IMBB SEMINAR

ΙΝΣΤΙΤΟΥΤΟ ΜΟΡΙΑΚΗΣ ΒΙΟΛΟΓΙΑΣ ΚΑΙ ΒΙΟΤΕΧΝΟΛΟΓΙΑΣ   INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY
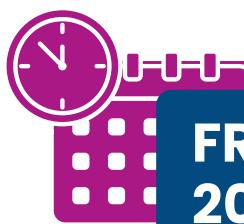
Super Mario Bros. as a total laboratory for studying cognition in brains and machines

Traditional reductionist paradigms in cognitive science often miss the richness of real-world behavior. While naturalistic paradigms have recently expanded in vision, audition, language, and social cognition, publicly available closed-loop neuroimaging datasets—where participants actively act on and reshape their sensory input—remain scarce. In parallel, state-of-the-art artificial agents can now learn to navigate a wide range of situations with high proficiency, but fall short at generalizing to unseen contexts, which humans excel at. To bridge these gaps, we built the Courtois Neuromod Mario dataset as part of the CNeuromod project: an open deep-phenotyping resource spanning multiple cognitive domains, including 84 hours of Super Mario Bros. (Nintendo, 1985) gameplay collected from five naïve participants. In this talk, I will introduce the dataset, motivate the design choices behind its acquisition and annotation, and show how reliable brain responses can be recovered from naturally occurring game events.

Dr. Yann Harel

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Yann Harel is a visiting postdoctoral researcher in the Neural & Machine Learning group at the University of Oxford (DPAG), led by Dr. Rui Ponte Costa. He earned his PhD in Psychology at Université de Montréal under the joint supervision of Dr. Karim Jerbi (CoCoLab) and Dr. Lune Bellec (SIMEXP), where he studied flow and attention fluctuations while developing methods for acquiring high-quality neuroimaging data during active gameplay. He then held a postdoctoral research position within the Courtois Neuromod team (Dr. Lune Bellec), where he contributed to the CNeuromod videogame datasets featuring over 200 hours of longitudinal brain, physiological, and behavioral recordings from five participants playing action-platformer games.

FRIDAY 20/2/2025

10:00
Costas Fotakis room

Host: Emmanouil Froudarakis