Curriculum Vitae

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Profile

An MSc. in Biostatistics at U of T with two Bachelors of Science from McMaster: Mathematics and Statistics (2024), and Biochemistry (2020). Interested in Data Science, Omics-data, Biostatistics, and Healthcare. Proven ability to learn quickly as demonstrated by transitioning from biochemistry to mathematics and statistics, past research experience, and learning several machine learning and statistical techniques for diverse projects.

Education

University of Toronto — **Toronto, Ontario**
M. Sc. – Biostatistics — *Sept. 2024—Present*

McMaster University — **Hamilton, Ontario**
B. Sc. – Mathematics and Statistics — *Sept. 2022—June 2024*

McMaster University — **Hamilton, Ontario**
B. Sc. – Biochemistry — *Sept. 2015—April 2020*

Relevant Courswork

Senior Project Course (Stats 4T06) — **Hamilton, Ontario**
Department of Mathematics and Statistics — *September 2023–April 2024*

- Worked Dr. Pratheepa Jeganathan in a thesis course on a project involving time series transfer functions and machine learning (tree-based boosting).
- Project involved using transfer functions to explore intervention effects between control and treatment groups in longitudinal microbiome data. Moreover, tree-based boosting was used to estimate a transfer function-based model.
- Familiarized myself with tree-based learning algorithms, spline regression, time series, time series transfer functions, and the challenges of working with microbiome data.
- Learned how to create a data analysis pipeline in R that utilizes packages such as Phyloseq, SplinectomeR, and DESeq2.

Senior Reading Course (Stats 4WW3) — **Hamilton, Ontario**
Department of Mathematics and Statistics — *June 2023–August 2023*

- Worked with Dr. Benjamin Bolker on a project involving epidemic modelling.
- Implemented epidemic models in R, and aided with software developmentand documentation of the CanMod2 Package (linked here) through Github

- Familiarized myself with the stability analysis of ODE's, SIR model and its variations, maximum likelihood estimation, and trajectory matching.
- Learned how to use Git for software development and R for creating scripts for epidemic modelling.

Extracurricular Research Experience

Research Assistant **Hamilton, Ontario**
Department of Mathematics and Statistics *January 2022–September 2022*

- Worked with Dr. Noah Forman on a project involving stochastic processes.
- Project involved creating an audio-visual representation of the Poisson-Dirichlet Process (linked here). This involved working with Julia scripts for randomized simulations, and R and Python to create the representation. Code is linked here.
- Familiarized myself with several stochastic processes and advanced probability theory concepts such as: the Chinese Restaurant Process, Poissonization, the Galton Watson Branching Process, and the Chronological Contour Jumping Process.
- Learned how to create scripts in Julia, use the Ggplot2 library in R, and create music from 'data' using Python.

Research Assistant **Hamilton, Ontario**
The Farncombe Family Digestive Health Research Institute *May 2019–June 2021*

- Worked with the research team of Dr. Michael Surette
- The Surette lab researches the human microbiome, with a focus on applying and improving next-generation sequencing to characterize the microbiome, developing high-throughput culturing to investigate infectious diseases, and exploiting metabolic products of the microbiome.
- Developed a bioinformatics tool written in Bash script that assigns taxonomy to bacterial genomes in a metagenomic context via the 16S rRNA. This can be used to further examine the effects of horizontal gene transfer in bacteria.

Academic Awards and Miscellaneous Achievements

McMaster Dean's Honour List *2024*

- Awarded to McMaster university graduates with a **minimum** overall average of B+ (9.5 in the McMaster Grading System) based on an evaluation of the last 10 courses taken.

McMaster Honour Award Level 3 ($1000) *2015*

- Awarded to McMaster university applicants with an admission average of 90-94%.