Ethan Gan

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Skills

Languages: Python, Java, JavaScript, C++, Arduino C, SQL
Web Development: React.js, Node.js, Express, Sequelize, PostgreSQL, HTML, CSS, REST APIs, Netlify, Render, Supabase
Tools & Platforms: Git, GitHub, Bash, VS Code, Figma, Anaconda, Azure
Certifications: Microsoft Azure AI Fundamentals, Microsoft Azure Fundamentals, TCPS 2: CORE-2022, WHMIS 2015, Machine Shop

Experience

Engineering Student Experience Analyst — Sep 2025 – Dec 2025

University of Waterloo — *Waterloo, ON*

- Conducted **end to end data analysis** on UWaterloo's well-acclaimed student design teams through surveys and interviews achieving **100% of the targeted population**.
- Built a centralized contact base for student teams through proactive relationship-building and persistent outreach.
- Leveraged **Excel Macros and VBA knowledge** to develop an upgraded office calendar to help centralize knowledge of dates and event cycles.
- Developed **web-scraping tools in Python** to help optimize web-updates to **94 webpages** for wording changes and dead links.
- Helped organize a **design sprint** with **Faculty of Engineering leaders and Microsoft** to create an AI-powered tool for helping onboarding of new instructors.
- Helped with Faculty of Engineering first-year support initiatives including resume reviews and Engineering Pin Ceremonies.
- Designed posters and a word-of-mouth strategy for an optional **faculty wide survey** to achieve **10% response rate**.
- Commended for **ability to work with a team, approach conflicts diplomatically**, and **managing up** to ease the managerial workload.
- Praised by senior member of the team for quick learning and applications of **qualitative analysis**.

Project Team Member — Jan 2025 – Apr 2025

WE Accelerate - Microsoft Division — *Waterloo, ON*

- Lead the **product design for a conceptual AI-powered fraud prevention tool** for seniors.
- Collaborated with a 5-person team to create and present a functional design proposal **resulting in the top score and endorsement** as a model presentation for future teams.
- Created **UX flow diagrams and wireframes** to simulate interactions with tools such as **Azure AI Foundry, Azure Search, and DeepSpeech**.
- **Awarded WEA Rippling Award** for standout individual performance during the work term.

Project Team Lead — Quadcopter Drone — Jan 2026

WATbotics — *Waterloo, ON*

- *Previously: Member (Sep 2024 – Dec 2024)*
- Led **initial project planning, funding, and procurement** for a mid-sized UAV built from scratch under a $700 budget, achieving **20% cost savings** while meeting one-week component lead times.
- Worked with current lead to define project priorities and allocate resources to distribute workload across technical interests.
- Performed conceptual UAV design and flight performance analysis to meet a target **endurance of 20+ minutes.**
- Secured $1,000+ in funding through successful grant proposal development for the following term
- Led the design of the new team work bay space for 2026 and beyond.

Firmware and Electrical Team Member — May 2025 – Present

Midnight Sun Solar Rayce Car Team — *Waterloo, ON*

- The University of Waterloo's solar-powered endurance race car team competing at the American and World Solar Challenge.
- Implemented a **driver control state machine** in **C** on **FreeRTOS** and wrote **unit tests**, and used **Vagrant** for consistent development.
- Collaborated with various subteams to troubleshoot integration problems.

Science and Technology Education Instructor — Feb 2023 – May 2025

Principal Academy — *Vaughan, ON*

- Designed and taught a week-long project-based curriculum for **Python, Java and Scratch** for capacities of **20+ students of grades 4-12 for the Summer Coding Camp**.
- Applied Adobe Creative Cloud to optimize UX, branding, logo design and multimedia content creation and promotional campaigns of **up to 10% conversion rate.**

Coding Contest Creator
Sept 2023 – June 2024

Thornhill Secondary School Computer Club — *Thornhill, ON*

- Led a team of students to launch coding contests on graph theory and other concepts for **50+ participants**.
- Built **automated input/output test suites** to streamline problem submission evaluation to **lower needed manual verification by 99%**.

President
Sept 2023 — June 2024

Thornhill Secondary School Music Council — *Thornhill, ON*

- Coordinated and supervised a team of **60+ members** to organize school-wide concerts and events for **200+ attendees**.
- Developed automation for Music Soulmates matchmaking process **saving 30 minutes of time per submission**.
- **Awarded Marilyn Short Excellence** award for exceptional contributions to the music department.

Projects

Inventory Management System | *React, Node.js, Express, PostgreSQL, SQL, Sequelize ORM, REST APIs*

- Built and deployed a **full-stack inventory and procurement system** to centralize equipment tracking, purchase requests, and supplier records for a university design team.
- Designed a **normalized PostgreSQL schema (3NF)** and implemented a **RESTful API** enforcing relational integrity and auditability of inventory flow.
- Owned the system end-to-end, integrating and deploying frontend, backend, and database services using **Netlify, Render, and Supabase**.
- Translated real operational problems into **concrete system requirements**, reducing fragmented inventory ownership across subteams.

Portfolio Website | *React, JavaScript, React Router, CSS, HTML, Markdown, Netlify*

- Built a responsive, modular **React** website featuring dynamic project showcases with a **Markdown** article system.
- Achieved Lighthouse scores of **92 (Performance)**, **95 (Accessibility)**, and **100 (Best Practices)** through code splitting and semantic HTML.

TankRunners: Procedural Tank Game | *Java, JFrame, JPanel, OOP*

- Developed a **procedurally generated dungeon adventure game** featuring adaptive AI enemies and dynamic map generation.
- Implemented an AI-driven enemy system utilizing weighted randomness for decision-making and A* pathfinding for optimized navigation, reducing resource load and enhancing gameplay fluidity.

WalkAlong Hovercraft | *Arduino C, SketchUp, TinkerCAD, 3D Printing & Design, Servo/Motors*

- Built a functional **1/32 scale hovercraft** to demonstrate airflow and Bernoulli's principle.
- Used Arduino C to communicate rudder movements and motor intensity through a remote receiver, SketchUp for drafting 3D designs, and TinkerCAD for 3D printing.

Education

University of Waterloo
Expected 2029

Bachelor of Applied Science in Systems Design Engineering, Honours — *Waterloo, ON*

- Cumulative average: 90%
- **Awards**: President's Scholarship of Distinction (2024), TELUS Entrance Scholarship (2024)
- **Relevant Coursework:** Data Structures and Algorithms (*C++*), Visualization (*SolidWorks/CAD*), Digital Systems (*Falstad Circuit Simulation*), Linear Algebra (*MATLAB*), Human Factors and Design (*Human Factors and Design Process*)