MULTI-CLASS BRAIN TUMOR CLASSIFICATION FROM MRI IMAGES USING CONVOLUTIONAL NEURAL NETWORKS WITH DATA AUGMENTATION

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Abstract

Early detection and classification of brain tumor, is one of the challenging tasks for medical practitioners and plays a vital role in choosing the appropriate treatment method that ensures an improved life expectancy of patients. Clinical diagnosis is performed with biopsy which is not possible without a brain surgery and conventionally by inspecting the magnetic resonance images (MRI) which is prone to human errors. A deep learning-based Convolutional Neural Network (CNN) is used for three type of brain tumor classification in MRI with remarkable performance and higher accuracy without any invasive methods. The proposed CNN network architecture can be an excellent decision support tool for Computer Aided Diagnosis (CAD) of tumor cells with the accuracy 97.6%.

Keywords: *biopsy, deep learning, convolutional neural networks*