CLASSIFICATION AND SEGMENTATION OF BRAIN TUMOUR USING MODIFIED CONVOLUTIONAL NEURAL NETWORK

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Abstract

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Tumours of the brain develop as a result of unchecked and unmanageable cell proliferation. If left untreated, it might lead to death. Despite a great deal of work and promising results, proper segmentation and classification are still a difficult challenge in this field. The wide variety of tumour types, sizes, shapes, and locations make it difficult to identify brain tumours. This job is one of the most difficult in medical image processing since a human-aided manual categorization might lead to erroneous predictions and diagnoses. When there is a lot of data to be handled, it may be a frustrating effort. As a result of the tumour and normal tissue's resemblance, it is difficult to isolate tumour areas from pictures of the brain because of the variety of tumour appearances. The medical imaging business has benefited from recent advances in deep learning in medical diagnostics for various disorders. Task CNN is the most popular machine learning algorithm for visual learning and image recognition. Convolutional neural network (CNN) and Data Augmentation and Image Processing are used in our article to classify brain MRI scan pictures into malignant and non-cancerous categories. Conventional architectures are combined with convolutional neural networks (CNN) in the form of a deep neural network. The support neural network assists CNN in discovering the best files for pooling and convolution layers. Thus, the primary neural classifier learns more quickly and has better accuracy. Our results demonstrate that our model can achieve 96% accuracy and 95% accuracy and recall. We've examined numerical data from our postulated mechanism and presented our findings.

Keywords: Neural networks, convolutional neural networks, correlation learning mechanism, neural network architecture, medical image processing, segmentation, Visual learning, image recognition, learning algorithm, data augmentation.

1. Introduction

A brain tumour is an abnormal development of brain cells that goes unchecked. Unexpected changes to the human skull, which is a complex and volume-limited body, may harm or even kill some brain processes. They can spread to other organs, further compromising human functioning[1]. For further information, please see: There is a wide range of alternatives available to patients at medical clinics to help them recognize health issues. Many novel concepts in automated medical assistance systems[2] have emerged due to recent developments in computer science. It's easy to see that medical facilities have upgraded their