SEAN YANG

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EDUCATION

University of Waterloo
Bachelor of Software Engineering Expected May 2030
- **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

Moss Robotics **San Francisco, California**
Robotics Perception Intern Incoming May 2026
- Developing and optimizing perception algorithms for data-driven agricultural robotics applications

WATonomous (EVE Autonomy) **Waterloo, Ontario**
Robotics Software Engineer Sep 2025 – Present
- 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

PROJECTS

Multi-Robot Swarm Exploration
Personal Project Feb 2026 – Apr 2026
- Mapping procedurally-generated mazes using **four robots** with no central coordinator, improving single robot performance by **7.5x**
- Organized via multi-threaded **frontier assignment**, **geodesic Voronoi partitioning** and multi-source BFS
- Built **4 ROS 2 packages** with per-robot FSMs and custom message types for swarm coordination
- Containerized the full stack in **8 Docker services** with Gazebo simulation and real-time Foxglove visualization

CRusTTY (C Interpreter/Debugger)
Personal Project Dec 2025 – Mar 2026
- 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
- Open-sourced the project to share with the community and encourage contributions, garnering **50+ stars** on GitHub

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^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

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 **North York, Ontario**
Issued by *University of Waterloo Centre for Education in Mathematics and Computing (CEMC)* Jun 2025

Computer Science & Chemistry Excellence Awards **North York, Ontario**
Issued by *A.Y. Jackson Secondary School* Jun 2025