Input
CT and Biplane x-ray video
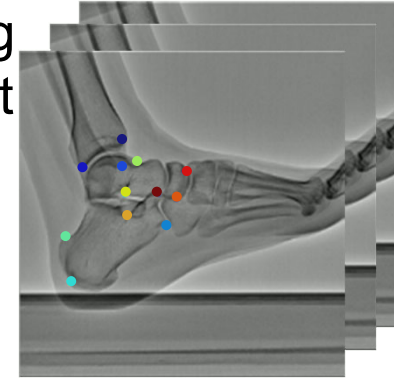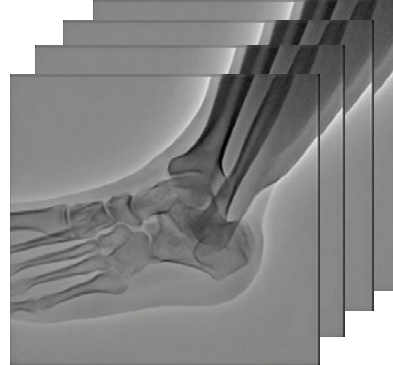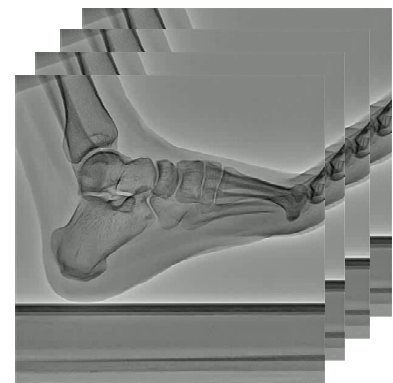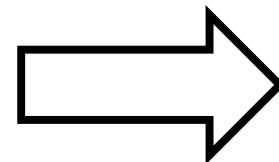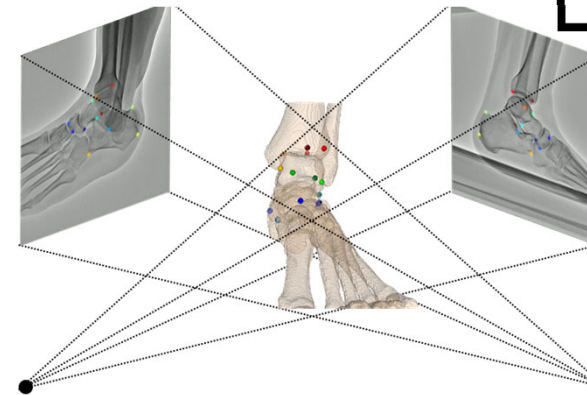
3D segmentation and landmarking by U-net
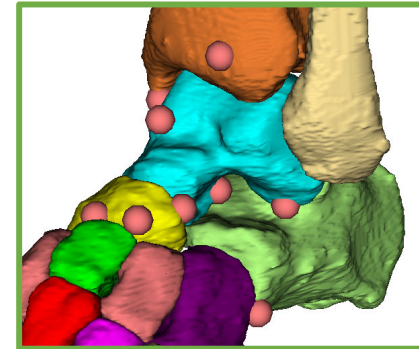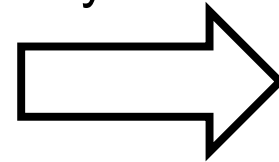
2D landmarking by DeepLabCut
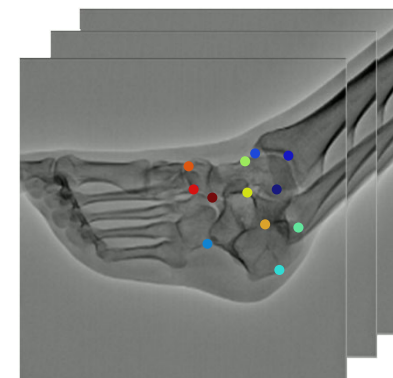
Intensity-based 2D-3D registration (landmark and image similarity cost)
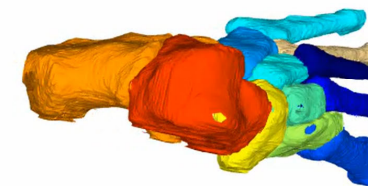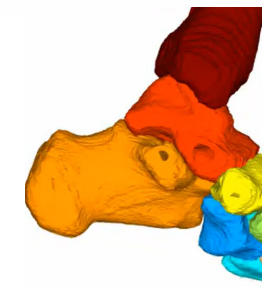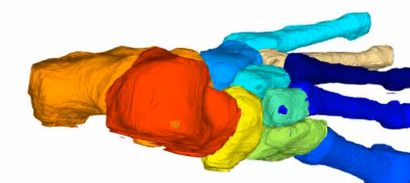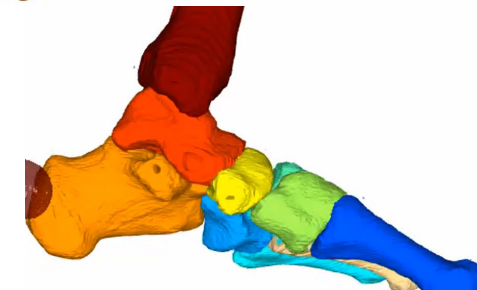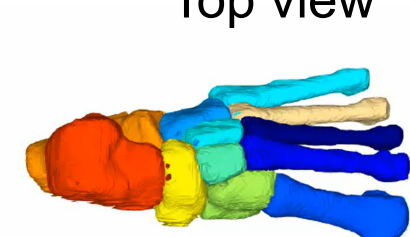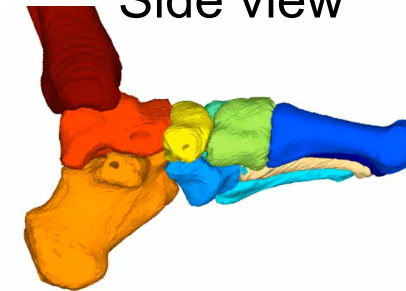
Output
Movement of each bone

Side view   Top view

t