SEAN YANG

sean@seanyang.ca ◆ seanyang.ca ◆ linkedin.com/in/syang07 ◆ github.com/aicheye

EDUCATION

University of Waterloo
Bachelor of Software Engineering Expected May 2030
- **Cumulative GPA**: 92.68% or 3.97/4.0 (Term Distinction awarded 2 of 2 terms)

SKILLS

- **Programming Languages**: C++, Rust, Python, C, Java, JavaScript, TypeScript, Verilog HDL, Kotlin, SQL
- **Frameworks & Technologies**: Git, Linux, Docker, Ansible, GHCR, GitHub Actions, NVIDIA JetPack, React, Next.js
- **Robotics & Control**: ROS 2 Humble, MPPI, Fast-LIO SLAM, RTK GNSS, Nav2, Gazebo, Foxglove Studio, Eigen

EXPERIENCE

moss robotics, Inc. **San Francisco, California**
Robotics Perception Intern May 2026 – Present
- Architected an end-to-end stack in **C++/ROS 2** for autonomous agricultural rovers, owning sensor integration, planning, and control
- Developing platform-agnostic systems, integrating **MPPI control** for both the **Clearpath Husky and Rover Robotics MAX**
- Building **RTK fusion** systems for precise navigation, reaching mean **<20cm follow error** over **500m+** of autonomous field tests
- Achieved **microsecond-level** sync to enable robust sensor fusion and integration with real-time **FAST-LIO LiDAR inertial SLAM**
- Developing **Ansible playbooks** for automated **OTA deployment** and testing, discovering and fixing **8+ critical bugs**
- Automating **firmware provisioning** processes and **BSP customization** for **NVIDIA Jetson** platforms, reducing flash times by **3x**
- Owned development of high-fidelity synthetic data pipelines (throughput @ **4M+ pts/s**) for computer vision model training and evals

WATonomous (EVE Autonomy) **Waterloo, Ontario**
Robotics Software Engineer Sep 2025 – Apr 2026
- Developed concurrent robotics software in **C++** using **ROS 2** for autonomous vehicle perception and planning
- 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
- Maintained and improved **Docker-based environments** to support reproducible development, 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

Certificates of Distinction in the Euclid, CSMC, & CCC (Sr. Div.) Contests **North York, Ontario**
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