

## Education

Sep 2019 - Present  
Expected: May 2023

### University of Toronto (BSc)

Specialist in Computer Science and Minor in Mathematics.

Received **Dean's List Scholar** award with a GPA of **3.94** (Major: 4.0). Entered with a **\$2000** UofT Entrance Scholarship.

## Technologies

<b>Languages</b>	Python, Java, C, Go, Typescript, HTML, CSS, Rust, SQL, bash
<b>Frontend</b>	React, Next, Tailwind
<b>Backend</b>	Node, Express
<b>Databases</b>	MongoDB, PostgreSQL
<b>Tools</b>	Git, Unix, Postman, Makefile, Vercel, Docker, Neovim, tmux

## Experience

### illuminate @ Hack the North

[repo](#)  
[devpost](#)  
[demo](#)

Pair-programmed a mixed-reality multiplayer game submitted to University of Waterloo's Hack the North 2020++ written in **Pygame** and **OpenCV**.

Accurately applied a transformation matrix to the screen contour to warp the image to a regular perspective.

Used canny edge detection to extract features from sticky notes on the screen to design the game map allowing the players to interact with the real world.

### argus. @ Hack the 6ix

[repo](#)  
[devpost](#)

Built a real-time accident detection solution for CCTV footage leveraging **TensorFlow**'s machine learning model in **Python** at Hack the 6ix.

Reports road accidents immediately to the web and phone via **Express** and Twilio API to reduce response time for assistance accommodations.

Displays the location of the crash using Google geolocation and shows truncated footage of the crash.

## Projects

### go-tcp [repo](#)

Implemented the TCP protocol in Go. Followed **RFC 793**, the original protocol, to establish an incoming TCP connection using the **three-way handshake** and gracefully terminate a connection.

Designed support for data segments, retransmissions, and timers. Implemented **RFC 1122** and **RFC 7414**, which lay out the requirements for clean interoperability for internet hosts.

Built out support for managing multiple TCP streams, with support for blocking operations, reading and writing data, and application-controlled shutdown.

### readme. [repo](#)

Developed a fully-featured backend for curating projects targeted towards developers. Posts include comments and a voting system much like Reddit.

Designed a scalable, maintainable RESTful API using **Typescript**, Express, and **Postgres**.

Architected performant, robust code with resilient error and exception handling, and used **JWT** authentication middleware to persist session information.

### Competitive Programming [repo](#)

A repository containing over **400** competitive programming solutions to online judges such as Codeforces, DMOJ, and Leetcode written in **C++**, Java, and Python.

Included a C++ **open-source** library of blazingly-fast templates for algorithms and data structures. Covered topics on Graph Theory, Dynamic Programming, Data Structure, and more.

Certified for Advanced Algorithms and Complexity as per the **Google-CSSI** Program, offered by UCSD.

### Personal Website [demo](#)

Engineering and maintaining a website using Typescript, **Next**, and Tailwind.

Shipping a blog with live markdown preview and **L<sup>A</sup>T<sub>E</sub>X** rendering support, deployed through **Vercel**.

Currently writing about the Kademlia DHT protocol.