ABSTRACT

Vinsensius Haryo Bhaskoro Hadi, 56419513
THE USE OF CONVOLUTIONAL NEURAL NETWORK WITH
EFFICIENTNET-B0 ARCHITECTURE IN BRAIN TUMOR
CLASSIFICATION USING FLASK
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       Brain tumor is a type of cancer that is difficult to detect in the early stages and can be a fatal disease. Early detection of brain tumors is crucial to increase the chances of successful treatment. The use of imaging technologies such as CT-Scan and MRI has helped in detecting brain tumors, but accurate and fast diagnosis remains a challenge. In this study, the Convolutional Neural Network (CNN) method was used as an alternative method to detect brain tumors faster and more accurately. Some CNN architectures used include VGGNet, InceptionResNet, and EfficientNet-B0. This research aims to compare the performance of EfficientNet-B0 with other CNN architectures in classifying brain tumors on MRI images. The results of this study are expected to provide an understanding of the effectiveness of using EfficientNet-B0 compared to other architectures in classifying brain tumors on MRI images.The dataset used consists of 3264 images with glioma, normal, pituitary, and meningioma classes. Testing was conducted with several scenarios for epochs and testing against optimizers such as Adam and RMSProp. The results from testing the model using confusion matrix showed that in experiments with an epoch scenario of 25 and Optimizer obtained an accuracy 98%, average precision value reaching 98%, average recall reaching 98%, and average F1-Score reaching 98%. The implementation of the best-designed model in the form of a system successfully predicted types of glioma, normal, pituitary, and meningioma tumors. Additionally, the classification model will be implemented into a website using Python programming language along with Flask framework.

Bibliography (2011 – 2021)