
Abstract

ABSTRACT

The medical images are normally used to identify different tissues based on different properties such as CT, X-Ray, and MRI. Magnetic resonance imaging (MRI) is an advanced medical imaging technique, which provides rich and high level information about the human soft tissue anatomy. Abnormal growth of cells in the brain or central spine is called brain tumor. When the growth of these cells is above 50%, the tumor might be cancerous and dangerous. Therefore early and accurate detection of tumor is essential.

Thus the main objective of this research work is to segment a tumor from accepted MRI images. This algorithm consists of the following steps during extraction of brain tumor namely, preprocessing, clustering, feature extraction and segmentation.

The MRI brain images are blurred and affected by noises. So the noise has been removed from the original MRI images using Median filter. Then brain is clustered into well known regions like White Matter (WM), Gray Matter (GM), Cerebrospinal fluid (CSF) and background by using fuzzy c-mean.

Partitioning an image space into non overlapping meaningful homogeneous regions or objects is called segmentation. The accuracy of segmentation determines the success of any image analysis system. The MRI brain tumor segmentation is a challenging and time consuming process since the intensities of the gray matter and white matter are very close in different tissues.

In the proposed work, HSOM segmentation is used to extract the brain tumor from the clustered image. It is used to segment the image row by row. Finally, the proposed method is evaluated by obtaining the elapsed time and accuracy based on SVM classification.