

Image Segmentation Techniques: Review

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Abstract : Image segmentation is the process of dividing an image into several sections, such as the object's background and the foreground. It is a critical technique in both image-processing tasks and computer vision. Most of the image segmentation algorithms have been developed for gray-scale images and little research and algorithms have been developed for the color images. Most image segmentation algorithms or techniques vary based on the input data and the application. Nearly all of the techniques are not suitable for noisy environments. Most of the work that has been done uses the Markov Random Field (MRF), which involves the computations and is said to be robust to noise. In the past recent years' image segmentation has been brought to tackle problems such as easy processing of an image, interpretation of the contents of an image, and easy analysing of an image. This article reviews and summarizes some of the image segmentation techniques and algorithms that have been developed in the past years. The techniques include neural networks (CNN), edge-based techniques, region growing, clustering, and thresholding techniques and so on. The advantages and disadvantages of medical ultrasound image segmentation techniques are also discussed. The article also addresses the applications and potential future developments that can be done around image segmentation. This review article concludes with the fact that no technique is perfectly suitable for the segmentation of all different types of images, but the use of hybrid techniques yields more accurate and efficient results.

Keywords : clustering-based, convolution-network, edge-based, region-growing

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