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Real Time Tomato Ripeness Classification and Optimal Harvesting Date Prediction Using Multi-View Vision Images

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ABSTRACT

Even though many researchers have conducted various experiments to classify the ripeness of fruits and vegetables, the use of single view images has been implicated in many of these computer vision systems as a possible defect in accuracy or performance. This has been described as a limitation of previous computer vision systems within the domain.

Accurate forecasting of tomato harvest dates is critical for farmers in order to reduce the amount of waste added to the environment due to tomato rot and to maintain the continuity of the tomato marketing procedure. There has been very few research on this matter. However, various parameters such as temperature, humidity, water amount, and rainfall have been used for these approaches, but the limitation here was the lack of testing using multi view vision images of tomatoes as a parameter.

The author introduces a real-time approach using non-destructive methods to classify tomato ripeness and optimal harvesting date using machine learning and image processing technologies in this experiment. In this case, Convolutional Neural Network is built for feature extraction and classification. This system performs classification and prediction in a very fast and accurate manner.

Keywords: Convolutional Neural Network, Machine Learning, Image processing, Multi view vision images