

A training strategy and functionality analysis of digital multi-layer neural network

R Al-Alawi & T J Stonham (1992)

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Abstract:

The digital neuron model is evaluated in terms of its functional capacity, generalization, training procedure and hardware implementation, and contrasted with the analogue neuron model. A learning algorithm for digital multi-layer neural networks which uses a backpropagation search techniques is proposed and compared with other well-known training methods. Finally a dynamic mapping strategy for the nodes of the digital multi-layer network and the introduction of redundancy are evaluated as means of increasing the neural network functionality.