# Kefan Cao

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## 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

**Included Health**                                                                 **San Francisco, California**
Software Engineer                                                                          **Jan, 2024 - Apr, 2024**
- Spearheaded the design of a new notifications microservice to provide push, email, and SMS notifications using **Go** and **GraphQL**.
- Instrumented a tool with webhooks from **Salesforce** to provide analytics on notification delivery status.
- Implemented an internal API to allow developers to send emails using email templates in **Salesforce Marketing Cloud**.

**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.
- Integrated Coinbase and Binance APIs for **real-time order book streaming** and trading on Terrace using **Go**.
- Designed an optimal algorithm utilizing **machine learning** techniques to determine the most **cost-efficient order execution** routes.
- Instrumented an API using **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.
- Led a team of engineers to implement an **advanced observability architecture** across all Canadian software compartments.
- Enabled core observability tool support for **Go** and **Javascript** through **New Relic** and **distributed tracing**.

**Cisco Systems**                                                                         **Ottawa, Ontario**
Software Engineer                                                                          **Jan, 2022 - Apr, 2022**
- Ensured stable and consistent 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

**QuickChat**, Real-time Chat Application                                    **https://github.com/Kefancao/quickChat**
- 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)
- A grocery delivery/errands company similar to Insta Cart, winner of a $3000 Entrepreneurship Fund from a pool of 300 competitors.
- Developed a fully functional web ordering service using **React, Firebase, and Email.js** to attract over 500 users per month.

## EDUCATION

**University of Waterloo**, Computer Science **(GPA 93%)**                                      **2020-2024**
**Courseworks:**  Machine Learning, Databases, Security, Networks, Operating Systems, Parallel Programming, Algorithms
**Extracurriculars: Varsity Men's Rowing**

## AWARDS & HONORS

**2023**  Ontario University Atheletics (OUA) Rowing Regatta Doubles Champion
**2022**  Ontario Entrepreneurship Award ( **$3,000** ); President's Scholarship ( **$2,000** ); International Experience Award ( **$2,500** )