

## Optimizing the Probabilistic Neural Network Training Algorithm for Multi-Class Identification

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**Abstract :** In this work, a training algorithm for probabilistic neural networks (PNN) is presented. The algorithm addresses one of the major drawbacks of PNN, which is the size of the hidden layer in the network. By using a cross-validation training algorithm, the number of hidden neurons is shrunk to a smaller number consisting of the most representative samples of the training set. This is done without affecting the overall architecture of the network. Performance of the network is compared against performance of standard PNN for different databases from the UCI database repository. Results show an important gain in network size and performance.

**Keywords :** classification, probabilistic neural networks, network optimization, pattern recognition

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