

# SEAN YANG

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## EDUCATION

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### University of Waterloo

Bachelor of Software Engineering

Expected May 2029

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

## SKILLS

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

## EXPERIENCE

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### Robotics Software Engineer

Sep 2025 – Present


WATonomous (EVE Autonomy) 

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

Jun 2023 – Jun 2025

AYJ Coding Club 

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

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### Wundernn Market State Prediction

Wunderlab ML Challenge

Oct 2025 – Dec 2025

- Designed a **Transformer-based time series model** for noisy financial sequences
- Outperformed the participant average (0.396 vs 0.309 mean  $R^2$ ) 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

### ezp2p (Peer-to-Peer Multiplayer Games)

Personal Project

Jun 2024 – Dec 2025

- Developed browser-based peer-to-peer multiplayer games using **WebRTC Data Channels** with a frontend-first architecture
- Designed a modular networking library in **TypeScript** to abstract peer connections and game state synchronization
- Implemented deterministic game state updates with sequence-based ordering to ensure peer convergence without a central server

## HONORS AND AWARDS

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### 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