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# Plant Disease Detection and Classification by Deep Learning

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**Abstract:** *Deep learning has made huge progress, leading to better technology for identifying images. In agriculture, deep learning helps analyze big data and can be very useful in identifying plant diseases. This technology looks at the features of an image to gather information and classify it. Clim caused by bacteria, viruses, fungi, and other harmful agents. These diseases can slow down plant growth and reduce crop production. The proposed system uses a Convolutional Neural Network (CNN) to detect plant diseases from leaf images. After identifying the disease, it suggests the right pesticide to treat it. The system also provides more details about the disease affecting plants in a specific area.This technology can help farmers decide when to use pesticides. It can also identify which plants are more vulnerable to certain diseases so they can be protected in advance.*

**Keywords**: Deep learning, plant leaf disease detection, Visualization, small samples, CNN algorithm

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