A Comparative Study of Segmentation Techniques for Brain Magnetic Resonance Images

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Abstract

Segmentation is a core process for automatic detection and identification of brain tumors as it plays a vital role in extracting the information of the image as measuring and visualizing the brain's anatomical structures and analyzing the brain changes. From this point the need for accurate and automatic segmentation techniques has risen as manual segmentation is not a realistic solution and yet time consuming. This paper examines the various automated segmentation techniques used by researchers on brain magnetic resonance images (MRI), giving the most important features for the most common techniques used in the area of brain tumors. Moreover, a comparative study to address the differences, limitations, advantages and challenges of each technique mentioned when being used on brain MRI to find out their efficiency in this area and to put guidelines that should be considered when using these techniques.