

May 25, 2022

Statistics Canada - Statistical Integration Methods Division
150 Tunney's Pasture Driveway
Ottawa, ON, K1A 0T6 Canada

Re: Junior Statistician-Mathematician (Job Posting ID: 93387)

Dear Hiring Manager,

I am writing today to express my interest in the Junior Statistician-Mathematician internship, which I discovered on the University of Calgary's Science Internship job posting website. As an undergraduate researcher and student of mathematics and neuroscience, I am passionate about the creative application of math to solve problems and improve the lives of others. The prospect of contributing my skills to the process by which knowledge is discovered and shared excites me, but I also feel strongly aligned with the goal of informing people – keeping our society transparent and empowering voters and organizations to make informed decisions. My research projects have required that I develop statistical and programming knowledge well ahead of coursework. With this, I expect to be a valuable assistant both for my years of experience solving real problems and for my ability to understand and apply complex ideas.

As an undergraduate researcher, I have spent the last three years completing projects aimed at modeling and analyzing neural systems exhibiting synchronization using Python. During this time I have become comfortable manipulating time series, processing signals and understanding dynamic systems theory. My work culminated in an honours thesis project, where I developed a new algorithm and a nonparametric statistical test to quantify neuronal dynamics. The project was highly independent, requiring that I learn how to model thousands of neurons in parallel, interface with computing clusters using Bash and construct effective visuals to convey my process and results. Ultimately, I demonstrated that the algorithm was robust to type I and type II error over a broad domain of parameters, and used it to produce novel evidence that a neural phenomenon previously thought to only occur in a single behavioral context actually occurs in others. While the work was rarely easy, I was never discouraged. Currently, I am developing a deep neural network to perform a similar analysis on neuronal time series, and I hope to make machine learning the centerpiece of my career going forward.

This work has made me proficient at programming and working with data, but I have also excelled as a student and teammate. I have maintained a 4.00 grade point average over my entire education, which I attribute to my love of learning. This love of learning also led me to participate in a rapid prototyping competition called NeuroNexus, where I coordinated my team and contributed to the development of a recurrent neural network designed to predict seizure onset in epileptic patients. Additionally, during my time as a practicing paramedic I developed the skills required to be an excellent communicator and teammate. Reviews from my professors and colleagues reflect this, indicating that they find me personable, motivated and easy to work with.

Overall, I believe that my values, skills, experience and personability make me a good fit for the Junior Statistician-Mathematician internship with the Methodology Branch at Statistics Canada. To address the screening criteria: I am enrolled in the University of Calgary's Science Internship Program, am a dual mathematics and neuroscience major, have taken three statistics classes, am competent with Python, R and Bash programming languages and am fluent in English. I welcome the opportunity for a technical interview, and am more than willing to work remotely or consider relocating to Ottawa. Thank you for your consideration, and please do not hesitate to contact me for any further details.

Sincerely,

A handwritten signature in black ink, appearing to read 'Connor Braun', with a stylized, flowing script.

Connor Braun