

Developing efficient algorithms for the statistical modelling of neuroscience data

PROJECT DESCRIPTION

Recently there has been an increased interest in understanding the dynamic manner in which brain regions interact with one another over the course of a functional magnetic resonance imaging (fMRI) experiment. This interest has led to the development of several novel statistical methods for estimating these time varying networks. However, these methods are computationally complex. The objective of this internship is 1) to develop efficient algorithms, using techniques such as parallel programming, that implement the statistical estimation and 2) to develop software or a graphical user interface (GUI) that allows neuroscientists or psychologists to easily use these new algorithms. The student will work under the supervision of a statistician in the Alberta School of Business and may also interact with faculty from various departments (e.g. Psychology, Medicine, Finance, Statistics) at the University of Alberta. There will also be an opportunity to write academic papers. Excellent computer programming (e.g. C, C#, R, MATLAB) skills are essential for this project, as is an eagerness to continue to develop these skills. Prior experience with fMRI analysis tools, such as SPM, as well as an interest in neuroscience would be helpful but is not required. The student should be able to work efficiently, independently, and diligently. The student should also possess excellent interpersonal, oral and written communication skills and enjoy working as part of a diverse and energetic interdisciplinary team. Recent graduates have been accepted to graduate programs at Yale University and Columbia University.

FACULTY-DEPARTMENT

Business - Finance and Statistical Analysis

OPEN TO STUDENTS FROM THE FOLLOWING INSTITUTIONS

Chinese universities participating in the [*Double First-Class Initiative*](#).

DESIRED FIELD OF STUDENT STUDY

Computer Science, Engineering, Statistics

INTERNSHIP LOCATION

Edmonton Campus

NUMBER OF INTERNSHIP POSITIONS

2

INTERNSHIP DATES

Start: July 2, 2019

End: October 2, 2019

ARE THE DATES FLEXIBLE?

Yes, I am flexible regarding the internship dates. Selected students can contact me to request a date change.