

**Coffey Lab: Audition,
Sleep & Plasticity**
www.coffeylab.ca



Cognitive Tinkerer needed: Postdoc in cognitive workload in operational environments

We seek a postdoctoral researcher interested *both* in the fundamental cognitive neuroscience of complex human task performance, and in developing portable measures of neurophysiology and performance in field and possibly VR environments. The successful applicant will serve as an interface between an engineering team working on swarm robotics (<http://mistlab.ca>) with practical research questions, and a fundamental cognitive neuroscience team interested in how humans accomplish complex tasks. Projects will include observing and analyzing the operator's behaviour in real environments and identifying bottlenecks, designing medium-fidelity controlled experimental paradigms that bridge laboratory and field work, and testing combinations of portable sensors during field experiments. Topics may include cognitive workload, dual-task performance, situational awareness, and errors.

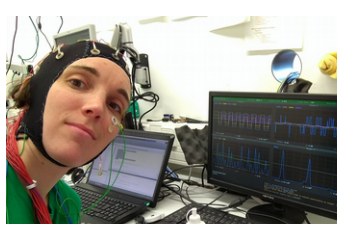
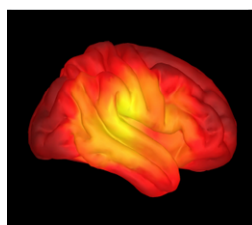
In particular we seek the following expertise:

- 1) EEG, pupillometry, heart rate analysis, GSR, and VR
 - 2) physiological data analysis and signal processing (Matlab, Python, ML, etc.)
 - 3) ability, interest, and willingness to troubleshoot, modify, tweak and combine sensors
 - 4) interest in understanding operational environments (e.g. piloting, exploration, space, search and rescue)
- Necessary interpersonal qualities include openness to new experiences, curiosity about both areas, creativity, and the ability to communicate well with people from very different training backgrounds.

The successful candidate will work in a stimulating interdisciplinary environment, with opportunities for field work (e.g. lava tubes, mines, mountains). In addition, Montreal is becoming a world reference for neuroscience, artificial intelligence, and robotics, as well as being a lively, beautiful, and affordable city. The postdoc will be primarily based in Coffey Lab: Audition, Sleep and Plasticity (<https://www.coffeylab.ca>) in the Department of Psychology at Concordia University, and must be interested in learning about and contributing their perspective on other lab topics.

Notes: Note that due to federal regulation only applicants within 5 years of their PhD can be considered. Due to immigration delays and our project's timeline, a Canadian resident is preferred, but other applications will be considered.

Application: Please submit your CV, cover letter, and the names and contact information of two referees to: emily [at] [lab website] .ca



Left to right: source modeling of auditory activity with MEG, our in-house sleep lab, closed-loop auditory stimulation to boost memory consolidation, an investigation of how brain activity predicts later learning on a complex task, field testing portable expedition equipment at a Mars analogue site with a drone swarm team (MIST lab, Polytechnique Montréal) and the European Space Agency in the Canary Islands, Nov 2018.