Statistical methods for rare genetic variants in families

Project Description
As part of a research project funded by the Canadian Statistical Science Institute (CANSSI), the successful candidate will develop statistical methods to assess evidence that genetic variant sets, discovered by genomic sequencing of related individuals, are involved in complex diseases. These methodological developments include the use of extended genealogical data from the French Canadian founder population. This research is motivated by the sequencing data of schizophrenia and bipolar disorders in an Eastern Quebec family study conducted at the CRIUSMQ, and other similar studies. Dr. Marie-Hélène Roy-Gagnon from the School of Epidemiology, Public Health & Preventive Medicine (SEPHPM) at the University of Ottawa will be involved as co-supervisor.

Research Field
- Statistics and Probabilities
- Epidemiology and biostatistics
- Genetic Mapping
- Population Genetics

Research Supervisor
Alexandre Bureau

Research Environment
Research center of the Quebec mental health institute
The student will be located in the Laboratory of the Biostatistics and Psychiatric Genetics Research Center of the Quebec Mental Health Institute (CRIUSMQ), where he or she will benefit from the support of professional biostatisticians. The student will have the opportunity to participate in seminars, journal clubs and other scientific CRIUSMQ meetings, and in the Department of social and preventive medicine and the Department of mathematics and statistics, on topics such as statistical genetics, biostatistics, epidemiology and psychiatry.

Related Programs
Doctorate in Mathematics

Desired Profile
- Mathematics, Statistics and Actuarial Science
- Bioinformatics
- Statistics

Requirements and Conditions
Master degree in statistics, biostatistics, mathematics or another relevant field. Good programming skills. Proficiency in the R statistical language is an asset.
**Required Documentation**
- Cover letter
- Resume
- Publication if applicable.

**Available financial support**
- 18 000$ for the first year, renewable for two additional years.
- Ph.D program registration award from Université Laval (2 000$).
- Financial support fund of the Science and Engineering Faculty.

**Find Out More**
Alexandre Bureau
Full professor
Département de médecine sociale et préventive
alexandre.bureau@msp.ulaval.ca