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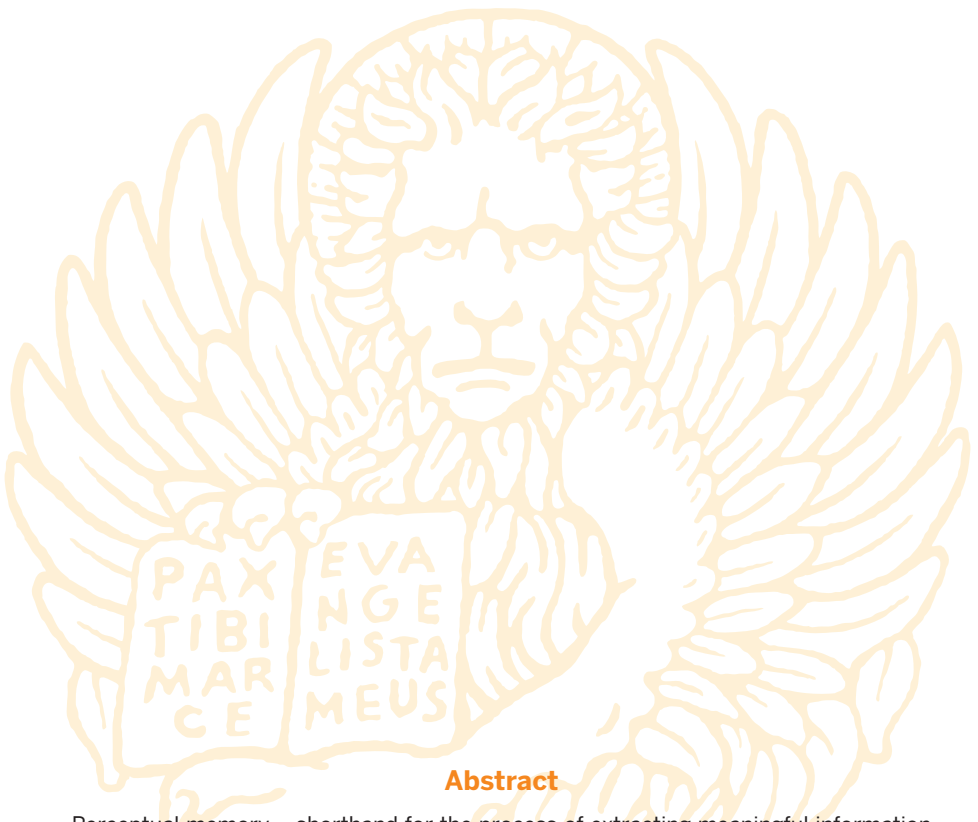
ECLT
New Year Lecture
2021

An attempt to unify diverse forms of perceptual memory

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Friday, January 29, 2021 h 2:30 pm
Online Meeting

Abstract

Perceptual memory – shorthand for the process of extracting meaningful information from a stream of sensory data, and then experiencing, storing, recalling and acting upon that information – continues to enjoy a period of fast- paced research. However, research lines tend to custom-build a framework around a single stimulus feature in the context of a single behavioral task. Will the posited mechanisms hold up under different conditions? Based on preliminary experiments, I will try to unify diverse forms of perceptual memory into a general framework with deeper explanatory power. We have developed a library of tactile behaviors: the vibration stimulus set serves as the "raw material" from which the brain generates distinct percepts; the rat acts upon these percepts in multiple behavioral paradigms. Identifying a general memory network may allow us to explore the mechanisms underlying the intriguing connection between memory (transporting past experiences into the present) and planning (transporting future experiences into the present); we hypothesize that the same network contributes to both functions.

Bio sketch: Mathew Diamond is a Professor of Cognitive Neuroscience at the International School for Advanced Studies in Trieste Italy (known by its Italian acronym, SISSA). He earned a Bachelor of Science degree in Engineering from the University of Virginia in 1984 and a PhD in Neurobiology from the University of North Carolina in 1989. He was a postdoctoral fellow with Ford Ebner at Brown University and then an assistant professor at Vanderbilt University before moving to SISSA to create the Tactile Perception and Learning Laboratory in 1996. Outside of his research activities, he is vice-Director of the university and delegate for international initiatives. He continually works at getting young people interested in neuroscience through international courses; for the same reason, he co-authored the introductory book, From Neuron to Brain (5th edition, 2012; 6th edition, 2020).