

Detection of Plant Leaf Diseases using Transfer Learning Techniques

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Abstract: Agriculture is an essential field for meeting the country's increasing population's basic food needs. Meanwhile, the growth of grains and vegetables is essential for human nutrition and the global economy. Many farmers cultivate in distant places of the world, where reliable information and disease detection are lacking; yet, they rely on personal observation of grains and vegetables. Resulting in significant losses. This paper suggests an image processing based detection technique and preventive measures for plant leaf diseases in the agricultural field Using four popular convolutional neural network (CNN) models. such as the Xception model, VGG16, resNet-50, and one Custom CNN model. First, this technique is used to investigate the symptoms of diseased leaves using Kaggle datasets of several leaves. Then, using the image processing application and the Xception model, On dataset images, the feature extraction and classification procedure is used to find leaf diseases. In order to achieve better results, I used three additional CNN models: VGG16, Resnet50, and one custom CNN model.

Keywords: Custom CNN model, Xception Model, VGG16 model, Resnet model, Plant disease

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