

## **A Comparative Study of k-NN and MLP-NN Classifiers Using GA-kNN Based Feature Selection Method for Wood Recognition System**

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**Abstract :** This paper presents a comparative study between k-Nearest Neighbour (k-NN) and Multi-Layer Perceptron Neural Network (MLP-NN) classifier using Genetic Algorithm (GA) as feature selector for wood recognition system. The features have been extracted from the images using Grey Level Co-Occurrence Matrix (GLCM). The use of GA based feature selection is mainly to ensure that the database used for training the features for the wood species pattern classifier consists of only optimized features. The feature selection process is aimed at selecting only the most discriminating features of the wood species to reduce the confusion for the pattern classifier. This feature selection approach maintains the 'good' features that minimizes the inter-class distance and maximizes the intra-class distance. Wrapper GA is used with k-NN classifier as fitness evaluator (GA-kNN). The results shows that k-NN is the best choice of classifier because it uses a very simple distance calculation algorithm and classification tasks can be done in a short time with good classification accuracy.

**Keywords :** feature selection, genetic algorithm, optimization, wood recognition system

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