

Gray Level Co-occurrence Matrix (GLCM) texture feature analysis for brain tumor classification using MRI

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The global prevalence of cancer is significant, and all are susceptible including young and elderly, active and inactive, underweight and overweight. According to the epidemiology, brain tumors account for 85% to 90% of all primary central nervous system tumors. Brain tumors can be divided into benign (non-cancerous) and malignant (cancerous). When using MRI to diagnose tumors, it takes a lot of time and effort to manually classify MRI images. Automatic or semiautomatic classification approaches are required in order to distinguish between various tumor types because human observations can result in classification errors. The purpose of this study is to perform a statistical analysis to distinguish between benign and malignant brain tumors and to develop a new method that can be used to reduce misclassification of manual MRI observations. Using the MicroDicom viewer, T1-weighted and T2-weighted axial images were selected. Tumor ROIs (region of interest) were drawn using MATLAB. Some image features were calculated for each image slice. Certain feature values were discovered for selected regions of benign and malignant tumors. Features were compared to one another to determine how they had changed. Machine learning (ML) algorithms for supervised learning have a variety of formats. In this research work, LDA (Linear Discriminant Analysis) was used to differentiate tumors using python. The accuracy of LDA algorithm was 92.59%. This analysis can be used to differentiate the tumors with high accuracy.

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