

Title:

ConFruit: Effective Fruit Classification Using CNN Algorithm.

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Main points to notice:

- Results are still not satisfactory
- Accuracy of 60.6%

Our target:

- Increase accuracy

Summary:

Abstract

Fruit is in great demand by many people, and the classification of fruits is a challenging task because of the different similariti of the fruit. A system can take the traditional way of classifying fruits, but it is time-consuming and results in lower productivity.

Fruit is now widely sold in various place, such as supermarkets, markets, malls, and others. However, sometimes it is difficult to distinguish the types of fruit.

The fruit classification process is commercially important. The many choices of fruit type make customers confused to distinguish them, and the classification system helps customers to determine the kind of fruit.

Current research has proposed various approach to deal with fruit classification. We introduce the CNN Algorithm by adopting one of the algorithms in deep learning to make fruit classification.

We introduce a new technique for classifying fruit types using CNN algorithms. We use a dataset in fruit images to produce various fruit types and build a new model to handle fruit classification using learning techniques.

This article provides information on related works, discusses the definition of the research problem, describes the experimental setup, and provides the results and complete study analysis.

Researchers have proposed several methods to build classification models for fruit, including image processing techniques and artificial intelligence (AI). The Nave Bays classification was used to classify fruit using a Robotic Gripper with Integrated Sensors and Adaptive Grasping.

Another study uses SVM and CNN classification to categorize fruits according to their type, with guaranteed fast production chains. The evaluation results show that the SVM classifier using deep learning feature provides better results than their transfer learning counterparts.

The leading technology used in fruit recognition and yield calculation is the intelligent detection system, in which image techniques can be applied. The accuracy of the classifiers was greater than 90% for Milano and Chon tomatoes.

A paper proposed using statistical characteristics in a fruit categorization system. The suggested methods have a classification accuracy of 95.3%.

Current paper proposed a novel technique for categorizing fruits based on a CNN algorithm. The technique achieved the highest average classification accuracy of 99.8% on the public datasets and 98.9% on the self-made data set.

This paper proposed to use convolutional neural network (CNN) for fruit classification. The experiment results show that this method achieved promising performance with accuracy of 91.44%, better than three state-of-the-art approaches.

This study focuses on classifying fruit types based on images using the CNN algorithm. A model is proposed for training features as a benchmark dataset, and a regression function is

used to produce a constant value used for categorical class classification.

4. Experimental Setup

The main idea of this paper is to create a classification model to classify fruit types using the CNN algorithm. The dataset used in this study is a file downloaded from kaggle.com and divide into 90% for training and 10% for testing.

We gathered a dataset labeled with three varieties of Apple, mango, and orange, and conducted pre-processing, vectorization, and feature extraction to develop a model that can categorize different fruit varieties. The model is put to the CNN algorithm to achieve the best accuracy value.

5. Result & Analysis

In this experiment, we adjust hyperparameters to obtain the best network performance, and the proposed model can classify with an accuracy rate of 60.6%.

If a correlation value is close to 1, then the correlation is good; if it approaches -1, then the correlation is wrong.

6. Conclusion

Traditional fruit classification techniques rely on visual abilities or conventional image processing methods, but remain drawbacks in identifying a large amount of dataset. We build a classification model using the CNN method to classify fruit types efficiently.