**BONE EXTRACTION IN X-RAY IMAGES BY ANALYSIS OF LINE FLUCTUATIONS**

**ABSTRACT**

Segmentation of X-ray bone images is of concern in many medical applications such as detection of osteoporosis and bone fractures. Segmentation of such images is a challenging process. Varying brightness throughout the image makes it difficult to separate bones from background and soft tissue. Costume made as well as standard segmentation methods, such as active contour and region growing, have been applied to bone X-ray images. Although each method could perform well for some images, due to variety of bone structures and lighting conditions none of these methods can be considered as complete. In this paper we present a new bone segmentation method in which an image goes through preprocessing steps such as noise cancellation and edge detection. Analysis of intensity fluctuations in all rows of the image results in more accurate segmentation of bone regions. Visual evaluation show that the proposed algorithm segments bones better than conventional and some recent bone segmentation approaches.

***Keywords —***X-ray, bone segmentation, noise cancellation, edge detection