



Pierre VARICHON

Cognitive Psychology

As a second-year master's student in cognitive psychology, I'm passionate about cognitive neuroscience, computer science, and mathematics. Currently seeking for a RA position before starting a PhD, I wish to use my multidisciplinary skills to understand how complex cognitive functions emerge from varied neuronal dynamics.

Research interests

- Cognitive processes **modélisation** (neural state spaces, bayesianism, active inference),
- Sensory **integration** and decision-making
- **Entorhino-hippocampal** formation

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Education and diplomas

2022 - 2024 : Master's Degree in Cognitive Psychology (currently in 2nd year)

Courses taken: Language, Memory & Executive Functions, Electrophysiological Techniques & Cognition, Complex Data Analysis (MATLAB & R), Quantitative Research

Research dissertation: "Adapting to the abnormal: a study of perceptual adaptation in the auditory modality" (M1 - 17/20 - Supervised by Dr. Alma Guilbert), "Representational drift as a mechanism for spatial learning after limited experience" (M2 - 19/20 - Supervised by Dr. Daniel Bendor, University College London).

Degree obtained with an average note of 17/20.

2019 - 2022 : Bachelor's degree in Psychology, Université Paris-Cité (Paris Descartes)

Courses taken: Experimental Cognitive Psychology, Neuropsychology, Psychophysiology, Memory and New Technologies, Statistical Data Analysis, English for Psychologists

Research dissertation: "Can we influence through gesture? Study of the gestural anchoring effect" (L3 - 15/20 - Supervised by Dr. Cyril Thomas)

Degree obtained with an average note of 16/20.

Professional experiences

2024 : Systems neuroscience internship @ Bendor Lab, UCL (600 hours, 5 months)

Literature review on *place cells*, *replay* and *representational drift*. Autonomous processing of data from individual neuron recordings (e.g. bayesian decoding, signal processing, dimensionality reduction). Scientific presentation during laboratory events and conferences (Hippocampus Green 2024). Supervised by Dr. Daniel Bendor.

2023 : Organisation of scientific conferences

Recruitment of speakers, development of the website and organization of conferences for the BrainPlay (350 participants) and Play Sorbonne Festival (6,500 participants) events.

2023 : Social robotics internship @ SPooN (220 hours - 7 months)

Literature review on memory in Alzheimer's disease, development (Python, Dialogflow) and experimental evaluation of a virtual agent integrated into an emotional robot for patients with neurodegenerative diseases. Supervised by Dr. Aymeric Masurelle.

2021 : Research internship @ Paris Brain Institute (110 hours - 2 months)

Familiarization with scientific literature, development of an experiment (MATLAB), autonomous collection of behavioral data from participants. Supervised by Dr. Léa Combette.

Skills

Softwares : : Unity, Zotero, Office Suite, Audio and video editing.

Languages : English (TOEFL : 112/120 - R : 30/30, L : 30/30, S : 25/30, W : 27/30), German (Conversational), Esperanto (Basic)

Programming languages : Python (Advanced), MATLAB (Advanced), HTML/CSS (Advanced), Javascript (Intermediate), PHP (Intermediate), R (Intermediate), Julia (Intermediate), C (Beginner).

Personal projects

- Collection of **academic data** and creation of a **graph** representing researchers and their collaborations (55k nodes, 30k links).
- Reproduction of the vOICe **visuo-auditory substitution device** for blind people (Meijer, 1992) and addition of the **depth dimension**.
- Visualization of the average **emotional valence** of **40,000 areas of Paris** using tweets posted in each of them.



Projects available on pierrevarichon.com and on <https://github.com/tarsky5>