

IMPLEMENTATION OF THE CONVOLUTIONAL NEURAL NETWORK (CNN) ALGORITHM TO DETECT THE RIPENESS OF SWEET FRAGRANT FRUIT

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ABSTRACT

Fruit ripeness detection is an important aspect in the agriculture and food processing industry to ensure optimal product quality. Proper fruit ripeness can affect taste, texture, and nutrition, making it a major focus in monitoring and controlling the production process. Currently, the process of detecting fruit ripeness is still mostly done manually, which can be inefficient and less accurate. This study aims to overcome these challenges by implementing a CNN algorithm with the VGG-19 architecture in automatically detecting the ripeness of fragrant sweet fruit. This process involves collecting fruit image datasets with various levels of ripeness, image pre-processing including cropping and resizing, training a VGG-19 CNN model with feature learning and hyperparameter optimization, and evaluating model performance using a confusion matrix. Through this experiment, we aim to evaluate the performance of the model in detecting fruit ripeness and measure the speed and efficiency of the CNN-based detection system with the VGG-19 architecture. The results of this study are expected to help develop a better system for identifying fruit ripeness.

Keywords: fragrant sweet, CNN, VGG-19.