

Classification of Tomato Plant Diseases using Deep Learning Based Classifier from Images of Leaves

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Abstract: Crop diseases cost farmers a lot of money every year in the majority of agricultural nations. Therefore, early detection of tomato plant diseases has become a major research focus. In this study, a deep convolutional neural network model is utilised to distinguish between diseased and healthy plants and to categorise the diseases that affect tomato plants. To identify ill plants and their diseases from photos of tomato plants, we employed the VGG16 deep CNN classifier. We used the Plant Village dataset, which includes healthy plants and ten different classes of tomato leaf photos. With a pre-trained VGG16 model and the transfer learning approach, this dataset exhibits a satisfying classification performance of roughly 95.5%. This model's top 2 accuracy for identifying illnesses in tomato plants is 99%. Our trained model exhibits a performance of about 100% to distinguish ill plants from healthy plants without utilising any segmentation or pre-processing of leaf pictures.

Keywords: Transfer Learning, Tomato Disease, and Deep Convolutional Neural Network

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