

## **97. IMPROVING BRAIN TUMOR CHARACTERIZATION ON MRI USING LEARNING MACHINE APPROACH AND FUZZY SEGMENTATION SYSTEM**

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The project proposed an improved method of MRI brain image classification and image segmentation approach. It's an automatic support system for stage classification using learning machine and to detect brain tumor through spatial fuzzy clustering methods for bio medical application. The detection of the Brain Tumor is a challenging problem, due to the structure of the Tumor cells. This project presents a segmentation method, spatial fuzzy clustering algorithm, for segmenting Magnetic Resonance images to detect the Brain Tumor in its early stages and to analyze anatomical structures. The artificial neural network will be used to classify the stage of Brain Tumor that is benign, malignant or normal. Here Dual Tree CWT multi scale decomposition is used to analyze texture of an image. The segmentation results will be used as a base for a Computer Aided Diagnosis (CAD) system for early detection of Brain Tumor which will improve the chances of survival for the patient. In brain structure analysis, the tissues which are WM and GM are extracted. Probabilistic Neural Network with radial basis function will be employed to implement an automated Brain Tumor classification. Decision making was performed in two stages: feature extraction using GLCM and the classification using PNN-RBF network. The performance of this classifier was evaluated in terms of training performance and classification accuracies. The simulated results will be shown that classifier and segmentation algorithm provides better accuracy than previous method.

Index Terms— MRI brain image, Machine Learning, Feature Extraction, Segmentation