

# Analog Implementation of Shunting Neural Networks

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Abstract: An extremely compact, all analog and fully parallel implementation of a class of shunting recurrent neural networks that is applicable to a wide variety of FET-based integration technologies is proposed. While the contrast enhancement, data compression, and adaptation to mean input intensity capabilities of the network are well suited for processing of sensory information or feature extraction for a content addressable memory (CAM) system, the network also admits a global Liapunov function and can thus achieve stable CAM storage itself. In addition the model can readily function as a front-end processor to an analog adaptive resonance circuit.