

DATA CLUSTERING WITH SPIKING NEURONS

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ABSTRACT

A spiking neuron is a simplified model of the biological neuron as the input, output and internal representation of information, which is the relative timing of individual spikes, is more closely related to that of a biological network.

In this paper we present a biologically plausible unsupervised learning rule for clustering data with spiking neurons based on the idea presented in [2] that a radial basis function (RBF) neuron encodes a particular input spike pattern in the delays available across its synapses. We develop an algorithm for learning the delays by using locally available information as the time difference between the pre- and post- synaptic spike. The computer simulations were performed for RBF neural networks with 20 inputs and the delay interval of 15 ms.