

Ethan Sun

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Education

University of Waterloo

BCS, Honours Computer Science with Co-op, President's Scholarship of Distinction

Relevant Coursework: Functional Programming

Waterloo, Ontario

Sept 2025 - Present

Skills

Languages: Python, JavaScript, C, Java, HTML, CSS and Firebase

Frameworks and libraries: R, React, JBDBMS, Matplotlib, Numpy, Pandas and Pytorch

Tools/Skills: Docker, PostgreSQL, Git, Github, Bash, Linux, Figma, LaTeX and CAD Modeling

Experience

Electrium Mobility

Firmware - F25 Skateboard

Waterloo, Ontario

Sept 2025 – Present

- Built a **C++ UART/BMS API** to pass pack voltage, current, temperature and cell data in real time.
- Implemented a **FreeRTOS** telemetry core on **ESP32** that passes data from the **BMS** and **VESC** to the **OLED** and **BLE**.
- Added **VESC integration** that converts RPM into speed and distance metrics, combining it with the BMS telemetry feed.

Spark Youth Robotics - FRC Team 8728

Mechanical Member

Ottawa, Ontario

Aug 2023 – Apr 2025

- Engineered a **3-stage elevator system** using **CAD** and **precision fabrication tools**, enhancing robot scoring capability.
- Designed and optimized a **coral intake funnel mechanism** with **rapid prototyping** and **testing** to increase reliability.
- Diagnosed and repaired mechanisms under time pressure as a member of Pit Crew, ensuring **zero mechanical failures**.

Vex Robotics

Mechanical Team Lead and Robot Driver

Ottawa, Ontario

Sept 2023 – Feb 2025

- Directed the robot design and testing process for the 2024 competition
- Applied **pneumatics** to create a **mechanical locking mechanism**, expanding robot versatility and precision.
- Developed and refined a **custom conveyor belt** for the 2025 competition robot, ensuring **85% success** in competition

Projects

AI-Enabled Mind Mapping Web App 🌐 (React, Node.js, PostgreSQL)

- Implemented a **full-stack web application** using **React**, **Node.js**, **Express** and **PostgreSQL**, leveraging **Docker** to containerize services and standardize the development environment.
- Developed a **RESTful backend API** for **authentication** and data storage with secure **password hashing**.
- Designed a system for saving and retrieving user-generated content, allowing users to create and manage mind maps.

Interactive Chess Database 🌐 (HTML, CSS, JavaScript, Firebase)

- Built with **HTML**, **CSS**, **JavaScript** and **Firebase**, integrating **database management** and user interaction.
- Deployed the chess learning platform for **2 clients** and expanded access to **10+ students**, offering lessons and practice puzzles that teach beginners openings and core principles in a game format.
- Enhanced beginner learning by combining structured instruction with hands-on practice to test newly learned skills.

LazyPaste 🌐 (JavaScript, Google Docs API, OpenAI API)

- Built a **chrome web extension** with **HTML**, **CSS**, and **JavaScript** and the **Google Docs API** to automate OpenAI-generated responses in documents to streamline study workflow.
- Enabled dynamic text generation, automated summarization and context-aware suggestions directly in Google Docs.
- Integrated **OpenAI API** for prompt handling and response parsing, ensuring smooth user experience and reliable output.

Volunteering

Marauder's Cup Convenor

Event Coordinator

Ottawa, Ontario

Feb 2022 – Mar 2025

- Organized **8** large-scale tournaments over **3** years, including the 2024 NCSSAA Volleyball Championships.
- Recruited, trained and managed **20+** volunteers per tournament fostering collaboration to ensure successful events

JaysCare Foundation Volunteer

Youth Advisor

Ottawa, Ontario

Nov 2022 – Dec 2022

- Mentored **12** youth players through drills and activities adapting the activities to different learning styles.
- Built a supportive and engaging learning environment by applying empathy, communication and leadership.