



P A D O V A
neuroscience
C E N T E R

23 MAY 2024 3:00 pm

Aula 2C-Psico2

(Via Venezia 12, Padova)

PNC SEMINARS

A talk by Alessandro Farnè (Lyon Neuroscience Research Center, France)

HUMANS EMBODY TOOLS TO USE THEM LIKE HANDS. HOW'S THAT?

Scientists have long questioned the origin of the exquisite human mastery of tools. How do we manage controlling a tool in the skillful way humans typically do, that is, as a body-part? Grasping objects with tools is a major challenge for the motor system, in that the control of the hand needs to be transferred to the prehensile part of the tool. In the first part of my talk I will present findings suggesting that motor control is not merely distalized from the fingers to a grabber prongs: rather, when we use tools to grasp objects, the body of the tool is incorporated into our arm representation. Sensing through tools also challenges the somatosensory system heavily. In the second part of the talk, I will present recent findings showing that distalisation does not apply to tool sensing either. We can localize impacts on the entire surface of a hand-held rod with great accuracy, and we suggest we may do so by repurposing body-based somatosensory processes to localize touch on a tool. Together, these findings indicate that rather than mere distal links between the hand and environment, tools are treated by the nervous system as sensorimotor extensions of the body.

Biography

Alessandro Farnè graduated in Experimental Psychology at the University of Padua, got a PhD at the University of Bologna. Then he moved to Rice University of Huston TX-USA for a first Post-Doc and went back to Bologna for a second Post-Doc where he got a Ricercatore position in 2000, before being hired by Inserm in 2004 to work at the Space & Action Lab. He leads the Integrative Multisensory Perception Action & Cognition Team since 2021 at the Lyon Neuroscience Research Center.