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A NEURAL NETWORK CLASSIFIER BASED ON CODING THEORY

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Abstract:

The new neural network classifier we propose transforms the classification problem into the coding theory problem of decoding a noisy

codeword. An input vector in the feature space is transformed into an internal representation which is a codeword in the code space, and then error correction decoded in this space to classify the input feature vector to its class. Two classes of codes which give high performance are the Hadamard matrix code and the maximal length sequence code.

We show

that the number of classes stored in an N -neuron system is linear in N and significantly more than that obtainable by using the Hopfield type memory as a classifier.

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