

## **PROFESSOR IN ELECTRICAL ENGINEERING - TRANSMEDTECH CHAIR IN BIOMEDICAL ENGINEERING**

**No. de concours :** 18-PR-15  
**Dates d'affichage :** du 7 novembre 2018 au 7 janvier 2019  
**Lieu de travail :** All buildings  
**Département ou service :** Department of Electrical Engineering

### **Position summary**

Polytechnique Montreal is one of Canada's leading engineering schools in terms of its student population and the scope of its research activities with more than 8,000 students and 1,000 employees. Polytechnique Montreal is seeking applicants for a tenure-track faculty position with the Department of Electrical Engineering. This position falls within the application areas of the TransMedTech Institute. The TransMedTech Institute originated from an initiative led by Polytechnique Montreal in collaboration with 4 partner institutions (CHU Sainte-Justine, Université de Montréal, CHUM, Jewish General Hospital) and around 30 other partners. The TransMedTech Institute is supported by Canada First Research Excellence Fund, the Quebec Ministry of Economy, Science and Innovation, the Fonds de recherche du Québec, and by multiple government, philanthropic, socio-economic and industrial partners. The Chair will benefit from the support of the TransMedTech Institute and the exceptional environment offered by the TransMedtech LivingLab, an open innovation ecosystem. The LivingLab includes researchers from Polytechnique Montréal departments of Chemical Engineering, Engineering Physics, Electrical Engineering, Computer and Software Engineering and its partner institutions.

Polytechnique Montréal offers specific work-family balance accommodations and maternity, paternity and adoption leave over and above the Québec Parental Insurance Plan (<http://www.rqap.gouv.qc.ca/>). Polytechnique Montréal applies an employment equity program and encourages women, members of visible and ethnic minorities, Aboriginal peoples and persons with disabilities to apply. Accommodation can be provided to persons with disabilities based on their characteristics.

The Department of Electrical Engineering has 31 professors, one senior lecturer, 26 support staff, many postdoctoral researchers, professional researchers and research assistants, 476 undergraduate and 162 graduate students. The department leads internationally-recognized research, in close collaboration with industry, in several core areas such as: biomedical engineering, medical imaging, automation and systems, power systems and networks, microelectronics, telecommunications and microwaves, etc.

### **Major responsibilities**

The successful candidate will be expected to carry out the basic duties of this position with a dynamic and creative approach. In particular, he/she will:

- take part in teaching and in laboratory activities for undergraduate and graduate courses in electrical
- engineering;
- supervise and lead graduate students;
- initiate and carry out leading-edge research projects;
- collaborate with research teams within Polytechnique Montreal and other institutions, notably TransMedTech Institute;

develop and maintain collaborations with industry.

## **Area of expertise**

The candidate will be an expert in theoretical and technological tools associated with biomedical science with an emphasis on emerging fields coherent with the development in the department of a critical mass of high level in the field. More specifically, but without exclusion, applications can include:

- Development of hardware enabling novel acquisition techniques in magnetic resonance imaging and/or positron emission tomography. Detectors and scintillators, gradients, antenna, integrated electronics for detection.
- Development of integrated devices, using electrical, fluidic or optical (e.g. optogenetics) transduction mechanisms to measure and intervene on neural, cardiac or muscular physiology.
- Development of integrated systems, on-chip, to sense artificial organs/organoids with the goal of evaluating novel therapies in personalized cellular models of end-organs.
- Analysis of medical images at scale (big-data), linking analyses with genomics, machine learning, proteomics and metabolomics.
- Development of non-invasive technologies to identify novel biomarkers of neuromuscular deficits.
- Brain machine interfaces.

## **Start date**

June 2019

## **Essential qualifications**

Applicants must hold a bachelor's degree in electrical engineering and a doctorate (Ph.D.) in a relevant field of expertise. The successful candidate will be registered on the roll of the Ordre des ingénieurs du Québec (OIQ) as an engineer, or take the necessary measures to be registered on the roll of the OIQ as an engineer before applying for tenure. Relevant industry experience is an asset. Since the teaching language is French, the candidate will have to demonstrate adequate mastery of spoken and written French before applying for tenure.

## **Conditions of employment**

This faculty position is tenure-track. Salary and benefits will be set in accordance with the collective agreement.

## **Applications**

Candidates should submit an application file that consists of a curriculum vitae, a statement of teaching goals and research priorities, a roadmap for integration of their activities into those of TransMedTech Institute, records of teaching effectiveness, official records of diplomas, the names of three references, several examples of work relevant to the position and examples of recent contributions. Applications must be received by January 7th, 2019 at 5 PM to the attention of:

Yves Goussard, Professor and Chairman  
Department of Electrical Engineering  
Polytechnique Montreal

Applications must be submitted using the following link: : <http://ge.grames.polymtl.ca/18-PR-15>

This posting may be extended past January 7th 2019. Examination of applications will begin as soon as possible and continue until the position is filled.

We encourage all qualified candidates to apply; however, in accordance with immigration requirements, Canadians and permanent residents will be given priority.