



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



PhD or Masters-PhD position

We seek a curious, motivated student to start in September 2019 within the PhD or Master's Psychology program (Research stream) at Concordia University in Montréal, Canada (program deadline 15 Dec 2018). We offer the selected candidate an excellent research training opportunity in neuroimaging/ neuropsychology, including hands-on experience with state-of-the-art neuroimaging and neurostimulation facilities (MRI, MEG, EEG, fNIRS, TMS, tDCS, sleep labs, etc.). Montréal hosts one of the largest and most productive neuroscience communities in the world, offering numerous extramural training events, networking opportunities, access to special populations, travel support, and the possibility for collaborations. We are members of BRAMS, the International Laboratory for BRAin, Music and Sound Research (<https://www.brams.org/>), and CRBLM, the Centre for Research on Brain, Language and Music (www.crblm.ca).

Our research program is curiosity-driven and interdisciplinary. We apply combinations of neurophysiological and neuroimaging techniques to the study of processes of neuroplasticity in the auditory-motor system, often using musicianship as a model of expertise.

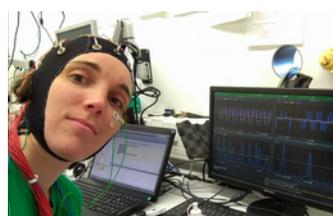
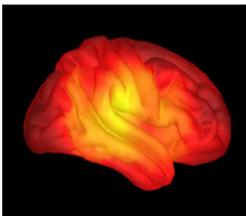
Our current interests include:

- **Closed-loop auditory stimulation** to enhance learning (memory consolidation) in sleep
- **Aging, hearing-in-noise perception, and musical experience**
- **Fundamental processes of sound encoding**, cross-frequency coupling of brain oscillations, connectivity, and its relationship to experience and pathology
- **The role of sleep, reward, and error prediction in learning a complex task** (e.g. piano training)
- **Auditory mazes and auditory spatial learning**
- **The sleeping cerebellum's role in learning**
- **Expedition cognition**: taking portable neuroscience measurements outside the lab to measure human performance and improve safety

Within our research area, projects and methods can be adapted according to the candidate's experience and interest; creativity, research potential, good communication and organizational skills, and a willingness to figure things out are the most important criteria. Programming skills and exposure to auditory or sleep research, cognitive neuroscience, EEG, MEG, MRI and/or musical or operational training are assets.

Requirements: The candidate should meet the eligibility requirements of the MA-PhD or PhD Psychology programs: <https://www.concordia.ca/arts/psychology/programs/graduate/faq.html> (**note that application deadline for the program itself is 15 December**). Candidates who are eligible to apply for national (NSERC/CIHR) and/or (FRQNT/FRSQ) funding and have competitive records will be preferred.

Application: Please submit your CV, cover letter, and the names and contact information of two referees to: emily@coffeylab.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.