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Efficient Brain Tumour Prediction using 2D

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Abstract: *It is difficult and important for the medical field to identify and segment brain tumours using MR images. Early detection and localization of brain tumours can prevent death and provide doctors the opportunity to choose effective treatment options. Deep learning techniques due to their ability, performance, and potential to support precise diagnosis, prognosis, and medical treatment technologies. attracted researchers in medical imaging. Procedures and methods: Using deep neural networks (DNN) and data augmentation techniques, this research proposes a novel framework for segmenting 2D brain tumours in MR images. The proposed method (ZNet) propagates the intrinsic affinities of a relatively limited number of expertly demarcated tumours, such as hundreds, by utilising the concepts of skip-connection, encoder and decoder topologies, and data amplification. Results: Our experimental findings demonstrated high mean values. The capacity of the ZNet model to locate and automatically segment brain tumours in MR images is demonstrated by masks in the testing dataset. We can confirm that the suggested ZNet architecture and deep learning techniques can recognise and separate tumours in MR images. In some computer vision applications, a high pixel accuracy rating can be deceiving. Alternative evaluation measures, on the other hand, like IoU (Intersection over Union) and dice, are more factual for semantic segmentation. This study provides a real-world illustration of how AI technologies in medical imaging can be used to automatically segregate tumours in MR images. Brain tumour region segmentation, deep learning, augmentation and neural networks are some of the index terms.*

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