



Title: Post-Doctoral Fellow in Ambient-Based Physiological Monitoring and Intelligent Textiles

Location: Toronto Rehabilitation Institute-UHN

Start Date: June 1 2016

Salary: Negotiable based on experience levels

Description:

The Toronto Rehabilitation Institute-UHN and Myant Capital Partners is seeking a skilled and enthusiastic postdoctoral fellow (PDF) whose expertise intersects embedded sensing and digital signal processing (DSP). The PDF will work with a vibrant, multi-disciplinary team of internationally recognized researchers to advance a smart home system that unobtrusively monitors the physiology and activity of seniors using new intelligent textile-based sensors. The successful candidate will assist in applying and discovering algorithms for interpreting bio-signal data from textile and printed electronic sensors and developing the data processing infrastructure to enable the development, testing and deployment of a growing library of algorithms.

Working closely with our industrial partner, Myant, the PDF's work will involve sensor design, data collection, data analysis, dissemination of results (e.g., papers and conferences), and partial supervision of graduate students and research staff. The PDF will also manage the project's timelines and resources as well as network with clinical and industrial partners.

#### **Duties and Responsibilities:**

- Work in a fun, dynamic, cross disciplinary environment with fashion designers, electrical engineers, firmware developers, computerized knitting specialists, chemical engineers and quantitative experts from industry and academia
- Assist in the design and development of smart textiles and apparel (mats, sheets, cushions, shirts, socks) with embedded sensors
- Identify and implement or integrate a library of re-usable data stream processing tools and algorithms
- Assist in the design and implementation of a highly scalable data store and retrieval infrastructure with a framework for pluggable biosignal processing algorithms
- Define and execute research studies to study the reliability and impact of developed solutions
- Participate in agile development teams with agile development methodology using online tools for tracking and reporting

#### **Requirements:**

The successful applicant will have:

1. A doctoral degree in a relevant field of electrical engineering, biomedical engineering, or a relevant discipline;
2. A strong technical background in embedded sensing, digital signal processing, and machine learning;

3. Expertise in mathematics, statistics, machine learning, time-frequency signal representation and related algorithms
4. Evidence of impact in research through a strong publication record in relevant venues;
5. Evidence of strong collaborative skills, including the supervision of junior researchers, students, or equivalent industrial experience;
6. Excellent interpersonal, written, and oral communication skills.

**Application:**

Applications will be considered until a successful candidate is found. To apply, please forward a covering letter outlining your research interests, a complete curriculum vitae, three examples of publications, and the names and contact information of three academic references, to Alex Mihailidis, Ph.D., P.Eng. (Team Leader – Artificial Intelligence and Robotics in Rehab Team and Associate Professor), via email—[alex.mihailidis@utoronto.ca](mailto:alex.mihailidis@utoronto.ca)

One of North America's leading rehabilitation sciences centres, Toronto Rehabilitation Institute-UHN is revolutionizing rehabilitation by helping people overcome the challenges of disabling injury, illness, or age-related health conditions to live active, healthier, more independent lives. It integrates innovative patient care, ground-breaking research and diverse education to build healthier communities and advance the role of rehabilitation in the health system. TRI, along with Toronto Western, Toronto General, and Princess Margaret Hospitals, is a member of the University Health Network and is affiliated with the University of Toronto.

Toronto Rehabilitation Institute-UHN is strongly committed to diversity within its community and especially welcomes applications from visible minority group members, women, Aboriginal persons, persons with disabilities, members of sexual minority groups and others who may contribute to further diversification of ideas.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.