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AImage Lab
University of Modena and Reggio Emilia

COMPUTATIONAL AND EXPERIMENTAL NEUROSCIENCE TOWARD ARTIFICIAL INTELLIGENCE

Prof. Jonathan Mapelli

10 APRILE 2018, 10.00-11.30

Sala Master, Edificio MO27, Piano terra, Dipartimento di Ingegneria "Enzo Ferrari" Via Vivarelli 10 – 41125 Modena

Artificial intelligence is now becoming essential for the development of advanced systems and innovative technologies in the industry and in the everyday of our lives. The majority of AI applications are based on artificial neural networks, which can perform several tasks. But, where are the links between artificial neural networks and real nervous systems?
Brain computes an incredible amount of information with a limited energy consumption in a peerless way and despite scientist efforts, none of the modern AI system can actually compete with human intelligence. However, the development of modern supercomputing boosted the research in computational neuroscience and some of the computational tasks performed by brain areas have been reproduced in silico with high-fidelity. In particular, the development of biologically realistic mathematical models mimicking experimental data, continuously move researchers closer to efficient and human-like AI systems.
In this seminar, we'll review some basic aspects of experimental and computational Neuroscience (from subthreshold membrane potential modulation to synaptic plasticity and learning) in order to project some of the knowledge on biological neural systems obtained from experimental data and realistic mathematical models toward artificial neural networks employed in AI systems.

Jonathan Mapelli is assistant professor of Physiology at the Department of Biomedical Metabolic and Neural Sciences at UNIMORE. He obtained a Laurea degree in Physics from the University of Milano and a Ph.D. in Physiology from the University of Pavia. His main research interests are in the fields of experimental and computational Neuroscience. In particular he works on cellular and synaptic mechanisms involved in synaptic plasticity and learning as well as in the analysis of the spatiotemporal organization of signal processing. He is also actively dedicated to the development of optical methods to record and analyze neuronal activity.

La partecipazione è aperta a docenti e studenti interessati