

ETHAN GAN

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EXPERIENCE

Firmware and Electrical Team Member

May 2025 – Present

Midnight Sun Solar Rayce Car Team

Waterloo, ON

- Aided the development and integration of **driver controls and steering** using **Vagrant, FreeRTOS, and C**.
- Currently building a manager to track car forward, neutral, and reverse states.
- Collaborated with various subteams to troubleshoot integration problems.

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**.

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 **reduce manual workload 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 music.

PROJECTS

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.

SKILLS

Languages: Python, Java, JavaScript, C++, Arduino C, SQL

Web Development: React.js, HTML, CSS, Markdown, GitHub Pages, Netlify

Tools & Platforms: Git, GitHub, Bash, VS Code, Figma, Anaconda, Azure

Certifications: Microsoft Azure AI Fundamentals, Microsoft Azure Fundamentals, TCPS 2: CORE-2022, WHMIS 2015

EDUCATION

University of Waterloo

Expected 2029

Bachelor of Applied Science in Systems Design Engineering, Honours

Waterloo, ON

- **Cumulative average: 89%**
- **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*)