



Postdoctoral Fellow and PhD student positions available:

Work Environment:

1- Imagination Centre, Glenrose Rehabilitation Hospital (www.imagination-centre.ca):

The Imagination Centre at the Glenrose Rehabilitation Hospital is home to the Brain-Computer Interface (BCI) program aiming to change lives and improving participation for people of all ages. The Imagination Centre's team is made up of families, clinicians, engineers, researchers, and leaders all working towards the same goal of adding quality to life.

2- Neuromuscular Control & Biomechanics Laboratory (NCB-Lab: www.ncbl.ualberta.ca):

NCB-Lab is directed by Dr. Hossein Rouhani in the Mechanical Engineering Department of the University of Alberta. Relying on engineering means and interdisciplinary collaborations, NCB-Lab's team aims to positively impact prevention and rehabilitation by gaining a better understanding of the neuromusculoskeletal mechanisms of human movement, outcome measures for movement and performance assessment, and designing and evaluating advanced assistive technologies with the goal of enhancing the quality of life of those affected by movement impairments.

The Positions:

Qualified applicants are invited to apply for the Postdoctoral Fellow and PhD student positions to pursue new and creative research ideas in the **design and development of Brain-Computer Interface (BCI) and autonomous assistive systems with cooperative controls for safe interaction with persons with mobility/cognitive impairment**. Successful candidates will have strong collaboration and coordination skills to work directly with both research teams at multiple levels, rehabilitation centres, and industry partners to contribute to this research project successfully. **Equity and diversity** are an integral part of our research group. As such, members of underrepresented groups, including women, Indigenous peoples, members of visible minorities, individuals with disabilities, and persons of any sexual orientation or gender identity and expression are encouraged to apply.

Required Qualifications:

- Completion of Master of Science (or Engineering) degrees in Mechanical Engineering, Electrical Engineering, Biomedical Engineering, or Computer Science, for PhD student position
- Completion of PhD degrees in Mechanical Engineering, Electrical Engineering, Biomedical Engineering, or Computer Science, for Postdoctoral Fellow position
- Keen interest and/or experience (coursework, research, and/or industrial) in: biomedical instrumentation and physiological experimentation (e.g., EEG, ECG, EMG), systems identification, control engineering, and deep learning
- Minimum GPA of 3.3 for PhD student position
- Strong publication record in related research areas, for Postdoctoral Fellow position
- Proven ability to work independently
- Effective written and verbal communication skills; proficiency in English

Preferred Assets:

- Advanced programming skills (Python/C++ and ROS)
- Experience in wearable instrumentation design, bio-mechatronics, collaborative robotics, adaptive control, and SLAM
- Mechatronic systems design experience
- Interest and experience in interdisciplinary and translational research in collaboration with health scientists, healthcare system, and biomedical industry

Responsibilities:

- Clinical data collection at hospital
- Conducting research in the abovementioned fields
- Establishing and maintaining communication and coordination with colleagues and research collaborators
- Contributing to other research and development projects in both research groups
- Writing research grant or scholarship applications, manuscripts for publication, presentations, and reports

Learning Opportunities:

Training of undergraduate and graduate research assistants is paramount. In addition to the program-related coursework, the successful candidates will work closely with their supervisor to create a learning and development plan and attend professional such as research ethics and integrity, and project management. They will receive formal training in the following practical areas: i) Biomedical data collection and signal processing (e.g., EEG and motion); ii) Machine learning; iii) Human motion biomechanics; iv) Working with ROS and camera/LiDAR sensors on an autonomous mobile platform; v) Development and validation of heuristic healthcare solutions; vi) Equity, Diversity, and Inclusion training; vii) Entrepreneurship; and viii) Safety.

Application Procedure:

Interested candidates may send their questions or their CV, together with a cover letter and the names of three references to **Dr. Hossein Rouhani** (he/him) (bcilab@ualberta.ca), the Director of NCB-Lab.

Deadline: Sept 30, 2023 or until the positions are filled.

For more information on admissions and requirements, professional development, medical benefits, cost of living, and childcare for graduate studies or Postdoctoral fellowships at the University of Alberta, visit: <https://www.ualberta.ca/graduate-studies/index.html> or <https://www.ualberta.ca/research/research-support/post-doctoral-office/index.html>.

The University of Alberta is committed to an equitable, diverse, and inclusive workforce. We welcome applications from all qualified persons. We encourage women; First Nations, Métis and Inuit; members of visible minority groups; persons with disabilities; persons of any sexual orientation or gender identity and expression; and all those who may contribute to the further diversification of ideas and the University to apply.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority for Postdoctoral fellow positions. If suitable Canadian citizens or permanent residents cannot be found, other individuals will be considered.