

Math & Brain seminars



Matematica e Cervello

Thursday 25/01/24 - 17:00
Room 1C150

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Searching for low-dimensional neural manifolds

Traditionally, the relation between cognition and the brain was understood in terms of neurons performing a sequence of operations on input signals. In recent years, the advent of large-scale neuronal recordings has shifted the focus on movement within representational spaces collectively implemented by neural populations. Geometrically, we can picture these spaces, termed "neural manifolds", as low-dimensional surfaces in a neural population state space in which each axis represents the activity of one neuron. Modelling movement along the manifold provides a dynamical-system description of neural computation. In this talk, I will provide an introduction to the topic, focusing on how neural manifolds can be characterized and reconstructed from the data by combining geometrical and probabilistic methods.

Organizers

S. De Marchi, W. Erb, M. Formentin, V. Franceschi,
F. Marchetti, R. Monti, F. Rinaldi