



Survey Report

A Survey on Neural Network based Automatic Segmentation of Brain Magnetic Resonance Images

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ABSTRACT

Medical Images are used as an important tool for determination of Pathological condition of the vital organs of the body like brain, lungs, liver, etc. Segmentation is the first step

towards automatic processing for analysis and evaluation of medical images. Especially, image segmentation is a prerequisite process for image content understanding in brain MRI for the development of a computer aided diagnosis (CAD) system. It is a technique, which partitions an image into units, which are homogeneous with respect to one or more characteristics. Automatic Segmentation of brain MRI is used as a diagnostic tool in neuro medicine. Abnormal growth of brain tissues can be detected with the help of segmentation techniques. Changes in volumetric growth of brain tissues such as White Matter (WM), Gray Matter (GM) and Cerebrospinal fluid (CSF) can help in the early detection of neural disorders like epilepsy Alzheimer's disease, parenchymal bleeds, etc. Even though several automated methods are available for segmentation of Brain MRI, there is no clear differentiation between these techniques about the suitability for various neural disorders. We presented a review of the methods used in brain segmentation. The review covers imaging techniques, magnetic resonance imaging and methods for segmentation and how a known Neural Network with fixed structure and training procedure could be applied to resolve medical imaging problem pertaining to Brain image segmentation.

Keywords: Brain, Segmentation, Medical Imaging, CAD, MRI and Neural Networks.

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