**Brain tumor segmentation and its area calculation in brain MR images using K-mean clustering and Fuzzy C-mean**

**Alternate title:**

Brain Tumor Detection Using Deep Learning Framework

**Abstract:**

Brain tumor identification is really challenging task in early stages of life. But now it became advanced with deep-learning. Now a day’s issue of brain tumor automatic identification is of great interest. In Order to detect the brain tumor of a patient we consider the data of patients like MRI images of a patient’s brain. Here our problem is to identify whether tumor is present in patients brain or not. It is very important to detect the tumors at starting level for a healthy life of a patient. Finally deep neural networks classifier is applied then result image will compared with the dataset images and it will display whether it is benign or malignant.

**Existing System:**

The Existing system describes the cellular automation of segmentation. The technique is used to interactive multi label segmentation for N dimensional images. It segments the areas which are more difficult to segment. The method is iterative, giving feedback to the user while the segmentation is computed.

**Proposed System:**

We are providing new methods of MRI images of Brain of a patient. The images are pre processed and further segmented for the required feature. Then feature Extraction is done for the images by GLCM features. Region of interest (ROI) segmentations is applied in order to identify the affected portion of tumor. Here the threshold required for segmenting adjusts itself according to the segmented area and position. Finally classification applied through a deep neural networks then result image will compared with the dataset images and it will display whether it is benign or malignant.

**Module Description:**

**Module 1: Preprocessing**

The images which are collected are subjected to pre- processing. In Pre-processing stage basic steps are image resizing and applying Median filters for a perfect input clear image for easy identification of an image. Pre-processed images will be segmented digitally into various pixels. We do this segmentation for an image is to modify its representation to have more clarity to analyze the images.

**Module 2: Feature Extraction**

In the feature extraction process, we can implement the effective texture operator which labels the pixels of an image. Here we extract the features and characteristics of Images for easy detection of brain tumor.

**Module 3: Classification**

This module is used to establish the deep neural network concept for training the image and testing the image with the help of weight estimating classifier. The result image will compared with the dataset images and it will display whether it is normal or abnormal.

**System Requirements:**

**SOFTWARE REQUIREMENTS:**

MATLAB R2013a

**HARDWARE REQUIREMENTS:**

PC, Pentium 4 processor, 2 3.06 GB RAM, CPU GHz

**Architecture:**

 Input image

Preprocessing

Feature Extraction

Segmentation

Classification

Training & Testing

Normal/Abnormal

