Heller Lecture - Prof. Matteo Carandini Thu. 10.3, 17:00

March 10, 2016

Heller Lecture Series in Computational Neuroscience

Prof. Matteo Carandini

University College London

On the topic of:

From Vision to Decisions and Navigation in Mouse Cortex

The lecture will be held on Thursday, March 10, 2016
Location: ELSC, Silberman Bldg., 3rd wing, 6th floor at 17:00

Light refreshments at 16:45

Abstract:

As signals progress along the early visual system, they undergo a remarkable transformation. One synapse away from the eye, in Lateral Geniculate Nucleus (LGN), responses are still highly repeatable, and they can be predicted fairly well by simple model of image processing. One more synapse away, in Primary Visual Cortex (V1), responses are shaped by more elaborate visual properties and are hugely affected by activity that originates within the brain, which varies from trial to trial, and can be 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 integrate visual and nonvisual information to allow the animal to better estimate self-movement. In the visual areas that follow V1 a further factor affecting responses is decision. The activity of neurons in those areas thus reflects the interactions of vision, decision, and navigation. Current efforts in our
laboratory are aimed at studying these interactions.

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