



Postdoctoral Fellow, SC-NIRS-2 | Department of Orthopaedics and International Collaboration on Repair Discoveries

The Department of Orthopaedics in partnership with International Collaboration on Repair Discoveries (ICORD), at The University of British Columbia (UBC) invites applications for a full-time Postdoctoral Fellow in the area of biosensing signal processing and software development in a novel application for improving outcomes after spinal cord injury.

The UBC Department of Orthopaedics has an international reputation for excellence in teaching, research and patient care. Our mission is to create knowledge, advance learning, and improve musculoskeletal health for the community at the provincial, national, and international levels. The Department consists of seven clinical divisions and a division of orthopaedic research, and is comprised of 200+ academic and clinical faculty who choose to contribute large blocks of their time to advance knowledge in the areas of clinical orthopaedics, musculoskeletal science as well as applied biomedical engineering and related basic science areas. This focus allows the Department to be at the forefront of exciting new developments in the areas of minimally invasive joint replacement, improved bone healing, advanced techniques in spinal surgery, innovative arthroscopic techniques, and improved biomaterials and implants.

The Postdoctoral Fellow will be involved in technical aspects of a unique multi-collaborative and international research project that combines electro-optical technology and biological sensors for improving outcomes after spinal cord injury at ICORD ([www.icord.org](http://www.icord.org)), an interdisciplinary research centre with 45 principal investigators collaborating on its vision to make spinal cord injuries (SCI) preventable, livable, and curable. ICORD has its home in a 10,000 square meter state-of-the art research facility on the Vancouver General Hospital campus, shared with its partners the Rick Hansen Institute and the Vancouver Coastal Health Brenda and David McLean Integrated Spine Clinic. The incumbent will work under the supervision of [Dr. Babak Shadgan](#) within a team comprised of researchers, technicians and students in the lab as well as other internal labs and our partners in Canada, United States, and Switzerland. The incumbent will be based at ICORD with work being performed periodically at selected labs at UBC Department of Electrical and Computer Engineering and occasionally at the Centre for Comparative Medicine.

The Postdoctoral Fellow will undertake and support research, system, software and application developments of an optical monitoring technology and implantable biosensor for monitoring tissue hemodynamics, physiology and metabolism. The incumbent will be involved in technical advancements of an optical monitoring technology, system and implantable biosensor, based on near-infrared spectroscopy (NIRS), in particular signal processing, system operator and algorithm development, and system's user interface software development. The incumbent will be involved in technical supports of all related research studies including in vitro, animal models and in vivo human clinical trials which will take place at the UBC. Responsibilities also include managing related

documentations, preparing reports, and maintaining necessary communications between technical collaborators, industrial partners, regulatory agencies, and the multi-national co-investigators that are related to the optical technology advancement and examinations

The successful candidate will have a background and expertise in vital signs signal processing, as well as an expertise in MATLAB, HTML5, C, C++, Java, Python, CSS, traditional object-oriented languages (e.g., Java, .Net, Ruby, Python), and Android and iOS application development. For consideration, the candidate must hold a BSc or MSc in computer engineering and a PhD in computer sciences, electronics, optics, biophysics, or biomedical engineering. Background and knowledge in engineering and machine learning is an asset. Expertise in relational database design (SQL), is an asset. Experience with Near-infrared spectroscopy (NIRS), AutoCAD, and/or Solidworks software is an asset.

A detailed position description is available for those who wish to review it. Please inquire at the email address below.

To apply, please provide the following: a one-page letter of intent which includes a statement of your research interest, a detailed curriculum vitae, a PDF copy or a link to one of your recent and related peer-reviewed publications, and the names of three references. Complete application packages should be directed to:

Alisa Vink  
Human Resources Coordinator, UBC Department of Orthopaedics  
Email: [orthopaedics.hr@ubc.ca](mailto:orthopaedics.hr@ubc.ca)  
Subject Line: Postdoctoral Fellow, SC-NIRS-2

Review of applications will begin on March 1, 2021 and continue until the position is filled. The anticipated start date for this position is April 1, 2021 or upon a date to be mutually agreed. This position is expected to be 1 year in length, with a possibility of an extension.

The **University of British Columbia** is a global centre for research and teaching, consistently ranked among the top 20 public universities in the world. Since 1915, UBC's entrepreneurial spirit has embraced innovation and challenged the status quo. UBC encourages its students, staff and faculty to challenge convention, lead discovery and explore new ways of learning. At UBC, bold thinking is given a place to develop into ideas that can change the world.

**Our Vision: To Transform Health for Everyone.**

Ranked among the world's top medical schools with the fifth-largest MD enrollment in North America, the **UBC Faculty of Medicine** is a leader in both the science and the practice of medicine. Across British Columbia, more than 11,000 faculty and staff are training the next generation of doctors and health care professionals, making remarkable discoveries, and helping to create the pathways to better health for our communities at home and around the world.

The Faculty - comprised of approximately 2,200 administrative support, technical/research and management and professional staff, as well approximately 650 full-time academic and over 9,000 clinical faculty members - is composed of 19 academic basic science and/or clinical departments,

three schools, and 24 research centres and institutes. Together with its University and Health Authority partners, the Faculty delivers innovative programs and conducts research in the areas of health and life sciences. Faculty, staff and trainees are located at university campuses, clinical academic campuses in hospital settings and other regionally based centres across the province.

*Equity and diversity are essential to academic excellence. An open and diverse community fosters the inclusion of voices that have been underrepresented or discouraged. We encourage applications from members of groups that have been marginalized on any grounds enumerated under the B.C. Human Rights Code, including sex, sexual orientation, gender identity or expression, racialization, disability, political belief, religion, marital or family status, age, and/or status as a First Nation, Metis, Inuit, or Indigenous person. All qualified candidates are encouraged to apply; however, Canadians and permanent residents of Canada will be given priority.*

[med.ubc.ca](http://med.ubc.ca) | [orthopaedics.med.ubc.ca](http://orthopaedics.med.ubc.ca) | [icord.org](http://icord.org)