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A Trellis-Structured Neural Network

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Abstract:

We have developed a neural network which consists of cooperatively interconnected Grossberg on-center off-surround subnets and which can be used to optimize a function related to the log likelihood function for decoding convolutional codes or more general FIR signal deconvolution problems. Connections in the network are confined to neighboring subnets, and it is representative of the types of networks which lend themselves to VLSI implementation. Analytical and experimental results for convergence and stability of the network have been found. The structure of the network can be used for distributed representation of data items while allowing for fault tolerance and replacement of faulty units. 1

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