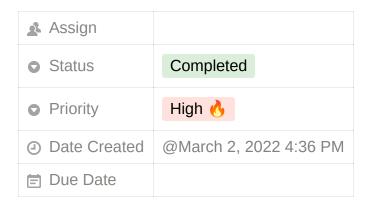
Facial feature detection in height maps



Log

Motivation

There are **two sides** in the landmark detection.

Side 1: Scene mesh

3D scene mesh + RGB \rightarrow RGB landmark detection (Apple model) \rightarrow Project to 3D scene

Side 2: CT data

CT scan → Generate height map → landmark detection (media pipe) → Project to 3D

These two set of landmarks are then used in the **registration process**.

Data Collection

- Collected data from the server
- Generated volumes and heightmaps using MarsTool
- Arranged data into one place

Generating height maps

- Using MarsTool to generate height maps
 - It create a volume from CT slices
 - Then just take the top/surface pixel to generate image
- Tool works, but
 - Have to do each volume manually?
 - Write
 - Batch script
 - or python script
 - or shell command inside jupyter notebook
- Using jupyter notebook for looping process

Approach

Preprocess

Preprocess_me

Preprocess_MrNa

MediaPipe

<u>MediaPipe</u>

PFLD

PFLD

Mediapipe vs PFLD

- Mediapipe is more accurate on heigh maps
- Told Mr. Na and Wonki
- Now we need mediapipe in onnx format for unity
 - Looking into that

Converting to ONNX

- Model link
- tf2onnx
 - https://github.com/onnx/tensorflow-onnx

python -m tf2onnx.convert --tflite ./model.tflite --output model.onnx