

# ALIN MORARIU



Leveraging modern statistical methods to make data-driven decisions

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## PROFESSIONAL EXPERIENCE

### Data Science Intern

#### Ontario Teachers' Pension Plan

May 2020 - Dec. 2020 Toronto

- Implemented machine learning models to forecast trading costs for futures contracts and options
- Identify costly trading behaviour through detailed trade performance reports on options and futures contracts

### Actuarial Analyst - Consumer Markets Pricing

#### Manulife Financial

Sept. 2017 - Exp. Dec. 2017 Toronto

- Standardized pricing models across health, dental, and travel products to eliminate need of per-product updates for repricing purposes
- Revitalized travel pricing methodology using fundamental machine learning techniques to predict claim patterns and highlight risk factors

### Investment Consulting Analyst

#### Mercer (Canada) Limited

May 2017 - Aug. 2017 Toronto

- Monitored quarterly performance of funds in order to optimize asset allocation of institutional clients
- Automated significant portion of daily data entry process with VBA Macros to half run time of asset reconciliation

### Pension Consulting Analyst

#### Mercer (Canada) Limited

Jan. 2016 - May. 2016 Toronto

- Performed funding valuation to determine updated liabilities resulting in savings of \$100,000 annually
- Linearized single benefit and PSPA calculations with the creation of an Excel-based calculator to reduce manual calculations by 90%

### Lifeguard and Swim Instructor

#### City of Toronto, YMCA, Toronto Pan. Am. Sports Centre

Dec. 2012 - Jan. 2018 Toronto

- Developed methods for children and adults in order to improve swimming abilities

## STRENGTHS

Systematic problem solving

Detail oriented

Production level code

Collaborative research

Python

TensorFlow

R

Statistical analysis

Bayesian inference

Spatio-temporal odels

## EDUCATION

### Ph.D. Candidate – Statistics

#### Lancaster University - Bayes4Health Group

Feb 2021 - Sept 2024 Lancaster, U.K.

- Thesis:** Scalable inference methods for state transition models with applications to stochastic epidemiology

### M.Sc. – Applied Mathematics

#### Toronto Metropolitan University - Financial Mathematics

Sept 2019 – June 2021 Toronto

- Thesis:** Financial Bandits - Development of Thompson sampling for financial data

### HB.Sc. – Statistics & Mathematics

#### University of Toronto

Sept 2014 – June 2019 Toronto

## ACADEMIC EXPERIENCE

### Teaching Assistant

#### Lancaster University , Toronto Metropolitan University, University of Toronto

Jan 2018 – Present Toronto

- Lead tutorials and office hours to strengthen understanding of analytical concepts in undergraduate courses
- Courses:** Statistical Reasoning, Data Analysis I, Statistical Methods for Machine Learning I, Probability & Statistics I

### Summer Research Student

#### St. Michael's Hospital

May 2019 – Aug. 2019 Toronto

- Spatio-temporal modeling of Personal Attrition Factors for prediction of lung cancer deaths in India

### Research Assistant

#### University of Toronto

Jan. 2018 – May 2019 Toronto

- Department of Statistics:** Evaluated effectiveness of the university's statistics programs to revamp curriculum
- Risk Lab:** Indexing methodologies for cryptocurrencies

## RESEARCH AREAS

Probabilistic programming

Software development

Missing data

Adaptive and non-centering MCMC

High dimension parameter spaces