Abstract

This research emphasizes on the plant species recognition which is considered as an important area of research in plant biotechnology. Artificial intelligence and machine learning have a prominent place in such research. In this study, a boosted evolutionary plant species classifier has been developed that works on ensemble of classifier methods. This classifier identifies different species of plants with the help of different texture and shape features of leaf image. A publicly available plant image dataset has been incorporated where features are extracted with the help of image processing tools. The proposed classifier is trained and tested with the help of these features. Further, proposed classifier is compared with other popular machine learning classifier viz. Bayesian, Naïve Bayes, SVM, J48, Random forest, Genetic Programming. Proposed evolutionary classifier was found to be good in terms of F-Value, FP rate and TP rate whereas SVM was found to be underperforming predictor in this study. However, the training time of the proposed classifier was high.


Index Terms

Computer Science    Artificial Intelligence

Keywords

Plant Species, Leaf image, Genetic programming, Machine learning, F-Value, FP rate, Training time.