

# An improved deep learning approach for localization and recognition of plant leaf diseases

## Abstract

The abstract of the paper describes the importance of crop yield for a nation's economic progress and the significant role of crop diseases as a barrier to achieving high-quality and high-quantity yields. To address this challenge, the authors propose an improved deep-learning strategy called PlantRefineDet. This approach involves three steps: creating sample annotations, utilizing an enhanced RefineDet approach with ResNet-50 as the base network to extract deep features, and employing the one-step detector RefineDet for localizing and classifying crop diseases.

The PlantRefineDet approach aims to improve disease localization and categorization results by enhancing feature calculation, enabling the reuse of features from previous layers, and increasing the system's recall power. Additionally, it incorporates an additional phase to eliminate irrelevant anchors and improve bounding box orientation adjustment for accurate localization of infected plant regions, thereby enhancing recognition performance.

In my mini project, I intend to adapt the proposed PlantRefineDet model to suit my specific requirements and objectives. While the original paper achieved a remarkable accuracy of 99.994% on the PlantVillage dataset, I anticipate achieving a slightly lower but still impressive accuracy range of 97-98% through my customized implementation. This adaptation will involve incorporating modifications and adjustments tailored to the specific needs and constraints of my project.

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