

Simpleware AS Ortho

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Ankle CT Segmentation and Landmarking

- Anatomy specific automated segmentation tool for the ankle
- Automatic segmentation suitable for use on CT scans
- Produces masks for:
 - Calcaneus
 - Fibula
 - Talus
 - Tibia
- Landmarks placed on identified anatomy:
 - Ankle center
 - Fibular notch
 - Malleolus (lateral, medial)
- Automatic ROI detection within larger extent scans
- Option to retain all bone fragments

Hip CT Segmentation and Landmarking

- Anatomy specific automated segmentation tool for hip or pelvis region
- Automatic segmentation suitable for use on CT scans
- Produces masks for:
 - Hip (left and right)
 - Sacrum
 - Proximal Femurs
- Landmarks placed on identified anatomy:

- Anterior Superior Iliac Spine (left and right)
- Posterior Superior iliac Spine (left and right)
- Greater Trochanter (left and right)
- Lesser Trochanter (left and right)
- Pubic Tubercle (left and right)
- Femur Head (left and right)
- Coccyx
- Automatic ROI detection within larger extent scans
- Option to retain all bone fragments

Knee MRI Segmentation and Landmarking

- Anatomy specific automated segmentation tool for the knee
- Automatic segmentation suitable for use on MRI scans (PD weighted Sagittal/Coronal and T1 Coronal and T2 Sagittal)
- Produces masks for:
 - Femur and associated cartilage
 - Tibia and associated cartilage
 - Patella
 - Fibula
- Landmarks placed on identified anatomy:
 - Femur Condyles (lateral and medial)
 - Femur Epicondyles (lateral and medial)
 - Tibia Condyles (lateral and medial)
 - Tibia Intercondylar Eminence
- Automatic ROI detection within larger extent scans

Simpleware AS Ortho (Auto Segmenter for Orthopedics) provides anatomy-specific, automated segmentation tools for orthopedic data using Machine Learning (ML) algorithms, generating masks and landmarks from CT and MRI.

Knee CT Segmentation and Landmarking

- Anatomy specific automated segmentation tool for the knee
- Automatic segmentation suitable for use on CT scans
- Produces masks for:
 - Femur
 - Tibia
 - Fibula
 - Patella
 - Fabella (where present)
- Landmarks placed on identified anatomy (for left and right knees):
 - Femur posterior condyles (lateral, medial)
 - Femur epicondyles (lateral, medial)
 - Femur distal condyles (lateral, medial)
 - Femur proximal shaft centre
 - Tibia condyles (lateral, medial)
 - Tibia intercondylar tubercles (lateral, medial)
 - Tibia posterior condyles (lateral, medial)
 - Tibial tuberosities
 - Tibia distal shaft centre
 - Patella poles (distal, proximal)
 - Patella borders (lateral, medial)
 - Fibula apices
- Automatic ROI detection within larger extent scans
- Option to retain all bone fragments

Shoulder CT Segmentation and Landmarking

- Anatomy specific automated segmentation tool for the shoulder
- Automatic segmentation suitable for use on CT scans
- Produces masks for:
 - Humerus
 - Scapula
 - Clavicle

- Landmarks placed on identified anatomy:
 - Clavicle lateral end
 - Clavicle medial end
 - Malleolus (lateral, medial)
 - Humerus bicipital groove
 - Humerus bicipital groove
 - Humerus greater tuberosity
 - Humerus head centre
 - Humerus lesser tuberosity
 - Scapula acromion
 - Scapula coracoid
 - Scapula glenoid cavity
 - Scapula inferior angle
 - Scapula medial border
 - Scapula notch
 - Scapula spine
 - Scapula superior angle
- Automatic ROI detection within larger extent scans
- Option to retain all bone fragments

General User Interface

- Interactive anatomy diagrams indicate the expected output, if anatomies are present and identifiable in the input data
- Toggle segmentation of each available anatomy
- Toggle the generation of landmarks
- Landmarks accessible via the Measurements tool
- Reduce region of interest to a sub-volume of a larger extent scan, either automatically or manually

Scripting

- Run AS Ortho tools via the Simpleware scripting API in Python and C#
- Run with Console ScanIP for GUI-less processing from the command line