Apple Leaf Disease Detection Using Transfer Learning

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Abstract
Automated detection of plant diseases is crucial as it simplifies the task of monitoring large farms and identifies diseases at their early stages to mitigate further plant degradation. Besides the decline in plant health, reduced production severely impacts the country's economy. Traditional disease identification methods, relying on human experts, are slow, time-consuming, and impractical for large farms. Our proposed model utilizes a combination of pre-trained Resnet18, Alexnet, GoogLeNet, and VGG16 networks to classify apple tree leaves into categories such as healthy, black rot, apple cedar rust, and apple scab based on images. Various image enhancement techniques were employed to enhance the model's accuracy. Ultimately, our model achieved an accuracy of 97.25% on the validation dataset, demonstrating excellent performance across various metrics. This suggests its potential for efficient and accurate plant health monitoring in the agricultural sector.

1 Introduction

Data Science has been pivotal in solving a large number of real world problems. Data Science includes fields like artificial intelligence, machine learning, deep learning, transfer learning etc. Data Science has been found helpful in disease prediction and control among humans, animals and also among plants. The control of plant

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