Segmentation of Brain MRI Images for Tumor extraction by combining C-means clustering and Watershed algorithm with Genetic Algorithm

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Abstract — **Tumor segmentation from MRI data is an important but time consuming manual task performed by medical experts. The research which addresses the diseases of the brain in the field of the vision by computer is one of the challenges in recent times in medicine. Magnetic Resonance Imaging (MRI) is one of the best technologies currently being used for diagnosing brain tumor. In this paper an intelligent system is designed to diagnose brain tumor through MRI using image processing clustering algorithms such as Fuzzy C Means along with Watershed Algorithm and intelligent optimization tools, such as Genetic Algorithm (GA).In proposed work we take any abnormal image of brain tumor and then produce an output which is extracted portion of tumor by applying genetic algorithm with fuzzy C-menas clustering and Watershed algorithm . FCM is superior over different clustering approaches. This combined approach is used to improve segmentation efficiency and obtain higher value of true positive pixels belong to tumorous region. Genetic algorithm is a stochastic global optimization algorithm, their combination can prevent FCM being trapped in local optimum and give more better results in comparison to neural networks.**

Keywords — **Magnetic Resonance Imaging, Brain Image Segmentation,Fuzzy C-Means,Genetic Algorithm, Watershed.**