

Classification of jackfruit and cempedak using convolutional neural network and transfer learning

ABSTRACT

Jackfruit (*Artocarpus integer*) and Cempedak (*Artocarpus heterophyllus*) are two different Southeast Asian fruit species from the same genus that are quite similar in their external appearance, therefore, sometimes difficult to be recognized visually by humans, especially in the form of pictures. Convolutional neural networks (CNN) and transfer learning can provide an excellent solution to recognize fruits, where the methods are known to be able to classify objects with high accuracy. In this study, several models were proposed and constructed to recognize the Jackfruit and Cempedak using a deep convolutional neural network (DCNN). We proposed our custom-made own CNN model and modify five transfer learning models on pre-trained VGG16, VGG19, Xception, ResNet50, and InceptionV3. The experiment used our own dataset and the result showed that the proposed CNN architecture was able to provide an accuracy between 89% to 93.67% compared to the other CNN transfer learning.