Kenza KADRI
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University of Plymouth
GitHub

RESEARCH INTERESTS

My research interests span several different areas of neuroscience, particularly those at the interface between psychology, biology, and modeling. In my PhD, I focus on (1) the neural substrates implicated in decision making, (2) how these substrates are perturbed in pathologies such as addiction and (3) how to model these perturbations and link them to aberrant networks.

ACADEMIC POSITIONS

Demonstrator in Research Methods in Practice, Plymouth University (UK) January – May 2023
Module leader: Claire Walsh
Supervising undergraduate students through a 12-week workshop aiming to build an experiment, collect the data and analyze it. The workshop emphasizes on reproducible and open science.

Visiting Student, Oxford University (UK) October – December 2021
Principal investigator: Miriam Klein-Flügge
Linking addiction biomarkers to the connectivity profile of striatum subdivisions using resting-state functional MRI (rs-fMRI) as well as questionnaires from the Human Connectome Project database (n=510).

Research Assistant, Plymouth University (UK) February – August 2020
Principal investigator: Elsa Fouragnan
Collection of preliminary behavioural and fMRI data on healthy participants while they learn to assign credit to different environmental stimuli, including faces, cars and tools. Computational models were used to infer key elements of learning and we used those model estimates to inform behavioral analyses.

Research Assistant, Montreal University (Canada) May – July 2019
Principal investigator: Christian Casanova
Modeling of the cortico-pulvino-cortical network implicated in sight with a spiking neurons simulator. Experimental data analysis (single cell recording) and scientific poster creation.

EDUCATION

PhD in Computational Psychology, Plymouth University (UK) October 2020 – summer 2023
Study the neural mechanisms of reward anticipation and reward delivery, two fundamental aspects of decision-making and learning. Our team tests the hypothesis that these mechanisms are different in addiction. Thus, our purpose will be to compare the neural systems mediating reward anticipation and reward delivery in people who previously suffered from alcohol abuse to healthy controls, to help diagnosis and treatment.

MSc in Integrative Biology and Physiology, Sorbonne University (France) 2018 - 2020
Study and practice of the mechanism implied in the physiological and pathological functions from the cell to the organism. Scientific modeling applied to neuroscience (with Python, R and MATLAB).

BSc in Health biology (with distinction), University of Tours (France) 2015 - 2018
Study and practice of fundamental concepts of biology including neurobiology of mental illness, Development of Nervous system, Functional and Comparative neuroanatomy, Endocrinology and Behavioral studies, Psychopharmacology.

BSc in Psychology (with distinction), University of Tours (France) 2013 - 2016
Theoretical and methodological knowledge in disciplinary fields of psychology (cognitive, developmental, clinical, social, pathological and biological psychology). General education of neuropsychology with courses about imaging, genetics epigenetics of mental illness.

TRAINING & AWARDS

2022	Computational Psychiatry Summer school, Neuroscience School of Advanced Studies (Venice, Italy)
2021	Drugs and the Brain: from laboratory to clinic, Euron Workshop, Summer school
2020	University of Plymouth PhD studentship (£61,300)
2020	ERASMUS traveling fellowship (Sorbonne University) (2,250 EUR)
2019	Selected for Interdisciplinary tutor in neuroscience (Sorbonne University (Paris) – Ecole Normale Supérieure, Paris)
2019	FSDIE traveling fellowship (Sorbonne University) (1,600 EUR)
2018	University of Montreal Exchange program (Canada) with fellowship from FSDIE of University of Tours (3,200 EUR)

MANUSCRIPTS IN PREPARATION

Kadri, K., Scholl, J., Jensen, D., Klein-Flugge, M., Fouragnan, E. (ready for submisison) Toward a new dimensional approach to addiction: Linking Addiction Markers to the Connectivity Profiles of Striatum Subdivisions

Kadri, K., Scholl, J., Fouragnan, E. (in preparation) Linking transdiagnostic biomarkers to credit assignment impairment in Humans

Palmer, T., **Kadri, K**., Fakra, E., Lutz, A., Scholl, J., Fouragnan, E. (submitted) Differential Relationship Between Meditation Methods and Psychotic-Like and Mystical Experiences

DISSERTATION

Cortes, N., **Kadri, K.**, Oliveira Ferreira de Souza, B., Casanova C., (2019) Pulvinar regulates spiking synchronization in two visual cortical areas. *MSc Dissertation (Sorbonne University/University of Montreal).*

PRESENTATIONS

Posters

KADRI K, Yaakub S, Scholl J, Hosking B, Komarnyckyj M, Rushworth M, Klein-Flugge M, Fouragnan E. FENS forum (Paris, France, 2022). Towards a new dimensional approach to addiction: linking addiction markers to the connectivity profiles of striatum subdivisions

KADRI K, Yaakub S, Scholl J, Hosking B, Komarnyckyj M, Rushworth M, Klein-Flugge M, Fouragnan E. Tenth Symposium on Biology of Decision-Making (Paris, France, 2021). Towards a new dimensional approach to addiction: linking addiction markers to the connectivity profiles of striatum subdivisions

KADRI K, Yaakub S, Scholl J, Hosking B, Komarnyckyj M, Rushworth M, Klein-Flugge M, Fouragnan E. NeuroFrance 2021 (Strasbourg, France, 2021). Towards a new dimensional approach to addiction: linking addiction markers to the connectivity profiles of striatum subdivisions

KADRI K, Cortes N, Casanova C. *The pulvinar activity modulation modify the neural synchronisation through the cortical hierarchy of visual areas.* Sorbonne University (Paris, France, 2019)

SCIENTIFIC OUTREACH

Computational Properties of the Prefrontal Cortex 2022: Booklet and general organization assistant

The CPPC 7th workshop was held between the 23rd and the 26th of March 2022 in Oxford University (Oxford, UK). I oversaw the creation and design of the booklet. In addition, in collaboration with students from different universities, I helped with the general organization of the event.

Connectome in Science : Editor in Chief for “New technologies” topic ; Editor
Association of students’ union, PhD, engineers and researchers that link the different actors of science. The purpose of this union is to share scientific knowledge in a wide range of disciplines! We have 3 major aims: create, share and educate. This growing network is already supported by Sorbonne University.

SERVICE

- Volunteer at NightLine Paris (2019): confidential and anonymous overnight listening, emotional support, information, and supplies services, run by students for students at universities around the world
- Private tutoring in mathematics, physics and life sciences from primary to senior high school (2014-2016)
- Former Secretary (2015) at “Etudiants Musulmans de France”. I was in charge of the organization of activities such as debates and charity events and dinners for students with financial difficulties and distributed lunchboxes each month.
- Tutoring in physics for first year of BA in Health Biology student with the campus association B.E.S.T (for *Bureau des Eleves en Sciences et Technique*) (University of Tours, France) (2015)

SKILLS

Computational Modeling

- A.I.: Neural network, Bayesian network, multi-compartmental (neural) modelling
- Reinforcement learning models applied in the cognitive sciences
- Machine learning: decision tree, SVM, EM algorithm, Logistic regression, semi-supervised and non-supervised algorithms
- Biologically based neural networks (python, MATLAB)

Programming

- Language: Python, MATLAB, R, Latex, PCL and SDL (Presentation neurobs)
- Currently training in: CSS, HTML (web design)

Software

- Adobe suite: Photoshop, Illustrator
- Software: Adobe suite, ImageJ, Inkscape, Zotero, Brackets, Presentation, PsychoPy

Neuroimaging and neurostimulation

- Magnetic Resonance Imaging: Human MRI (both healthy and sensitive population with psychiatric disorder), Pre-processing, Analysis and Visualisation
    - Rs-fMRI: HCP Workbench
    - Event related analysis: FSL, SPM
- Transcranial Ultrasound Stimulation in Humans (in training)

MEMBERSHIP

Since 2022	Cognitive Science Society
Since 2021	Société des Neurosciences Française

REFERENCES

Dr. Elsa Fouragnan
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University of Plymouth
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Dr. Miriam Klein-Flügge
Associate professor in Neuroscience
Oxford University
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Pr. Hedi Soula
Full professor in System Biology
Sorbonne University (Paris, France)
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