

The aim of this work is to present a 3D reconstruction method of the proximal femur shape using contours identification from pairs of 2D X-ray radiographs without any prior knowledge. 3D personalized model was reconstructed following a processing chain of seven different steps. After localization of the 2D contours on the images and the matching points of these contours, a 3D contour is generated using an algorithm based on a mathematical model. Thus, with a reduced number of pairs of images, we reconstruct a 3D points cloud, which enables obtaining a closed 3D surface. The accuracy of our approach was evaluated by comparing the reconstruction result with the 3D CT-scan reconstruction of cadaveric proximal femur. The estimated error shows that it is possible to rebuild the proximal femur shape from a limited number of radiographs