

- Ph.D. in biomedical engineering at Polytechnique Montreal

#### Spinal Cord MRI and Amyotrophic Lateral Sclerosis

A Ph.D. student position is available for highly-motivated individuals with interest in studying neuroimaging of neurodegenerative diseases in the TransMedTech Institute at Polytechnique Montreal. The student will be fully funded and integrate Dr. Benjamin De Leener's laboratory, at Polytechnique Montreal, and Dr. Julien Doyon's laboratory, at the Montreal Neurological Institute, at McGill University. The suitable candidate will join a team of graduate students and postdoctoral fellows who are conducting neuroimaging research, both fundamental and clinical.

The Ph.D. student will work on the analysis of spinal cord MR images acquired from healthy individuals and patients with Amyotrophic Lateral Sclerosis (ALS). This study is part of a research program aiming to characterize the progression of the disease in terms of functional impairment, survival and cognitive impairment, and to develop novel biomarkers for early diagnosis of the disease, the institution of neuroprotective drugs and planning clinical care. The student will benefit from dedicated state-of-the-art neuroimaging research facilities and collaborations with international research centers (Pit e-Salpetri re Hospital, Brain and Spine Institute, University College of London, Sydney University).

The ideal candidate is expected to take the lead in regard to the methodological aspects of the study, addressing specifically the challenges related to the structural and functional neuroimaging of the spinal cord, and to the analysis of complex data sets. The fellow will be involved in all stages of the research projects, from experimental design to data analysis and manuscript writing.

The following requirements are mandatory:

- BSc, MSc or an equivalent degree in biomedical engineering, neuroscience or a related field;
- Experience with neuroimaging in human participants;
- A strong academic background;
- Ability to work independently and to collaborate with other team members;
- Must be self-motivated and hard-working, with a keen interest in working on multidisciplinary projects;
- Good proficiency in English (especially scientific writing and oral communication).

The following requirements are assets:

- Experience with spinal cord MR imaging;
- Experience with neuroimaging data analysis techniques and software (i.e. Spinal Cord Toolbox, SPM, FSL or similar);
- Good proficiency with MatLab and Python programming (or other programming languages, such as Octave, C++, etc.);
- French proficiency;
- Research experience with ALS patients (or other movement-related disorders);

The student will receive full stipend support and will also be encouraged to apply for internal and external scholarships. If you are interested in this position, please send your CV, transcripts and a motivation letter at the following e-mail

address: [benjamin.de-leener@polymtl.ca](mailto:benjamin.de-leener@polymtl.ca). Only the selected candidates will be contacted.