Bocconi

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Room 3-E4-SR03
Via Röntgen 1, Milan, 3° floor

Random walks with memory and enhanced-by-coincidence neural information transmission

Speaker

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Abstract

I will discuss a simple model of neural information encoding and readout of a binary stimulus, that will be called Neural Encoding and Readout Model (NERM). The NERM assesses how noise correlations in an encoding population of neurons are transmitted to a single readout neuron, and how they limit or enhance the stimulus information encoded in the readout neuron. An approximated analytical solution for the firing rate statistics of the readout neuron reveals that, in the NERM, it is possible that information-limiting noise correlations in the encoding population, actually lead to an enhancement of the readout signal-to-noise ratio.

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