

MULTIRESOLUTION ANALYSIS AND IMPLEMENTATION OF GRAPE SPECIES CLASSIFICATION USING NEURAL NETWORK

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ABSTRACT

In the field of agriculture the species plays an important role for precision growth; therefore it is necessary to study species of plant using newest technology available in the literature. Before studying species it is very important to recognition the botanical species correctly so, in this paper we employ Pattern Recognition Neural Network (PRNN) and image Texture analysis based algorithm to develop a system for Grape plant species classification. Here 12 different features are extracted using Discrete Wavelet transform and are normalized into 4 principal variables which consists the input vector of the PRNN. The PRNN is trained on database of 220 leaf images collected for different fields to classify 4 kinds of species like viz Clone, Manik, Sonaka and Thomson. Accuracy greater than 80% is achieved for trained images and results are validated with the field result which shows value to our method. As no other research are found on species classification so, this algorithm can be considered as a novel approach for species classification, our algorithm is an accurate artificial intelligence approach which is fast in execution and easy in implementation and use.

KEYWORDS: Texture Analysis, Pattern Recognition Neural Network, Wavelet Filters, Multiresolution Analysis, Grape Plant

Original Article

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