

## EDUCATION

### University of Waterloo

Bachelor of Computer Science (Minor in Statistics; A.I. Specialization)

Waterloo, ON

September 2020 - April 2025

- **Relevant Coursework:** AI, ML, OS, Algorithms, Data Structures, OOP, Databases, Compilers, Stochastic Processes
- **Organisations:** **Entrepreneurship Club** (Sr. Full Stack Dev.), **Wat Street** (Quant. Dev.), **WARG** (Autonomy Dev.)
- **Awards:** President's Scholarship of Distinction (\$2k), Mathematics International Experience Scholarship (\$5k), Certificate of Distinction in Euclid Mathematics Contest (*Top 25% worldwide*)

## EXPERIENCE

### Royal Bank of Canada

Cloud Engineer (Data and Analytics Platforms, Technology & Operations)

Toronto, ON

September 2023 - December 2023

- Increased deployment efficiency by **45%** through automating infrastructure setup with **Golang**, **Jenkins**, and **Terraform**, simplifying complex Databricks workspace deployments in a secure environment.
- Enhanced backend functionality of key products by developing Java-based microservices using **Spring Boot JPA**, integrated with **Azure Data Factory** and **Microsoft Purview** to optimize data governance and ETL processes.

### Sportiqo Labs Inc.

Software Developer (Part-time)

Oakville, ON

February 2023 - Present

- Independently spearheading the creation of an automatic sports article generator LLM, employing **Python**, **LangChain**, and **Apify** technologies to streamline content generation.
- Created dynamic and interactive cricket Sportiqo-score component visualizations using **JavaScript (Chart.js)**, enhancing data understanding and presentation.

### BlackBerry Ltd.

Application Software Developer, Product Engineering (CylanceGATEWAY & BBM Enterprise)

Waterloo, ON

January 2023 - April 2023

- Designed and developed a multithreaded data engine in **C++** to improve packet-capture efficiency, integrated with a **Python** ML model to predict C2 beacons from the captured network traffic without peeking at packet data.
- Implemented 5+ features for core libraries utilized extensively across multiple BlackBerry projects. Resolved OIDC and 2FA authentication flow issues in Gateway's internal testing tool, resulting in a **50%** efficiency increase.

### BlackBerry Ltd.

Software Development Engineer, IVY Intelligent Vehicle Development Platform

Waterloo, ON

May 2022 - August 2022

- Created automated tools with **Python** and **AWS** for release package management improving efficiency by **30%**.
- Designed and implemented a JSON configuration file semantic validator in **C++** and integrated it into IVY IVDP.
- Led team of 4 to improve client interaction with the Camera service by implementing the Permission service callback feature. Additionally, developed **Bash** scripts to automate build, upload, and test processes, boosting efficiency.

## PROJECTS

### Latexify Py (Google OSS) | Python, NumPy, L<sup>A</sup>T<sub>E</sub>X | November 2023

- Added support for converting 7 NumPy NDArray single function expressions to L<sup>A</sup>T<sub>E</sub>X and fixed GitHub CI issues.

### Genetic Algorithm Neural Network Car Simulation | C++, SFML | January 2024

- Implemented neural networks from scratch for agent learning and navigation in SFML-based environment.
- Integrated genetic algorithms to enhance neural network evolution, achieving progressive improvements in autonomous car decision-making and adaptability.

### Reinforcement Learning Mini-projects | Python, PyTorch, Stable-Baselines3, OpenAI Gym | August 2023

- Developed advanced RL agents by leveraging algorithms from Stable-Baselines3 and environments from OpenAI Gym, enhancing theoretical knowledge acquired in academic coursework with practical application.
- Constructed agents for classic problems and games, including the Inverted Pendulum/Cart-Pole problem, Lunar Lander, and Atari Pong. Currently exploring agents for StarCraft II and DOOM 1993.

## SKILLS

- **Languages:** C/C++, Python, Java, TypeScript, JavaScript, Golang, R, SQL, HTML/CSS, Bash, MIPS
- **Libraries & Frameworks:** Qt, React, Spring Boot JPA, TensorFlow, PyTorch, Scikit-learn
- **Other:** Linux, AWS, Azure, Terraform, Docker, Jenkins, Git, CMake, PostgreSQL, NoSQL, Node.js, Jupyter, L<sup>A</sup>T<sub>E</sub>X