

## ABSTRACT

Plant diseases are a major challenge for farmers, leading to crop loss and reduced yield. Early detection and treatment of these diseases are crucial to prevent further damage to crops. However, identifying plant diseases can be challenging, and misdiagnosis can lead to ineffective treatments. Conventional systems for plant disease detection and fertilizer recommendation often rely on human expertise, which can be time-consuming. To address this our study proposes a system for leaf disease detection and fertilizer recommendation using the convolutional neural network algorithm. The system is designed to help farmers identify plant diseases early and provide them with the appropriate fertilizer recommendations to improve crop yield. The CNN algorithm is used for image classification to detect diseases in plant leaves, and recommend the appropriate fertilizer based on the identified disease. The proposed system was tested on a dataset of plant leaf images and achieved a high accuracy rate in disease detection and fertilizer recommendation. The system is designed to assist farmers in identifying plant diseases and providing them with the appropriate fertilizer recommendations to improve crop yield.