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Abstract

The Pruned modified fuzzy hyperline segment neural network (PMFHLSNN) is pruned extension of Fuzzy hyperline segment neural network (FHLSNN) with modification in the testing phase. In this paper, a genetic algorithm based rule extractor (GA-PMFHLSNN) is proposed to extract a small set of compact and comprehensible fuzzy if-then rules with high classification accuracy from the PMFHLSNN. After pruning, open hyperline segments are generated from the remaining hyperline segments and a "don't care" approach is adopted by GA rule extractor to minimize the number of features in the extracted rules with higher classification accuracy. The performance of FHLSNN, PMFHLSNN and GA-PMFHLSNN are evaluated using

tenfold cross-validation for five benchmark problems and handwritten character database. All the results show that the proposed approach can extract a set of compact and comprehensible rules with high classification accuracy for all the selected datasets.

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Index Terms

Computer Science Algorithms

Keywords

Pmfhlsnn Genetic Algorithm Confidence Factor Fuzzy If-then Rules Extraction Don't Care Antecedent

Pruning

Tenfold Cross Validation

Pattern Classification.