Performance of Synthetic Neural Network Classification of Noisy Radar Signals

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Abstract: This study evaluates the performance of the multilayer-perceptron and the frequency-sensitive competitive learning network in iden(cid:173) tifying five commercial aircraft from radar backscatter measure(cid:173) ments. The performance of the neural network classifiers is com(cid:173) pared with that of the nearest-neighbor and maximum-likelihood classifiers. Our results indicate that for this problem, the neural network classifiers are relatively insensitive to changes in the net(cid:173) work topology, and to the noise level in the training data. While, for this problem, the traditional algorithms outperform these sim(cid:173) ple neural classifiers, we feel that neural networks show the poten(cid:173) tial for improved performance.