Abstract

A computerized method for recognizing plant leaf based on their images is proposed. Plant classification is based on leaf identification which has broad application on prospective in medicine and agriculture. Plant leaf images corresponding to six plant types are taken using a digital camera which are examined using three different modeling techniques, first based on Multi Layer Perceptron (MLP) Neural network and second on Normalized Cubic Spline Feed Forward Neural network (NCS-FNN) and third on proposed NCS-FNN for real data. Correlation based feature selection (CFS) is considered to produce a ranked list of attributes. Matlab is used to extract the leaf features such as edge and texture. Edge and texture are the important visual attribute which can be used to describe the pixel organization in an image. Further to increase the accuracy in NCS-FNN the neural network is trained using a back propagation rule by back propagating errors and changing weights of node. The dataset consists of 197 images which are divided into six classes.

References

Neural Network based Plant Identification using Leaf Characteristics Fusion


Index Terms

Computer Science

Pattern Recognition

Keywords

Leaf Identification Leaf Features Fusion Correlation Feature Selection Mat Lab

Multilayer Perceptron

Normalized Cubic Spline-Feed Forward Neural Network.