

Neuroscience Seminar Series

Friday, June 24th, 2016 at 11:30

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

Matteo Carandini

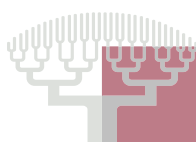
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From Vision to Decision and Navigation in Mouse Cortex

As signals progress along the early visual system, they undergo a remarkable transformation. Before reaching the primary visual cortex (V1) responses are still highly repeatable, and they can be predicted by simple model of image processing. In V1, instead, responses become hugely affected by activity that originates within the brain, which varies from trial to trial, and is closely related to behavior. For instance, a major factor that controls responses of neurons in the mouse visual cortex is locomotion. In mouse V1, locomotion changes the nature of spatial integration, reducing the strength of lateral interactions. Moreover, locomotion interacts with vision to affect responses during navigation, perhaps to help the animal estimate its own movement. In the parietal visual areas that follow V1, the visual signals are transformed to encode variables relevant to navigation. We study this transformation by training mice to make visual decisions while they navigate in a virtual reality environment. Preliminary results indicate that these neurons code for combinations of the animal's heading and position in the room. The activity of neurons in parietal cortex of the mouse thus reflects the interactions of vision, decision, and navigation.

Those interested in meeting with the speaker please contact
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