

A review on the hyperparameters used in machine learning approaches for classifying paddy rice field

ABSTRACT

Malaysia's rice production, consumption and area harvested are relatively small compared to its neighboring countries. Farmers lose an estimated average of 37% of their rice crop to pests and diseases every year due to poor pests and disease monitoring for the paddy rice. The research aims to find the optimal range of hyperparameters to assess their performance. The application of deep learning in detection of diseases and pests in rice plants can help farmers in applying timely treatment on the plants. Therefore, we can reduce the economic losses substantially. Most research conducted previously required large number datasets to get the best accuracy. In addition to that, most deep learning approaches have outperformed the other machine learning approaches in performing the classification tasks. However, deep learning approaches have many hyperparameters that require optimization. Thus, in this research, we will determine the optimal value of all hyperparameters used in the classification tasks. In this work, we also investigating the effects of varying the values of all the hyperparameters used in the CNN architecture by comparing the accuracy performance.