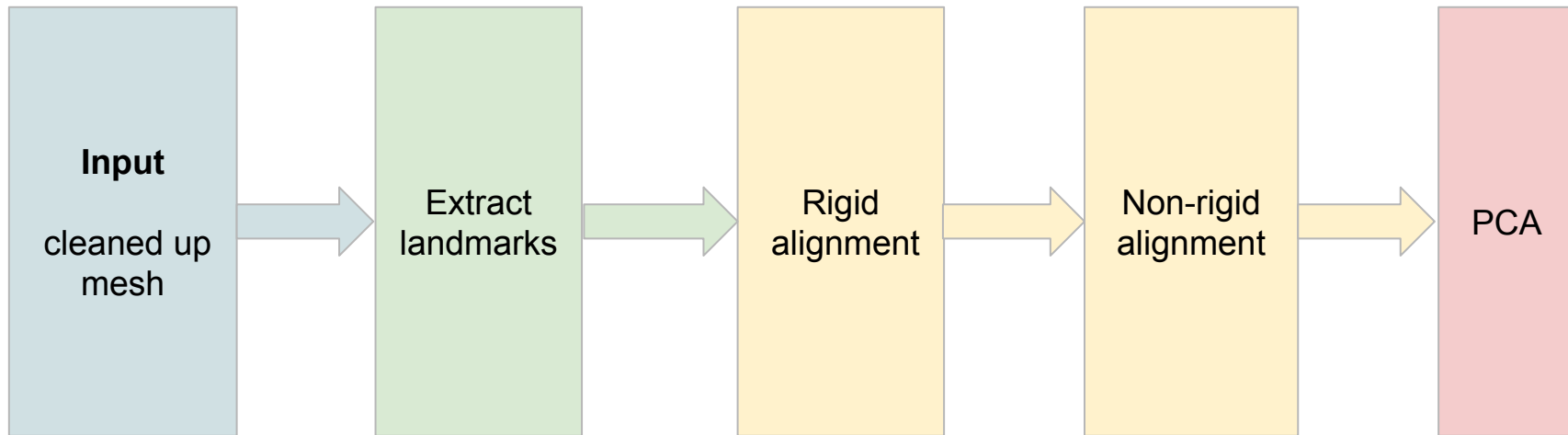
3D Face Modelling

Ana Zegarac, Haraldur Orri Hauksson,
Christopher Vogelsanger, Michael Kürsteiner, Pavel Pozdnyakov

Team 6

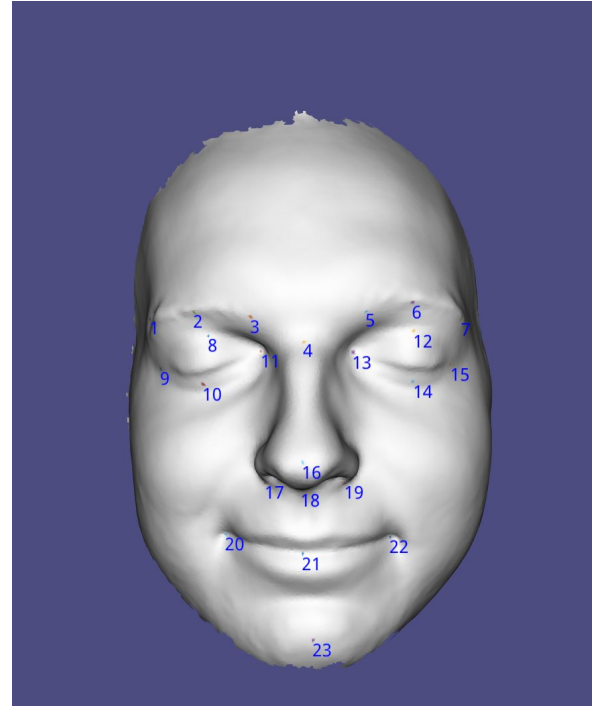


Pipeline

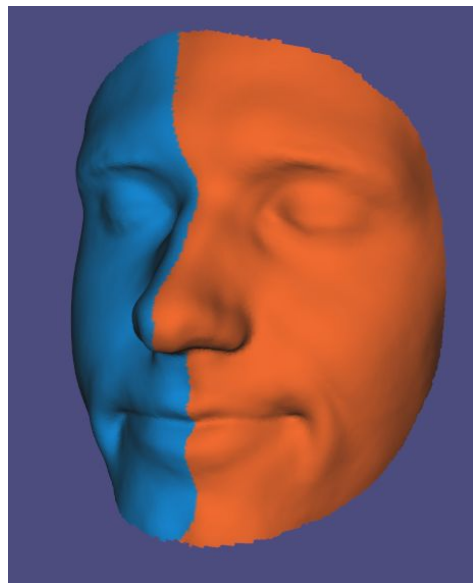
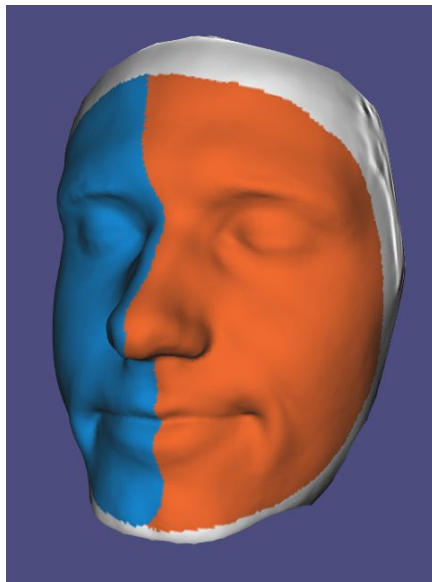
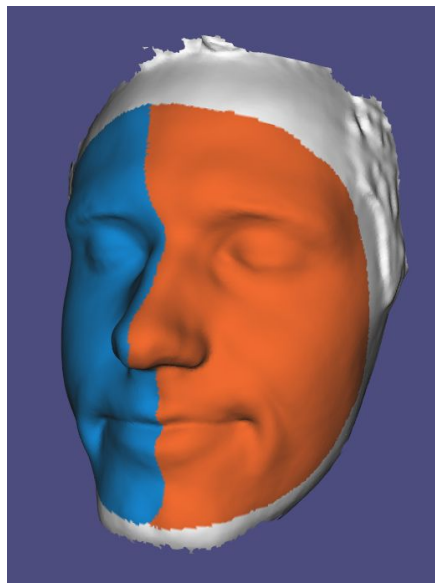


Extracting Landmarks

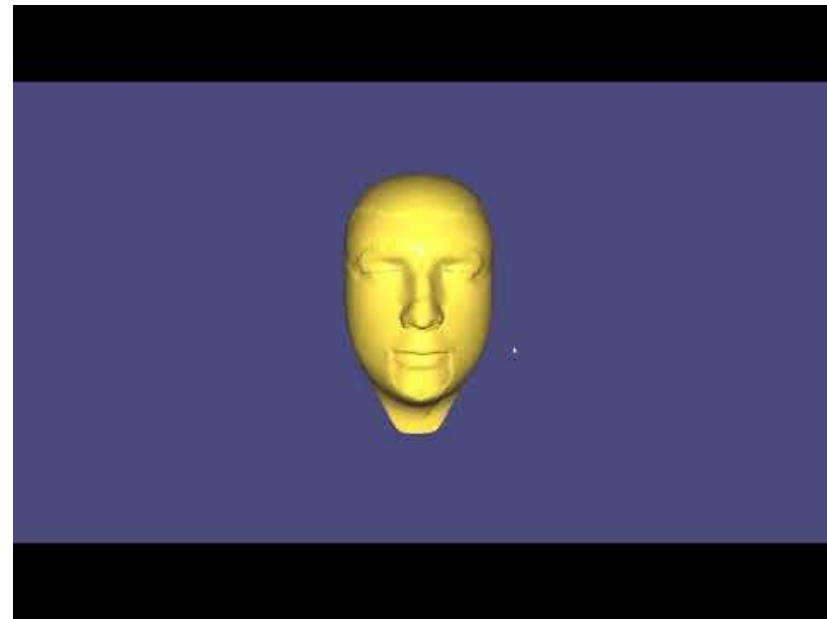
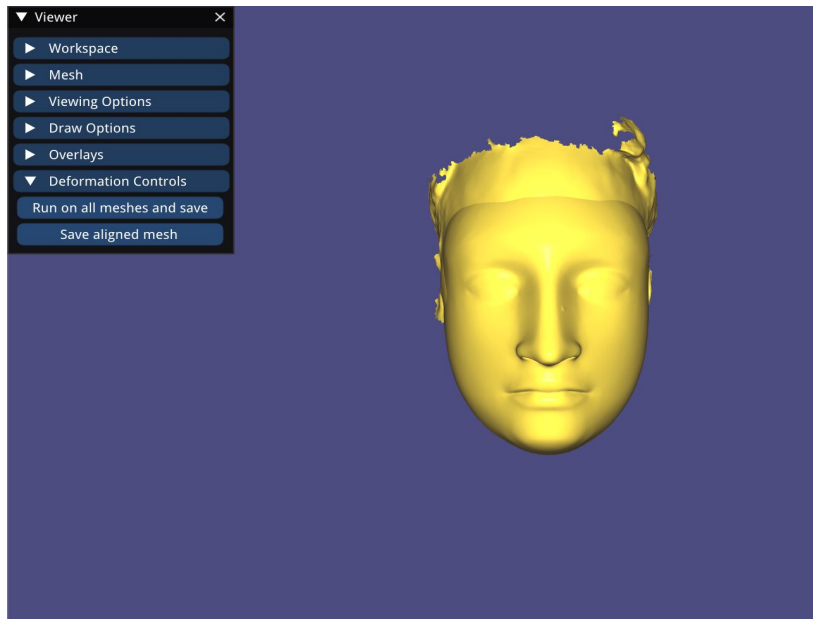
- Click on the mesh to create a new landmark
- Able to delete latest and all landmarks
- Save landmarks to the respective file
- Comfortable to work through numerous meshes at a time



Smoothing

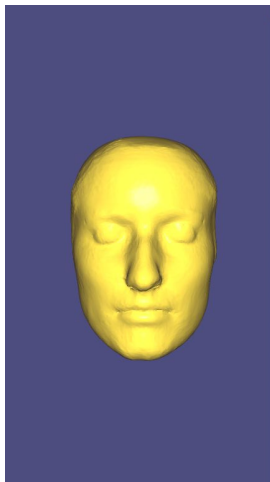


Alignment

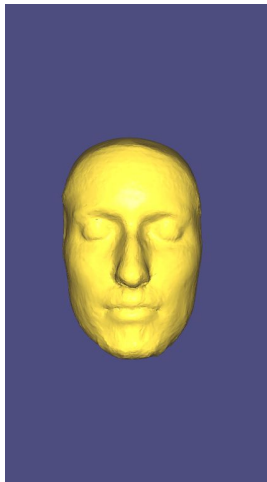


PCA: Eigenfaces

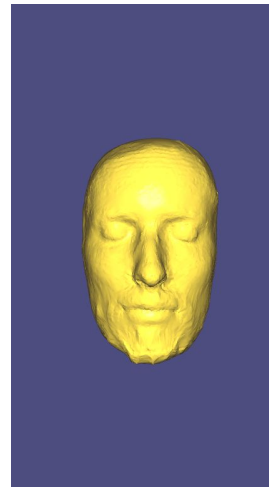
Eigenvalue 2



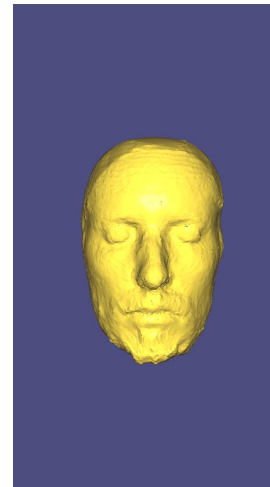
Eigenvalue 3



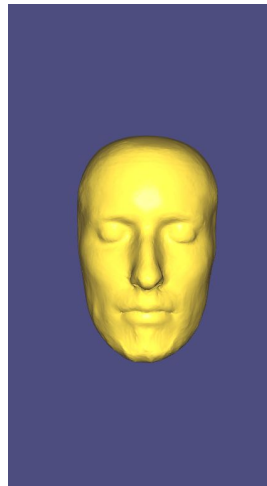
Eigenvalue 4



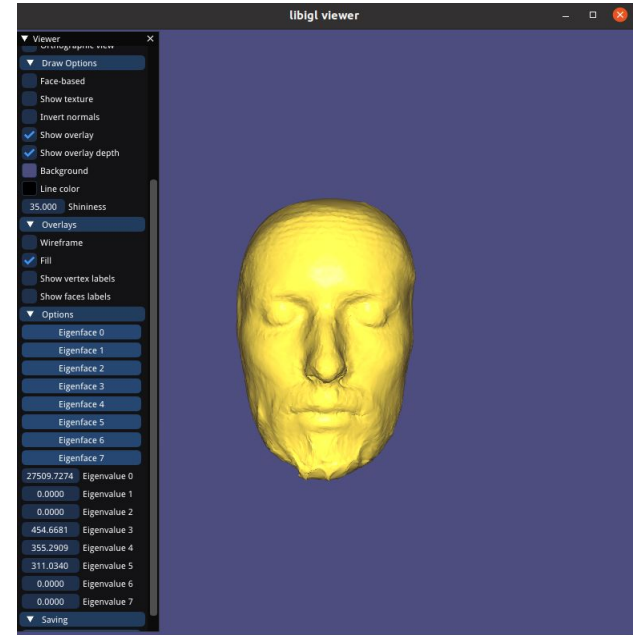
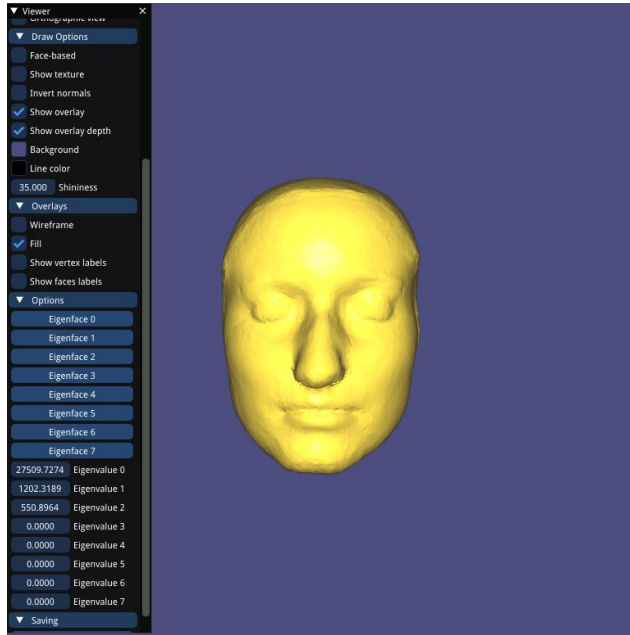
Eigenvalue 6



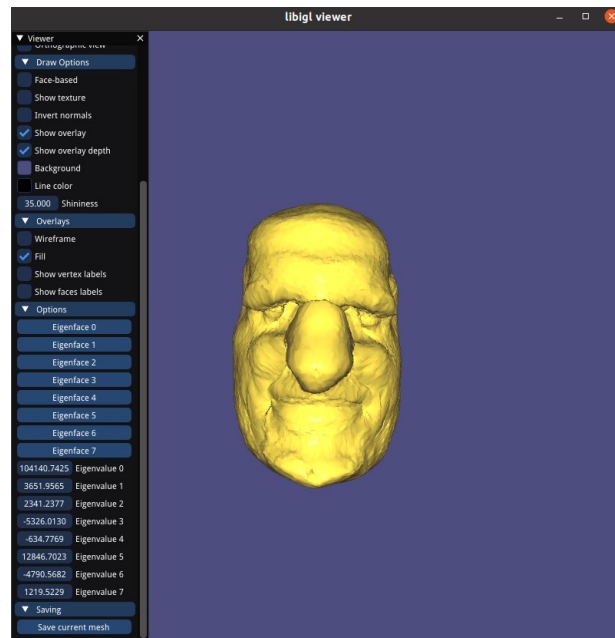
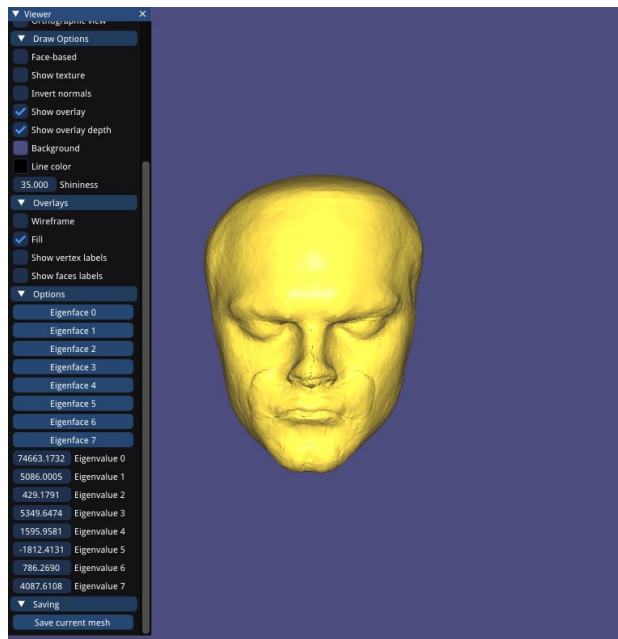
Eigenvalue 1



PCA: Morphing



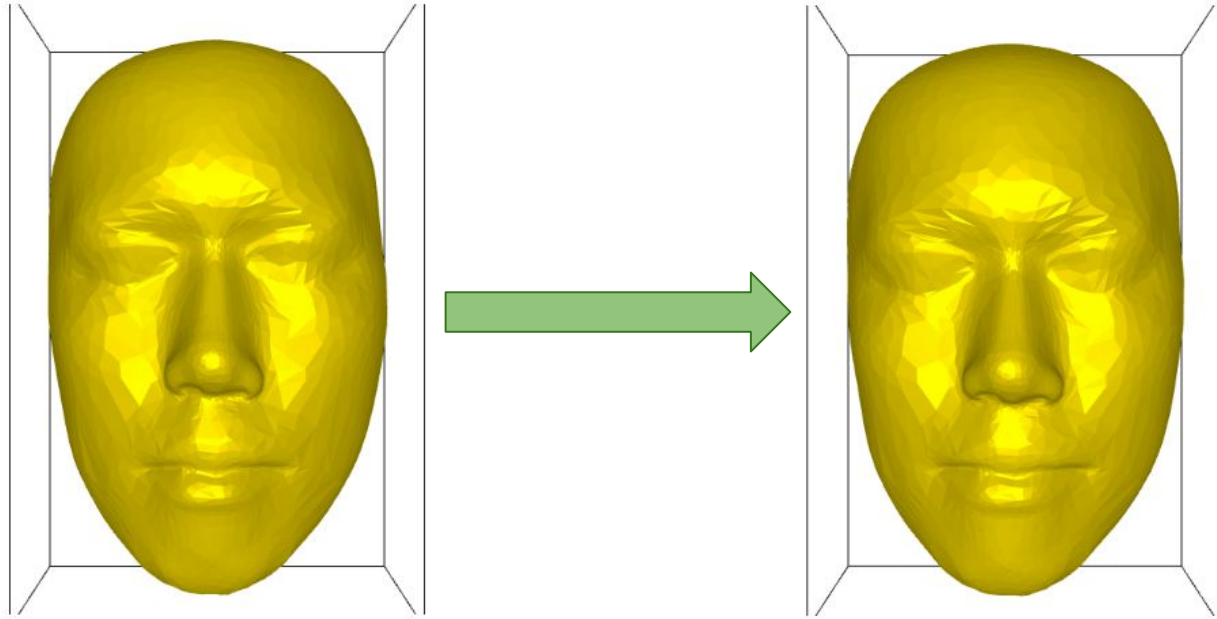
PCA: Morphing and New Meshes



Data

- Landmarks created for 112 meshes from scanned_faces_cleaned
- 111 of these meshes were successfully aligned
- PCA initialization takes ~20 seconds for all these meshes

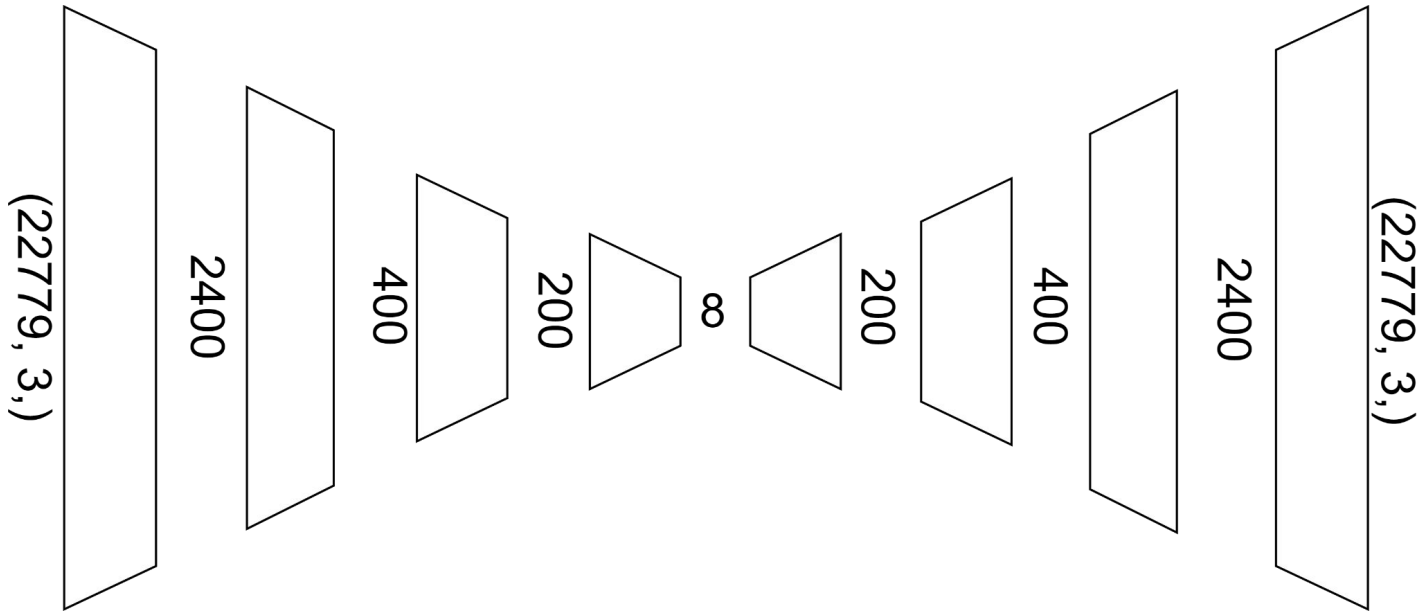
Auto Encoder



Auto Encoder

- Pass list of vertex positions
- Fully connected layers
- Use mean squared error for optimization

Auto Encoder: Network



Auto Encoder: Layer

