Fast Segmentation Methods for Medical Images

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Abstract

Image segmentation is about splitting the whole image into segments. In case of image analysis, image processing one of the crucial steps is segmentation of the image. Segmentation of image concern about dividing the entire image in sub parts that may be similar or dissimilar with respect to features. Output of image segmentation has consequence on analysis of image, further processing of images. Analysis of image comprises depiction of object and object representation, measurement of features. Therefore characterization, area of interest’s visualization in the image, description have crucial job in the segmentation of the image. This survey explains some methods of image segmentation. Segmenting an image into meaningful parts is a fundamental operation in image processing. Image segmentation is the process of partitioning a digital image into multiple segments. In this paper, various image segmentation methods are explained like edge detection, region based segmentation, neural network techniques, energy based and hybrid methods, etc. In this paper review of image segmentation is explained by using different techniques. The efficiency of the segmentation process improved with the help of several algorithms, namely, active contour, level set, fuzzy clustering and
K-means clustering. This paper analyses the performance of algorithms for image segmentation in detail. Intensity and texture based image segmentation is the two levels of the level set method. The combination of both intensity and texture based image segmentation provides better results than the traditional methods. The detailed survey of segmentation techniques provides the requirement of the suitable enhancement method that supports both intensity and texture based segmentation for better results.

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Index Terms

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Keywords

Segmentation, Image analysis, Active contour model, fuzzy C-mean (FCM), Gaussian mixture model (GMM), Level set method.