Job Title:	Collaborative Postdoctoral Position - Medical Imaging AI
Organization:	Department of Radiology, University of British Columbia
Collaborative Partner:	Torus Biomedical Solutions
Location:	Vancouver, BC, Canada
Application Deadline:	June 15, 2024, or until the position is filled
Desired Start Date:	01 Sep 2024
Contract Type:	24 months / Full Time

Job Summary:

We have an outstanding opportunity for a Postdoctoral Research Associate at the Department of Radiology - University of British Columbia to engage in a closely collaborative research and development project with our industry partner, Torus Biomedical Solutions. The goal of this project is to develop a software solution that facilitates automatic image-based measurements within an existing intraoperative assessment product. The postdoctoral candidate will have the support, guidance, and supervision from the engineering team at the company led by Dr. Shahram Amiri as well as Dr. ilker Hacihaliloglu assistant professor at the Department of Radiology - University of British Columbia.

As a Postdoctoral Research Fellow, you'll play a pivotal role in leading and contributing to the development of a machine learning approach to automate intraoperative X-ray-based measurements in orthopedic surgery. Your tasks will include establishing a pipeline for generating synthetic fluoroscopic images, conducting a thorough review of cutting-edge techniques, and designing and testing deep learning neural networks for bone segmentation and landmark annotation. You'll also evaluate system performance in both simulated and real surgical environments. Working closely with a diverse team of engineers, researchers, and surgeons, your contributions can seamlessly integrate into an existing commercial product. Furthermore, your research findings will be submitted for publication in peer-reviewed journals.

Job Responsibilities:

- Conduct literature reviews and contribute to academic publications resulting from the project.
- Establish pipelines for generating synthetic fluoroscopic images/labeling from CT images.
- Design, develop, and optimize a convolutional neural network model tailored for automatic bone and implant segmentation, and annotation of key bone landmarks.
- Collaborate with interdisciplinary teams to ensure seamless integration of research outcomes into the final product.
- Participate in design and execution of performance testing and validation activities.
- Lead authorship efforts for organizing and publishing the research outcomes as white-papers, scientific abstracts and journal articles.

Job Qualifications:

- PhD in Computer Science, Biomedical Engineering, or a related field.
- Proficiency in Python-based machine learning, image processing and computer vision toolboxes (such as PyTorch, OpenCV, or scikit-image).
- Verifiable previous experience in applying machine learning to medical imaging, preferably with X-ray image modality.
- Track record of industrial product development experience or first author publications.
- Effective communication skills in English.
- For international applicants: willingness and ability to apply for a work visa and undergo the relocation process to Vancouver, BC, Canada.

Organizations:

This position will be officially hosted jointly at the Department of Radiology, Faculty of Medicine, the University of British Columbia, and Torus Biomedical Solutions.

The University of British Columbia is a global centre for teaching, learning and research, consistently ranked among the top 20 public universities in the world. 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 12,000 faculty and staff are training the next generation of doctors, health care professionals, and medical researchers, making remarkable discoveries to help create the pathways to better health for our communities at home and around the world.

Torus Biomedical Solutions (www.torusbiomedical.com) is pioneering a unique commercial solution for intra-operative measurements in orthopaedic surgery that seamlessly integrates with existing mobile fluoroscopy equipment in operating rooms. Through strategic collaboration with a leading company in the US, a specialized version of the solution tailored for spinal surgery is slated to launch in the market. Currently, the company is dedicated to enhancing its technology to meet the specific demands of sub-specialities in orthopedic surgery.

How to Apply?:

Please email your application including a cover letter, your Curriculum Vitae, and names and contact info of three references to [jobs@torusbiomedical.com]. In your cover letter highlight your experience in machine learning & medical imaging, and describe your interest in the role, professional aspirations, and availability with respect to start date. Applications will be accepted until June 15, 2024, or until the position is filled.

Additional Information:

For more information or answer to specific question about this position, please email Dr. Shahram Amiri [shahram.amiri@torusbiomedical.com].