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Title	Automated Computer-aided Diagnosis for Brain Tumor Detection
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Abstract

Brain tumors are a mass or collection of abnormal cells and tissues in the brain which can be benign or malignant that grow to cause deleterious brain damage due to the increase in pressure that is caused inside the brain. The diagnosis of these tumors requires highly skilled clinicians and is sometimes prone to human errors. Therefore, to help facilitate the clinicians, doctors, and surgeons in effective visualization and diagnosis of these inimical brain tumors we propose the implementation of a computer-aided diagnosis system that acts as an assistive tool to diagnose or interpret brain tumor regions in MR (Magnetic Resonance) images. We have presented a solution that enables the clinician to obtain a report on the MR images of the patient using a neural network-based computer-aided diagnosis system by implementing Mask-RCNN to carry out the instance segmentation of tumors, thereby detecting the different major types of brain tumors like glioma, meningioma, and pituitary for easy and accurate visualization. The qualitative analysis performed to verify and evaluate the performance of the proposed system indicated an accuracy of 96.4% and an Intersection Over Union value of 0.955 for localization of the major brain tumors in the brain MR images procured from MRI (magnetic resonance imaging) scans.