

ORGANISATIONS: University of Quebec in Trois-Rivières (UQTR) – Institut Paul Bocuse research center (IPBR) – University of Montreal (UdeM)

COUNTRIES: Canada + research visits in France (> 6months)

SUPERVISION: Johannes Frasnelli (UQTR) – Anne-Lise Saive (IPBR) – Karim Jerbi (UdeM)

DEADLINE DATES: the position stays open until filled

RESEARCH FIELD: Computational Neuroscience – Cognitive Neuroscience

CAREER STAGE: PhD student

DESCRIPTION

One PhD position in human olfactory electrophysiology (EEG/MEG)

A PhD position is available in Biomedical Sciences to study the electrophysiological correlates of olfactory perception in EEG/MEG in the Chemosensory Neuroanatomy lab at University of Quebec in Trois-Rivières. This position is funded by the Natural Sciences and Engineering Research Council (NSERC) of Canada and the Université du Québec à Trois-Rivières and funded for 4 years.

Project overview: Odor perception is a complex and fascinating topic in cognitive and computational neuroscience. The way we perceive odors and our ability to recognize them is intricately related to previous knowledge and associations. Despite important advances, our understanding of the neural mechanisms involved in odor perception is still incomplete. The aim of this project is to characterize the neural representations of the olfactory perceptual space using neuroimaging techniques with high-temporal resolution: magneto- and electro-encephalography (MEG/EEG). This research will also leverage advanced machine-learning analyses and multivariate techniques, incl. representational similarity analysis (RSA), to better understand the brain-perception link in olfaction.

Ideal candidate

- Holds a Masters (or engineering degree) in computer science, neuroscience, biomedical sciences or related fields
- Strong programming skills in Python
- Experience with machine learning libraries would be an important asset
- Strong interest in neuroscience and cognitive science
- Team spirit & excellent communication and organizational skills
- Good writing skills in English

How to apply?

Motivated individuals interested in joining us should upload a single pdf document with a cover letter stating the past and future research interests, CV and publication list, and a list of up to 3 references at

Johannes.A.Frasnelli@uqtr.ca with CC to anne-lise.saive@institutpaulbocuse.com and karim.jerbi.udem@gmail.com. Applications from students planning to defend their Master thesis in near future are also welcome as the starting date is negotiable.

We are strongly committed to equity and diversity. We welcome applications from racialized persons/visible minorities, women, Indigenous persons, persons with disabilities, ethnic minorities, and persons of minority sexual orientations and gender identities. A selection will be made among eligible applicants on an overall basis, and candidates selected for an interview will be contacted.

If you have any questions about this opportunity, please send an email to any of the three supervisors listed above.

MORE INFORMATION

Chemosensory Neuroanatomy lab at University of Quebec in Trois-Rivières ([UQTR](#))

The Chemosensory Neuroanatomy lab at UQTR is directed by Johannes Frasnelli. Its mission is the comprehension of physiology, psychology, and pathology of the chemical senses, i.e., smell, taste, and the trigeminal system. By using state-of-the-art methods including electroencephalography, structural and functional MRI, behavioral techniques, olfactometry as well as molecular biology we try to understand how we perceive odors, how the chemical senses interact during odor perception, how medical conditions such as traumatic brain injury or Parkinson's and Alzheimer's disease affect the chemical senses and to what extent we can use smell tests for early detection of these conditions.

Research Center - [Institut Paul Bocuse](#) in Lyon, France

The IPB research center conducts cutting-edge research on food practices and gastronomy thanks to its teams of researchers, innovation engineers and gastronomy professionals (chefs, pastry chefs, bakers, sommeliers etc.). From basic research to applied projects, we develop unique interdisciplinary approaches to questions related to food and culinary arts. In the Cognition & AI team, we are particularly interested in the early detection of eating disorders and in the development of innovative ways to promote culinary and olfactory expertise in both naive and expert populations using advanced ML tools and VR/AR setups.

Cognitive and Computational Neuroscience Lab ([CoCo Lab](#)) at Université de Montréal

Research at the CoCo lab combines state-of-the-art electrophysiological brain imaging techniques and machine learning to advance our understanding of the role of large-scale neural networks in healthy cognition, their modulation across states of consciousness and their breakdown in brain disorders. The lab is headed by Dr Karim Jerbi and has access to high-temporal resolution imaging techniques including magneto- and electro-encephalography (MEG/EEG). Karim Jerbi is also director of the UNIQUE Neuro-AI Research Center and director of the MEG Center at UdeM.