

Associated video files

Six video files (.avi files) are available in addition to this thesis in order to illustrate some Mimics and Solidworks steps. The following material is attached to the thesis:

2015waltermcscbioeng_video1.avi

Mimics video showing the 3D structure generated from the cropped mask on the left hip articulation (green 3D model) in association with the extrapolated polylines (yellow curves). We can notice the artefacts, holes and merged areas of the model.

2015waltermcscbioeng_video2.avi

Mimics video that compares the pelvis before (yellow) and after (green) an iteration or the refining process. The surface quality improves, holes are closed and artefacts are suppressed. The acetabular surfaces in particular are meticulously redefined.

2015waltermcscbioeng_video3.avi

Mimics video displaying a rotating view of the 3D left femur model before the smoothing operation.

2015waltermcscbioeng_video4.avi, 2015waltermcscbioeng_video5.avi and

2015waltermcscbioeng_video6.avi

These are Solidworks videos showing the final motion analysis simulation. First impingement occurs at 4 seconds, second impingement occurs at 20 seconds. Anatomical planes are displayed at the hip centre level without labels on **video4**, and with transverse, sagittal and coronal labels on **video5**. Finally, the simulation is shown without the planes on **video6**.