Peach Leaf Disease Identification Using Image Processing Techniques

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Abstract

To preserve orchard health and maximize yield, peach leaf diseases must be accurately and promptly detected. Manual inspection is frequently used in traditional disease diagnosis techniques. In this study, we propose a comparative analysis of three state-of-the-art deep learning models—VGG16, MobileNetV2, and ResNet—for classifying peach leaves as either healthy or infected with bacterial disease. These models were trained and assessed using an entire dataset of peach leaf photos. The models were fine-tuned and optimized to enhance their performance in accurately identifying diseased leaves. Experimental results demonstrate that the ResNet model achieved the highest accuracy of 99.02%, 95.41% by VGG16 and MobileNetV2 at 95.65%. The proposed deep learning approach offers a highly accurate and efficient solution for automated peach leaf disease detection, enabling early intervention and effective disease management strategies.

Keywords

Peach leaf disease detection, Deep learning, VGG16, MobileNetV2, ResNet, Image classification.