

## Documents

Latif, G., Iskandar, D.N.F.A., Jaffar, A., Butt, M.M.

**Multimodal brain tumor segmentation using neighboring image features**

(2017) *Journal of Telecommunication, Electronic and Computer Engineering*, 9 (2-9), pp. 37-42. Cited 4 times.

**Abstract**

Brain tumor can grow anywhere in the brain with irregular contours and appearance. It is very hard to correctly segment the tumor tissues due to the similarity, noise, complex texture, poor sampling and image distortions. In this article, an enhanced novel technique for brain tumor detection is introduced by using multimodal (T1, T2, T1c, Flair) MR images. The proposed method consists of two main steps. In the first step, supervised binomial classification method is used to classify MR images into tumorous and non-tumorous by extracting Discrete Cosine Transform (DCT) features and applying k-nearest neighbors (KNN) classifier. In the second step, segmented the tumor by manipulating image intensity values and used neighboring image features along with the actual image features. We further enhanced the tumor segmentation by applying region-growing algorithm. The proposed method is tested on MICCAI BraTS 2015, a well-known standard dataset. Receiver Operating Characteristic (ROC), Dice Similarity Coefficient (DSC) and Mutual Information (MI) are used to measure the performance and achieved 96.91% accuracy for the binomial classification and 93.22% accuracy for the tumor segmentation.

2-s2.0-85032789582

**Document Type:** Article

**Publication Stage:** Final

**Source:** Scopus