ABSTRACT

PERBANDINGAN ARSITEKTUR CONVOLUTIONAL NEURAL NETWORK DALAM KLASIFIKASI PENYAKIT DAUN KENTANG

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Solanum tuberosum L or potato plant is one of the most widely grown plants in Indonesia. Early blight is one of diseases that can infect potato plants which can cause 5%-50% yield loss. Beside that, late blight can also infect potato plants which can cause 10%-80% yield loss. In previous research these 2 disesase could be classfied by computer using various methods such as SVM with 88% accuracy, KNN with 85% accuracy, and CNN with 94% accuracy. Based on previous research, different CNN architectures produce different performance. This research compares CNN architecture in potato leaf disesase classification. This study compares CNN architecture in potato leaf disease classification. This study uses 3 data classes from the PlantVillage dataset, namely potato early blight, potato healthy, and potato late blight. The data will be preprocessed by oversampling the data in the potato healthy class using augmentation techniques. The training was conducted on 9 different CNN architectures. The accuracy of each architecture will be measured using a confusion matrix. From the architectures compared in this study, the 7x7-4 architecture has the best performance in the case of potato leaf disease classification with accuracy 96,33%. This research compares 9 architecture and from this comparison it can be seen that the larger the size of the convolution layer on the CNN architecture, the higher the accuracy, and the more convolution layers used in the CNN architecture, the higher the accuracy in the case of potato disease classification. For further research could use different architectures or use other methods to get an accuracy of more than 96.33%. Moreover, further research could perform similar comparisons on different datasets or in other classification cases.

Keywords : Convolutional Neural Network, Image Classification, Confusion Matrix, Potato Leaf Disease