

# Alexander Railton

1 Dol Terrace, Aurora ON L4G6X2  
(416)-951-8621 | alexanderrailton@gmail.com

## EDUCATION

**University of Western Ontario**

**London, Ontario**

*Honors Specialization in Applied Mathematics GPA:3.3*

2015-2020

- **Relevant Coursework:** Advanced Numerical Methods, Mathematical Modeling and Simulation, Scientific Computing, Neural Networks, Partial Differential Equations, Advanced Statistical Computing, Applied Computer Algebra, Object Oriented Programming, Finite Element Methods, Advanced Numerical Solutions.

### **Projects:**

**Modeling and Simulation:** Illustrated the Monte Carlo Simulation to explore future random walks of a specified price index using boundary conditions in C++.

**Chaos Theory:** Modeled and simulated a complex three body gravitational system within C++ to analyze chaotic systems in response to different initial conditions.

**Numerical Methods:** Developed a program that implements the finite element method for solving the heat equation in a two dimensions mesh of a general polygonal domain created using Gmsh and C++.

**Time Series Forecasting:** Utilized PyTorch and recurrent Neural Networks to forecast financial predictions for the price index and risk analysis specifically exploring ARIMA and LSTM models.

## SKILLS

**Languages:** Fluent in English and French.

**Computer Languages:** Java, MATLAB, Python, Numerical / Symbolic computing in Maple, C++, R, SQL and proficient in Microsoft Office.

**Machine Learning:** PyTorch, Numpi, ARIMA, LSTM.

**Computing Techniques:** Experience in numerical methods, Monte Carlo simulation, solving partial differential equations, time series forecasting, object oriented programming and linear algebra.

## EXPERIENCE

**Safe Swim**

**Toronto, Ontario**

*Business Owner*

May 2017– Present

- Business Owner of Safe Swim.
- Managed Funds, scheduling, advertising, hiring, training and communications for the Safe Swim school.
- Safe Swim finished its fourth year of operations with over 125,000 \$ in revenue servicing over 750 clients in 9 seasonal months of operation.

**University of Western Ontario**

**London, Ontario**

*Undergraduate Research Student*

*Fall 2019 – Spring 2020*

Worked with Professor Daniel Goldman modeling a complex steady state flow model of capillary blood flow using MATLAB. Created and generated a bifurcation system and modeled pressures, viscosities, flow, stress and hematocrit levels in a network system by using partial differential equations.

{REFERENCES AVAILABLE UPON REQUEST}

**York Catholic District School Board****York Region, Ontario***Emergency Supply Teacher*

January 2021

- Substituted a variety of duties for french teachers in the York Region catholic district school board.

**Black Forest Nursery****King City, Ontario***Laborer*

Summer 2017

- Worked as delivery man for the nursery. Operated company cube van for floral deliveries, bob cat for mulch and dirt deliveries and aided with landscaping work on residential properties.

**Cambria Design Build LTD.****Toronto, Ontario***Laborer*

Summer 2016

- Worked on multiple constructions sites helping the supervisor and multiple contracted trades.

**YMCA****Richmond hill, Ontario***Camp Counselor*

Summer 2015

- Built and implemented daily programs for groups of children and children with disabilities at the Lake St. George summer camp.

**McDonalds****Richmond hill, Ontario***Crew Trainer*

June 2012- June 2015

- Worked as kitchen worker and custodial services for McDonalds Canada. Trained new employees for crew member position.

**Additional Information**

---

**Personal Skills:** Creative, Self motivated, Team Player, Detail oriented.**Certifications:** Trained in CPR and First Aid, Bronze Cross and Medallion, Red Cross Instructors License, Lifeguarding Certification, Forklift Driver's License, Working at Heights, Safety in the Workplace.**Interests:** Varsity Athletics (Rugby), E-Commerce, Entrepreneurship, Travelling