



## Postdoctoral Fellowship in Computational/Network Neuroscience at Université Laval

The [Dynamica Research Lab](#), led by Antoine Allard and Patrick Desrosiers at [Université Laval \(Québec, Canada\)](#), seeks an exceptional candidate for a postdoctoral research associate to work on an innovative project at the intersection of Neuroscience, Computer Science and Network Science. The initial term of the position is one year, with the possibility of up to three years, and will begin no later than August 1<sup>st</sup>, 2022. Ideal candidates have:

- a strong neuroscience and data analysis background;
- a strong track record of innovative research and publications in selective venues;
- significant experience in image processing, including cell segmentation in microscopy images;
- relevant experience in programming and network modeling or graph theory.

The project will be done in close collaboration with [Pierre Marquet's lab](#) at [CERVO Brain Research Center](#) and is part of an ambitious scientific partnership called [The Neuro-CERVO Alliance for Drug Discovery \(NCADD\)](#). The research work will focus on acquiring graph-theoretical fingerprints of major psychiatric diseases, including schizophrenia, bipolar disorders, and major depression disorder. The candidate will have to perform, among others, the following tasks:

- analyze calcium imaging data and digital holographic microscopy data describing the function/structure of cultured neuronal networks obtained from patient-derived iPSCs;
- implement and optimize computational methods for inferring graph models from functional/structural data;
- compare the graph models to identify statistically significant variations between cohorts by exploiting the latest approaches in the field of graph comparison;
- find robust disease-relevant phenotypic signatures;
- maintain knowledge of current developments in the field, e.g. by attending conferences and workshops;
- write and edit scientific articles.

### Qualifications:

- a Ph.D. in Neuroscience, Computer Science, Applied Mathematics, or in a similar field, conferred no later than July 2022;
- education or training in neuroscience and data analysis;
- significant experience in image processing and cell segmentation;
- very good programming skills (preferably in Python);
- strong verbal and written communication and presentation skills;
- a commitment to working in an interdisciplinary and collaborative environment.

### Applicants should submit the following:

- a one-page **cover letter** that succinctly describes who you are and specifically mentioning why you want to join the Dynamica Research Lab;
- a one-page statement of **research interests and accomplishments**, highlighting their relevance for the project;
- a full **resume or CV** detailing your education, employment, research experience, publications and scientific presentations, alongside the contact information for **at least two references**;
- an unofficial **transcript** of your academic record.

Applications must be submitted by email to [patrick.desrosiers@cervo.ulaval.ca](mailto:patrick.desrosiers@cervo.ulaval.ca) with subject line **Graph fingerprinting postdoc**. Full consideration will be given to complete applications **received before May 15, 2022**.