ABSTRACT

Convolutional Neural Network on Beef and Pork Classification Using Web-based ResNet-50

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The identification of beef and pork is an important challenge in the food industry and the provision of halal meat products. This research aims to develop a classification system that can distinguish between beef and pork using Convolutional Neural Network (CNN) technology and ResNet-50 architecture. The need for this system arises due to the general difficulty faced by consumers in distinguishing between these two types of meat based on their physical appearance, especially in terms of color and texture. The use of CNN with ResNet-50 architecture was chosen based on its effectiveness in previous studies, which showed high capability in image classification. Through complex feature analysis and deep neural network modeling, this method can obtain an effective visual representation for distinguishing between the two types of meat. . The results showed that the model with a data composition of 80:10:10 produced the most optimal performance of the 3 data composition division scenarios, by achieving a Validation Accuracy of 100%, a Validation Loss value of 0.0057 and a model evaluation test value using Confusion Matrix of 85%. The implementation of the model in the form of a website using the Flask framework facilitates access for general users. This method also has the potential to be implemented in the food industry and ensure compliance with people's preferences and beliefs related to the type of meat consumed.

Keywords : Convolutional Neural Network, Flask, ResNet-50