Learning on a General Network

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Abstract:

This paper generalizes the backpropagation method to a general network containing feed(cid:173) back t;onnections. The network model considered consists of

interconnected groups of neurons, where each group could be fully interconnected (it could have feedback connections, with pos(cid:173) sibly asymmetric

weights), but no loops between the groups are allowed. A stochastic descent algorithm is applied, under a certain inequality constraint

on each intra-group weight matrix which ensures for the network to possess a unique equilibrium state for every input.