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Classification of Fruits using Convolutional Neural Network

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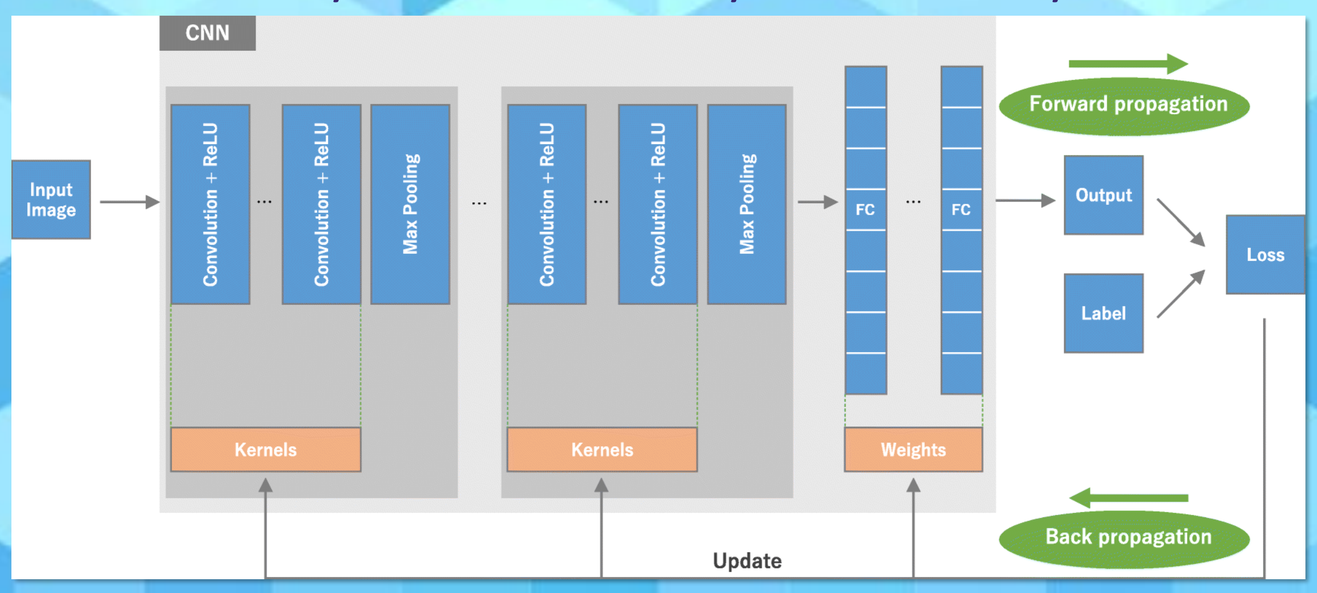
Introduction

The use of CNNs for fruit classification has gained popularity across fields. CNNs excel at image analysis tasks and can learn distinctive features and patterns by training on fruit image datasets. They automatically learn discriminative features, handle variations in fruit appearance, and efficiently process large-scale datasets. Fruit classification using CNNs has practical implications in agriculture, food industry, and nutrition research.
The target of this project is to develop an accurate and efficient system for categorizing fruits based on their visual characteristics, using convolutional neural network.

Model and Algorithm

The data set includes 1440 image for 6 fruits (240 each)

The CNN architecture includes several building blocks, such as convolution layers, pooling layers, and fully connected layers. A typical architecture consists of repetitions of a stack of several convolution layers and a pooling layer, followed by one or more fully connected layers.



Result

The CNN model with an accuracy of 90% used for classifying fruits showcases its impressive ability to accurately identify various types of fruits.

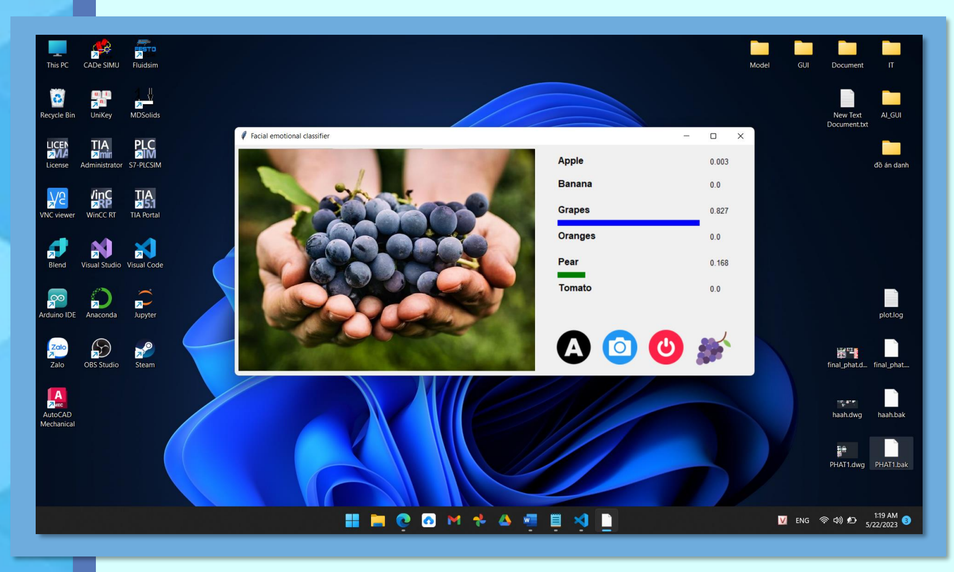
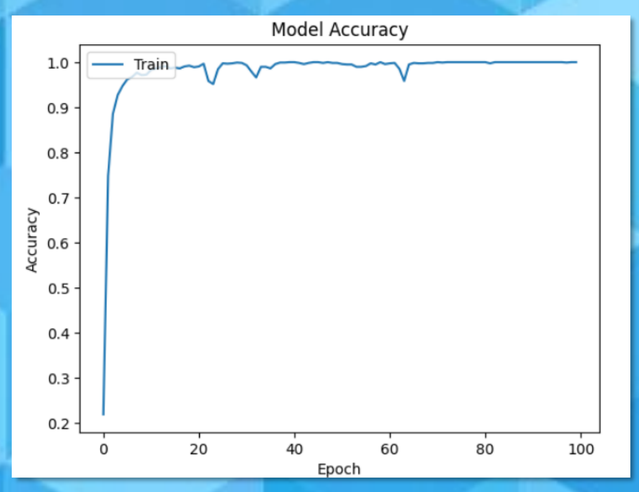
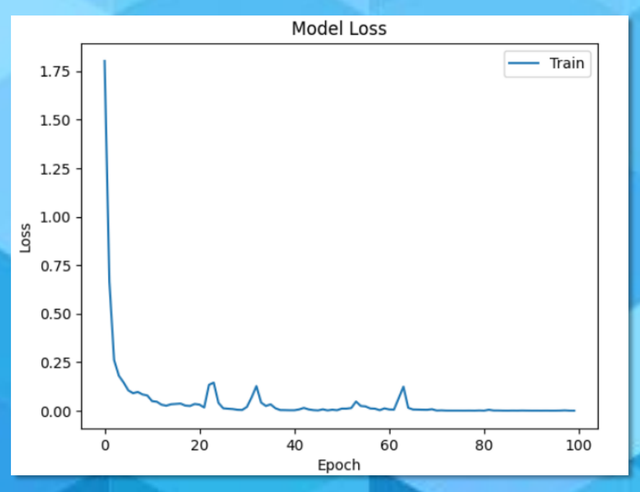


Diagram of Accuracy and Loss of trained model





In conclusion, the application of CNNs in fruit classification has opened up new possibilities for automating and improving various agricultural processes.

For more information:

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https://github.com/hdtphat