



An Effective Analysis of M.L. Model for Recognizing Plant Leaf Diseases

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ABSTRACT

India's agriculture-dependent economy necessitates strong crop yields for food security and commerce. Information technology (IT), particularly data science-based computer vision systems, offers a crucial avenue for early plant disease detection, overcoming the limitations of manual inspection. This paper critically reviews supervised machine learning (ML) approaches for diagnosing plant diseases from leaf images, emphasizing the significance of feature extraction methods. It thoroughly discusses prominent algorithms such as Support Vector Machine (SVM), Decision Tree (DT), and Random Forest (RF), alongside recent advancements. Furthermore, the work analyzes various visual disease characteristics across diverse atmospheric conditions, providing a comprehensive perspective on automated plant disease diagnosis.

Keywords: India's agriculture, Information Technology (IT), Computer Vision Systems, Supervised Machine Learning (ML), Support Vector Machine (Svm), Random Forest (Rf), Covid-19 Pandemic.

INTRODUCTION

India is an agricultural country. 70 % of the population of India is directly connected to the villages. The main source of income is agriculture [1]. According to the Economic Survey 2022-2023, the contribution of agriculture to GDP has increased to approximately 20 % for the first time in the last 17 years, making it one of the major sector showing prospects for GDP growth in 2020–21 [2]. Agriculture has a huge contribution to making the country economically prosperous due to the large productive land area; crop security has a direct impact on the country and its economic

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