RANCANG BANGUN SISTEM PENDETEKSI TUMOR OTAK MENGGUNAKAN METODE *CONVOLUTIONAL NEURAL NETWORK* DENGAN ARSITEKTUR MOBILENET

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ABSTRACT

Brain tumor is a medical condition characterized by abnormal growth of cells in the brain. Brain tumors can cause nerve damage, behavioral changes, and other health complications. Brain tumor diagnosis can be done with various methods, among which is Magnetic Resonance Imaging (MRI) examination. The purpose of this research is to create and evaluate the effectiveness of the Convolutional Neural Network (CNN) method with the MobileNet architecture in detecting brain tumors using MRI images. The initial stage of this research is to collect brain tumor MRI images from Kaggle. Then preprocessing the dataset. The method that will be used to detect brain tumors is to test several CNN architectures and MobileNet architectures to evaluate the performance of each tested model. The test results of the simple CNN Model have an accuracy value of 76%. The deep CNN model has an accuracy value of 86%. The MobileNetV2 model has an accuracy value of 94%. The MobileNet model has an accuracy of 96%. Based on the accuracy value, the MobileNet model has the highest accuracy value of 96%. Meanwhile, simple and deep CNN models have lower values, namely 76% and 86% respectively. This is due to the inaccurate learning rate setting and the small number of epochs. Based on these results, Merode Convolutional Neural Network (CNN) with MobileNet architecture is the best model in the brain tumor detection system.

Keywords: Brain Tumor, Detection, Convolutional Neural Network, Deep Learning, MobileNet.