Identifying the Algorithms for Calculating Spatial Maps

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Over the last several decades, the tractable response properties of parahippocampal neurons have provided a new access key to understanding the cognitive process of self-localization: the ability to know where you are currently located in space. Defined by functionally discrete response properties, neurons in the medial entorhinal cortex and hippocampus are proposed to provide the basis for an internal neural map of space, which enables animals to perform path-integration based spatial navigation and supports the formation of spatial memories. My lab focuses on understanding the mechanisms that generate this neural map of space and how this map is used to support behavior. In this talk, I'll discuss how remembered rewards re-shape our internal neural map of space and how these maps support accurate navigation and memory.

Lundi 6 mai 2019 – 11h

IBENS Neuroscience Seminar Series
Co-hosted with the Département des Etudes Cognitives

Amphi RATAUD – ENS, 45 rue d'Ulm 75005 Paris

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