

IMPLEMENTATION OF CONVOLUTIONAL NEURAL NETWORK ALGORITHM FOR CLASSIFICATION OF APPLE FRUIT QUALITY

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ABSTRACT

Indonesia has the potential to develop various types of fruit. Green apples are a type of fruit that is considered to have potential, this fruit is rich in benefits. Demand for green apples is increasing rapidly in traditional Indonesian markets, but many buyers complain about the lack of quality green apples. The selection of green apples currently still depends on human supervision, which often takes a long time, especially on large agricultural land or plantations, and is prone to errors in classifying green apples. This research aims to build a good or bad green apple image classification program using the Convolutional Neural Network (CNN) method from scratch with the Python programming language. The CNN network was built with the Tensorflow library and Keras package, and the Python GUI was implemented using QT Designer. The research results show the best accuracy rate of 94.59% on train data and 94.44% on validation data. Testing using testing data obtained 100% accuracy, with a distribution of train and validation data of 80%:20% from 231 green apple images. So the model developed in this research has optimal performance in classifying green apple images

Keywords: CNN, Image, Green Apple, Classification, Tensorflow, Keras