

**Justin Bellavance**  
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## EDUCATION

### B.Sc. Neuroscience and Computer Science

September 2019-April 2023

Carleton University, Ottawa, ON

### MS Bioinformatics

September 2023-August 2025

Université de Montréal

- Fluency of programming languages such as Python, R, R-Shiny, Bash, C/C++, Java, JavaScript, Git
- Knowledge of machine learning, data science and web development theory and practice
- Bilingual: excellent speaking, writing, and reading in French and English

## WORK EXPERIENCE

### Bioinformatics Research Intern

April 2023 - Present

Agriculture and Agri-Food Canada

- Prediction of best oat line crosses using large scale genetic marker data associated with phenotypic data using a large number of tools and R packages such as *PopVar* and *AlphaSimR*
- Utilization of Microsoft Azure and Databricks to store, visualize and analyze substantial amounts of genetic data with reproducible, well documented code notebooks
- Cleaning and transformation of gigabytes of various formats of genetic data stemming from a wide variety of sources, leading to simple and easily usable data analysis and visualization

### Bioinformatics Development Intern

Summer 2022

Canadian Centre for Computational Genomics (C3G), Montreal, Quebec

- Installation and benchmarking of various WGBS tools such as aligners, methylation callers and variant callers to test efficiency and accuracy with methods such as precision-recall scores
- Use real and self-made simulated genomic reads in various bioinformatic tools such as Bismark and GemBS using Linux and Bash commands in a high-performance computing cloud
- Present results to development team to influence use of software in GenPipes, affecting of hundreds of genomic analyses at research institutions such as McGill, UdeM and UOttawa

## VOLUNTEER EXPERIENCE

### Assistant Researcher, Honours Thesis Student

August 2021-May 2023

Hildebrand Lab, Carleton University, Ottawa, Ontario

- Development of bioinformatic tool to analyze and visualize scRNA-seq using R and Python to aid further investigate lab topics related to chronic pain models
- Creation of interactive GUI of tool using Python for ease of use for non-technical lab members
- Use Git and GitHub to share, backup and annotate code for future lab use

### Machine Learning Project Manager

April 2020-April 2022

Carleton Artificial Intelligence Society (CAIS), Ottawa, Ontario

- Creation and judging of a Kaggle machine learning competition for undergraduates
- Creation of an example Jupyter notebook from a large public dataset to guide beginners
- Learn and apply machine learning concepts such as building beginner machine learning models, fitting, cross-validation ROC curves and gradient descent