Kai Sun

k49sun@uwaterloo.ca | (548) 888-8686 | github.com/KaiSun314 | kaisun.me

SKILLS

Languages: C/C++, Java, JavaScript, Python, SQL, HTML/CSS, XML
Technologies: Node.js, Express, MongoDB, AWS, Redis, Socket.IO, React.js, Android Studio, Git, Linux

EDUCATION

University of Waterloo Bachelor of Computer Science, Co-op Sep. 2018 – Apr. 2023

- **Faculty Average: 97.5%**
- **Michael and Ophelia Lazaridis Olympiad Scholarship: Full-ride scholarship** to the University of Waterloo, given to four Waterloo students each year
- **Wish Scholarship**: Awarded to the **top student enrolled in Computer Science**, Combinatorics and Optimization, or Pure Mathematics in 1B

WORK EXPERIENCE

BlackBerry | Android Software Development Student | Ottawa, ON May 2019 – Aug. 2019

- Implemented the syncing of email drafts between server and mobile devices using **Java** and **SQLite**, which **launched to 1,000,000+ users**, to expand support for Microsoft Exchange Web Services (EWS)
- Improved user experience by enhancing the search functionality for emails
- Added EWS support for phonetic names in BlackBerry Hub+ Contacts

AWARDS

ACM-ICPC Regional Competition, 4th Place Nov. 2018

- Selected as **one of 12 students** at Waterloo
- Represented the Waterloo White team, which **ranked 4th out of 104** teams at the regional competition

Canadian Computing Olympiad, Silver Medallist May 2018

- **Placed 6th in Canada** in the final stage of Canada's selection of the International Olympiad in Informatics (IOI) team, among more than **3000** students

International Mathematical Olympiad, Silver Medallist Jul. 2016

- **Silver Medallist** among **600** of the best pre-college mathematicians around the world

Canadian Mathematical Olympiad, 1st Place Mar. 2016

- **Placed 1st in Canada** from around **6000** students across Canada and internationally

PROJECTS

Chat for Class | Web Application | Node.js, Express, MongoDB, AWS S3, Redis, Socket.IO, React.js

- A messaging app for schools that allows students and teachers to branch new conversations from the current one, for a more organized and efficient method of communication
- Designed a **tree structure** in **MongoDB** to store conversations, with **caching** in **Redis** for faster queries
- Improved **server scalability and performance** by adding **multiprocessing** using **Clustering** and **Redis**
- Stored user avatar images using **Amazon (AWS) S3** for high scalability and security at a very low cost

Route Planner | Android Application | Java, XML, SQLite, Android Studio

- Finds the shortest route visiting a list of up to 10 places, specified by exact address or a place name
- Computed the fastest route possible using **Bitmask Dynamic Programming** and **Breadth First Search**
- Retrieved map information using **Google Maps Places API, Directions API, and Distance Matrix API**

VM | Vim-like Text Editor | C++, Git, Linux

- Implemented a **Splay (Self-Balancing Binary Search) Tree** to optimize text insertion and deletion time
- Designed the architecture using object-oriented principles and the **Model-View-Controller** framework