

Postdoctoral Research Fellow (Neural Control of Movement) – Memorial University

University: Memorial University of Newfoundland and Labrador

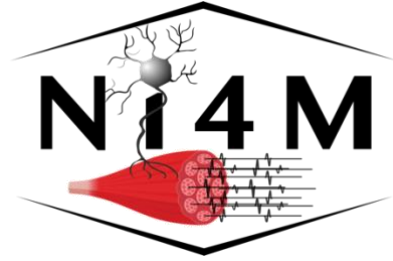
Department: Human Kinetics and Recreation

Job Type: Full time, contract

Duration: funding available for 3 years

Salary: negotiable based on the candidate's track record and experience

Anticipated Starting Date: November or December 1, 2024



The Position

A postdoctoral position is available in the *Neural Interface for Movement Lab* to contribute to a new research project focused on understanding the neural code of real-world human movement. The incumbent will have the opportunity for fully-funded international research experience at Loughborough University (UK) and Nantes Université (France) throughout the fellowship.

The Host University and City

Memorial University is the largest university in Atlantic Canada. As the province's only university, Memorial plays an integral role in the education and cultural life of Newfoundland and Labrador. Offering diverse undergraduate and graduate programs to almost 18,000 students, Memorial provides a distinctive and stimulating environment for learning in St. John's, a safe friendly city with great historic charm, a vibrant cultural life and easy access to a wide range of outdoor activities.

Memorial University is committed to employment equity and diversity and encourages applications from all qualified candidates including people of any biological sex, gender identity, gender expression, or sexual orientation; Indigenous peoples; visible minorities, and racialized people; and people with disabilities. All qualified candidates are encouraged to apply.

The School of Human Kinetics and Recreation offers four undergraduate programs: Bachelor of Kinesiology (BKIN), Bachelor of Physical Education (BPE), Bachelor of Recreation (BREC) and a Bachelor of Human Kinetics and Recreation Co-operative degree (BHKRC). The school has a growing Master of Science in Kinesiology, a Master of Human Kinetics and Recreation, and a recently established PhD in Human Kinetics and Recreation graduate programs.

Research Project Overview

The postdoctoral fellow will be engaged in a research project entitled "***Cracking the Neural Code of Human Movement***" funded by COMPERE (*Collaboration on motor planning, execution and resilience*) through a Network Operating Grant. Due to limits in technology, motor unit studies have formerly relied on limited samples of motor units, tasks with limited movement, and focused on muscles chosen for ease of motor unit identification rather than considering their functional roles. The overall goals of this project are: 1) to decode the majority of the motoneuron pool to reveal motor unit recruitment and rate coding strategies across diverse muscle groups, and 2) to examine task-dependent alterations in motor unit recruitment and spike patterns across dynamic motor tasks. Generating an atlas of recruitment and spike patterns across diverse muscle groups and motor tasks will dramatically enhance our understanding of human movement control, with implications for augmentation and repair of movement after injury and/or disease.

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Position Duties and Responsibilities

This is a full-time postdoctoral fellow position in the St John's campus of Memorial University, but the postdoc will be a key player in an international team project with Drs. Jakob Škarabot and Simon Avrillon. The fellow will coordinate projects between Pearcey, Škarabot, and Avrillon, while receiving support from by Drs. Botter and Cerone (LISIN; Italy) on technical aspects of the project.

The incumbent of this position will be responsible for leading the research activities of the project, including but not limited to the following core responsibilities:

- Coordinating the research activities carried out by different personnel.
- Collection and analysis of high-density surface EMG; novel high-density intramuscular EMG; kinematic data during dynamic and freely moving human behaviour; and ultrafast ultrasound.
- Preparation and presentation of experimental findings at conferences and in manuscripts.

Qualifications

- (1) An earned doctorate in exercise science, motor control, neuroscience, biomechanics, engineering, or a related field
- (2) A demonstrated record of peer-reviewed publications and presentations
- (3) Proven ability to independently work within a research lab conducting experiments
- (4) Knowledge of experimental design and statistical analysis of experimental results
- (5) Communication skills in English
- (6) Experience with the following skills is highly valued and will be considered an asset during the selection process:
 - Electrophysiology collection and analysis (experience with implantable electrodes)
 - EMG collection and analysis (HDEMG and/or intramuscular EMG preferred)
 - Ultrasonography collection and analysis
 - Motion capture collection and analysis
 - Signal processing experience in MATLAB and/or Python

How to Apply

Prospective applicants interested in pursuing this fellowship opportunity are invited to email Gregory Pearcey at gpearcey@mun.ca with a cover letter outlining their research interests (maximum 1 page), curriculum vitae (including a list of publications), name and contact information of three referees, and evidence of their doctoral degree. Review of applications will begin on October 15, 2024, and continue until the position is filled.