

## EDUCATION

**University of Waterloo**, Computer Science (Data Science) **GPA: 93%**  
**Courseworks:** Machine Learning (92%), Database Systems (93%), Operating Systems (90%), Object-Oriented Design - 100%, Advanced Algorithms Design - 100%, Functional Program Design - 96%, Sequential Programs - 99%, Linear Algebra - 97%, Probability - 95%

## TECHNICAL SKILLS

**Programming Languages** Python, C++, C, Go, Typescript, Javascript, C#, Java, Kotlin, SQL, Racket, R, Bash  
**Tools & Technology** GraphQL, MySQL, React.js, Node.js, HTML/CSS, AWS, GCP, Git, LaTeX, Firebase, Neo4j, New Relic

## EXPERIENCE

**Terrace.fi - YCombinator S22, DeFi Trading** **New York, New York**  
**Quantitative Software Engineer** **May, 2023 - Aug, 2023**

- Engineered various custom strategies and algorithms to detect **arbitrage** opportunities across different exchanges.
- Implemented Coinbase and Binance API integration to provide **real-time order book** streaming and trading capabilities on Terrace.
- Designed an optimal algorithm utilizing **machine learning** and **regression** techniques to minimize the value loss for swap contracts.
- Instrumented an API in **GraphQL** that provides the transaction cost for different execution speeds on 9 different blockchains.

**Capital One** **Toronto, Ontario**  
**Software Engineer** **Jan, 2023 - Apr, 2023**

- Won first place** in a company hackathon of more than 300 engineers by pioneering a **machine learning** incident resolution system.
- Lead** a team of engineers to implement an advanced observability architecture which **I proposed** to director level stakeholders.
- Enabled core observability tool support for **Go** and **Javascript** in Canada through **New Relic** and **distributed tracing**.

**Cisco Systems** **Ottawa, Ontario**  
**Software Engineer** **Jan, 2022 - Apr, 2022**

- Ensured stable and consisted feature release for Ip-in-Ip Encapsulation/Decapsulation tunnels through Agile methodologies.
- Achieved a **200%** speed-up on a traffic generator and increased the connection speed of said generator by **50%**.
- Implemented an automatic testing workflow in **C** for router CLI verification which completely relieved manual testing.

**Waterloop, Hyperloop Team** **Waterloo, Ontario**  
**Software Engineer** **Aug, 2021 - Dec, 2021**

- Independently designed a built-in self testing interface used on the hyperloop pods to reduce electrical testing time by **40%**.
- Employed systems design techniques in a command-line tool that allowed engineers to take measurements with high scalability.
- Collaborated with other team members to rigorously test the firmware using tools and technologies including **C++**, **Python**, and **Git**.

**Strauss Event & Association Management** **Winnipeg, Manitoba**  
**System Integration Coordinator** **Apr, 2021 - Aug, 2021**

- Saved the company **\$3000/quarter** by replacing temp workers with a **Python** script for automated report generation.
- Reduced quarterly report time by one week for HR managers by implementing a **Python** application to process employee data.

## PROJECTS

**kefancao.com**, Numerical Methods Research **<https://kefancao.com>**

- A portfolio website demonstrating past projects and some numerical methods research I've done! Code in **Python**, **C++**
- Provides a brief mathematics overview to everyday features such as Google's page rank algorithm and jpeg image compression.
- Implemented multiple scripts demonstrating a minimal loss, 4 to 1, audio compression using Fourier Transforms.

**QuickChat**, Real-time Chat Application **<https://romantic-heyrovsky-3c637f.netlify.app>**

- A chat room web app that allows users to join a room with a room key both anonymously or as a sign-in user.
- Developed a real time chat application utilizing technologies including **React** and **Firebase**.
- Provides optional authentication methods including Google Sign-in or Username and Password from the webapp.

**River Deliver**, Founder (2020 Summer Company Winner) **Jul, 2020 - Aug, 2020**

- A grocery delivery/errands company, winner of a \$3000 Entrepreneurship Fund from a pool of 300 applicants.
- Developed a fully functional web service using **React**, **Firebase**, and **Email.js** to attract over 500 users per month.

## AWARDS & HONORS

**2022** Ontario Entrepreneurship Award ( **\$3,000** ); President's Scholarship ( **\$2,000** ); International Experience Award ( **\$2,500** )