

**IMPLEMENTASI *DEEP LEARNING* UNTUK KLASIFIKASI  
KEMATANGAN DAN KUALITAS TOMAT MENGGUNAKAN  
*CONOLUTIONAL NEURAL NETWORK (CNN)* DAN MODEL  
ARSITEKTUR *MOBILENETV2* Implementation of Deep Learning for Tomato  
Ripeness and Quality Classification Using Convolutional Neural Network (CNN)  
and MobileNetV2 Architecture Model**

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**ABSTRACT**

*The quality and ripeness of tomatoes are important factors in the agricultural industry because they directly affect the selling value and potential losses. The manual process of identifying tomato ripeness is prone to inconsistencies and errors in classification. Tomatoes have visual characteristics such as skin color, surface texture, and shape that can be utilized as parameters in the maturity and quality identification process. These parameters can be analyzed using Machine Learning approaches, especially in image classification problems. In this research, a Deep Learning method with Convolutional Neural Network (CNN) architecture optimized using MobileNetV2 model is used because it has good performance in object classification with high efficiency. The dataset consists of 12,000 tomato images. All data went through preprocessing, augmentation, and training stages using the TensorFlow framework. The results showed that with the CNN method and MobileNetV2 model, an accuracy rate of up to 99.78% was obtained in classifying the maturity and quality of tomatoes which was implemented in the form of a web-based application.*

**Keywords:** *Deep Learning, Machine Learning (ML), Convolutional Neural Network (CNN), MobileNetV2, Tomato Ripeness Classification.*