

# Tomato Leaf Disease Detection using Convolutional Neural Networks

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**Abstract:** *One of the most important crops that is grown in enormous amounts and has an excellent market value comprises the tomato. They are grown and eaten in large quantities not only in India but also globally. Disease is the primary factor affecting the quantity and quality of this crop's production. In earlier research, the plant's leaves solely were taken into account for disease identification; however, in many cases, the illness only affects the fruit, leaving the other plant parts healthy. Using the unaided eye to diagnose a disease can occasionally lead to a prognosis that is off, meaning the wrong pesticide is applied and the plant may get spoiled. The farmers find it challenging to diagnose the disease because specialists are scarce in many of the affected areas.*

*It's an expensive and time-consuming process, even though professionals are accessible in certain sectors. Early disease detection would lessen the impact on plants and increase agricultural yield. As a result, it is essential to recognise these illnesses accurately and use the appropriate pesticide. These issues can be resolved by an automated system. We have developed a system to tackle this problem, which employs a convolutional neural network (CNN) to detect the ailment and recommends a pesticide to aid in its eradication. Since CNN offers its highest level of accuracy, our system incorporates it.*

**Keywords:** CNN, Feature extraction, Pesticide suggestion, Disease detection.