

# SEAN YANG

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## EDUCATION

### University of Waterloo

Bachelor of Software Engineering

Expected May 2029

- Cumulative GPA: 4.0/4.0 (Term Distinction awarded 1 of 1 terms)

## SKILLS

- Programming Languages: C++, Python, Java, JavaScript, TypeScript, Rust, Verilog (Hardware Description Language)
- Frameworks & Technologies: Git, Agile Methodologies, Linux, React, Next.js, Docker, ROS 2, Tailwind CSS, GraphQL, Flask, SQL
- Machine Learning: PyTorch, Jupyter, Time Series Modelling, Predictive Modelling, Model Evaluation & Tuning

## EXPERIENCE

### Robotics Software Engineer

WATonomous (EVE Autonomy) ↗

Sep 2025 – Present

Waterloo, Ontario

- Developed concurrent robotics software in C++ using ROS 2 for autonomous vehicle systems
- Built and evaluated rapid-inference **predictive models** for external agent behavior to **reduce safety incidents by 3x**
- Collaborated in a cross-functional team to integrate perception, world modelling, planning, and action nodes
- Implemented unit tests with 100% code coverage to ensure software reliability in real-world scenarios
- Maintained **Docker-based development environments** to support reproducible testing and deployment

### Senior Lecturer & Problem Setter

AYJ Coding Club ↗

Jun 2023 – Jun 2025

North York, Ontario

- Led bi-weekly lectures on algorithms and data structures for competitive programming to **50+ high school students**
- Authored original problems and automated **C++ graders** with **250+ total submissions** from students on the club's online judge

## PROJECTS

### CRusTTY (C Interpreter/Debugger) ↗

Personal Project

Dec 2025 – Present

- Built a **Rust-based C interpreter** from scratch with debugging and memory visualization using a recursive descent parser
- Implemented a **snapshot-based execution engine** enabling bidirectional stepping through program execution history
- Wrote **GitHub Actions** jobs to automate testing and building, preventing regressions and streamlining release management

### Wundernn Market State Prediction ↗

Wunderlab ML Challenge

Oct 2025 – Dec 2025

- Designed a **Transformer-based time series model** for noisy financial sequences in **Python** using **PyTorch**
- Outperformed the participant average (0.396 vs 0.309 mean R<sup>2</sup>) and placing **top 5% of 3000+ competitors**
- Evaluated sinusoidal vs learnable positional encodings, ultimately combining both to improve long-range dependency capture
- Trained and evaluated models locally on GPU with JupyterLab, iterating on architecture under compute constraints

### Bucket (Student Dashboard) ↗

Personal Project

Nov 2025 – Present

- Built and deployed a full-stack student dashboard using React, Next.js, GraphQL (Hasura Engine), and PostgreSQL
- Launched and operated the platform for real users, reaching **40+ monthly active users** with **493+ created resources**
- Designed backend data models and **GraphQL APIs** to support course management, grade tracking, and real-time queries
- Implemented **Google OAuth** authentication and **Dockerized microservices** for local development and deployment

## HONORS AND AWARDS

### USACO Gold Division Promotion

Issued by USA Computing Olympiad (USACO)

Jan 2026

### Certificates of Distinction in the Euclid, CSMC, & CCC (Sr. Div.) Contests

Issued by University of Waterloo Centre for Education in Mathematics and Computing (CEMC)

North York, Ontario

Jun 2025

### Computer Science & Chemistry Excellence Awards

Issued by A.Y. Jackson Secondary School

North York, Ontario

Jun 2025