Segmentation des images radiographiques

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Abstract: Image segmentation is an important step in any image analysis process. The subject has already been tackled by multiple approaches. These approaches are based on various tools such as mathematical morphology, wavelet decomposition, active contours; some are based on the detection of contours and others on the identification of regions. Each of these classes of methods has its advantages and disadvantages. In this dissertation, we present the different segmentation approaches and we choose a hybrid method for segmenting chest X-ray images composed of two algorithms. One is the FCM as an initial contour for the other segmentation method LEVEL SET which is a variant of the deformable models based on the active contour method, we injecting the images resulting from this segmentation process into a convolutional neural network (CNN) in order to classify them according to the pathological state. Therefore the aim of our work is the implementation of a model for segmentation and classification of medical X-ray images to assist doctors in the detection of pulmonary pathologies.

Keywords : image segmentation, chest X-ray image, Active contour, FCM, Level set, classification, CNN