Rice Crop Disease Detection

Abstract:

Crop yields are affected at large scale due to spread of unchecked diseases. These diseases can be identified at early stages through plant phenotyping traits analysis. In order to effectively identify these diseases ,effective segmentation ,feature extraction ,feature selection ,and classification processes must be followed. Selection of the best combination for the given methods is very complex due to the presence of a large number of aforementioned methods .

Thereby , disease prediction models are generally found to be ineffective .This paper proposes a highly effective machine learning-based formulation approach to select a proper classification process that improves the overall accuracy of crop disease detection with different dimentionalities of plant datasets and include Maximum features. Hence the proposed adaptive learning algorithm gives 99.2% accuracy compared to other techniques like back-propagation neural network (BPNN),convolution neural network (CNN) and SVM.

Key Features:

1. Encouragement towards the interdisciplinary approach for smart farming by using computer vision techniques.
2. Field farming needs digitization/computer-aided techniques, so that performance rate gets increases. It avoids the complexity of manual calculation, time management, hardware management, and so on.
3. The proposed work improves the phenotyping traits analysis over complexity of genomic selection. Traits analysis (Tong and Nikoloski, 2021) of plant has multiple tasks, but it is exclusively an abstract structure over the genotyping to produce fruitful results by applying it.
4. It gives the vision towards the heterogeneous environment. Prediction over the environmental uncertainties like rainfall prediction, temperature management (field conditions are heterogeneous by nature that will not give identical results), weather forecasting and avoiding global warming problem over the world.
5. Management of Eco-system is having all the above dependencies over smart farming or forest-scale phenotyping etc. Smart farming requires the computer vision techniques to limit the error rate calculation and maximize the early prediction rate.
6. Utility of machine learning algorithms make a trend for working efficiently in the field of agriculture.

Signature of the Student **Signature of the Guide**

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