Davis Liu

+1 (647) 280-0894 • d53liu@uwaterloo.ca • Davis Liu • davisliu2006 • davisliu2006.github.io

Education

University of Waterloo, Bachelor of Software Engineering *Waterloo, ON Sept 2024 – Present*

Experience

Software Engineering Intern – Paige - Kilobryte *Remote, ON May 2025 – Present*

- Implemented Paige frame and cross-platform mobile app using **React Native**, **Android Studio**, **XCode**, and **Firebase**
- Created and maintained 10+ backend endpoints using **NextJS** and conducted unit tests using **Postman**
- Connected **3rd party APIs** for video calling, text notifications, and automatic app updates

Programming Lead – Unionville High School VEX Robotics Team *Markham, ON Sept 2022 – June 2024*

- **Led software development** for operator-controlled and **fully autonomous** driving on **3 independent subteams**
- Developed a modular and adaptable **C++ programming library** for **autonomous feedback control**, on-screen selection menus, and debugging, **reducing iteration time by 75+%** through **6 competition events over 2 years**
- **Mentored 10+ junior members** in software development, physical design, and CAD
- Collaborated with mechanical divisions on designing, building, and integrating embedded software

Projects

Simple Online Programming Judge *(Docker, Express, MariaDB, TypeScript, EJS/CSS)* *Mar 2025 – Current*

- Built an **online programming judge** to evaluate code in a containerized **Docker-based sandbox environment**
- Implemented web backend using **Express** and databases for user accounts and problems using **MariaDB**
- Deployed web server on a CloudStack virtual machine with security measures such as **JWT** and **CAPTCHA**

Chess Engine *(C++)* *Jan 2025 – Current*

- Developed an automated **decision-making algorithm** for chess games using **minimax optimization** techniques in C++
- Followed modular library design to maximize extensibility to future projects

DoorSense *(Raspberry Pi, TensorFlow, React Native, Express, TypeScript, Python)* *Oct 2024 – Dec 2024*

- Collaboratively built a **smart door system** that supports doorstep monitoring, weather displays, and mobile notifications
- Leveraged **custom-trained TensorFlow models** to identify visitors, package deliveries, and potential intruders
- Integrated system with a **React Native mobile app** using HTTP requests to control smart door functionality

ShopSmart *(React Native, TypeScript, Python)* *Oct 2024 – Current*

- Developed backend for a **React Native mobile app** that helps users optimize shopping trips based on prices and distances
- Applied **Dijkstra's algorithm with bitmasks** to compute an optimal way to purchase groceries
- Used concurrent Python **web scraping** to update prices from websites in real-time

GuideBot *(Arduino, C++, JavaScript, Tensorflow)* *Aug 2023*

- Utilized **embedded robotics software and object recognition** to create an urban-center navigation device for visually impaired individuals
- Implemented pathfinding algorithms for indoor spaces by recognizing surrounding objects and walls

Skills

Languages: C++, TypeScript, JavaScript, Java, HTML/CSS, C, Python, Lua, SQL
Technologies: Docker, TensorFlow, Express, React Native, NextJS, Electron, MySQL, MongoDB, SDL2, CAD
Non-Technical: Leadership, Problem Solving, Mandarin Chinese

Awards

Euclid Mathematics Contest - Distinction	Score within the top 14% in 2023	2023, 2024
Canadian Computing Competition - Distinction	Score within the top 6.5% in 2023	2023, 2024
Canadian Open Mathematics Competition - Distinction		2023