Bocconi

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Bocconi University
Room 3-E4-SR03
Via Röntgen 1, Milano (3° floor)

Neural representations of learning and behavior

Speaker

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Abstract

A fundamental question in neuroscience is to understand how neural activity in the brain generates behavior. Decades of experimental and theoretical work have demonstrated that the population-level structure of neural activity has a strong impact on stimulus encoding by reshaping neural manifolds representing external stimuli. More recently, large-scale recordings have provided insight as to the dynamic mechanisms by which neural populations perform computations, but the link to their circuitry remains unclear. A promising region for understanding the relationship between neural circuitry, population activity, and behavior is the cerebellum, whose evolutionarily-conserved circuitry is the basis of a critical role in motor control and learning guided by sensory errors. In this talk, I will present several recent projects attempting to understand how neural populations are able to guide motor learning and adaptation, including our theoretical work attempting to understand cerebellar involvement in learning complex behaviors, and the development of new data-driven methods to identify how latent neural dynamics are reshaped over learning from high-dimensional neural data.

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