Sidharth Sreeram

(416) 564-8590 | sidharthsreeram@gmail.com
sidharth-s.com
linkedin.com/in/sidharthsreeram

University of Waterloo Mechatronics Engineering student with hands-on experience building and fine-tuning multimodal deep learning systems for visual reasoning tasks. Experienced in PyTorch and data processing frameworks, with a strong interest in continuing to learn and apply modern AI techniques to real-world problems.

Technical Skills

Programming Languages: Python, C, C++, XML, SQL, Java, Typescript

Frameworks & Libraries: PyTorch, Scikit-Learn, Matplotlib, OpenCV, NumPy, Pandas, Hugging Face

Concepts: LLM, VLM, VLA, Computer Vision, Neural Networks, Reinforcement Learning, Transformers

Development: Linux, Databricks, Git, Oracle Cloud, Docker, Github, Jira, Confluence, Agile

Education

University of Waterloo - *B.ASc in Mechatronics Engineering, Specializing in Artificial Intelligence*

Experience

Research Assistant - UW WISE Lab | *Python, Pytorch* Jan – Apr 2026

- Researched and Developed Python Logic to organize visual and text data into structured VLM prompt format.
- Designed prompt structure based on the OpenDriveVLA publication, transforming data into standard instructions.
- Analyzed publications for Visual QA datasets purposed towards autonomous driving instruction tuning.

Software Engineering Analyst - Tamaki Controls | *Python, Java, SQL* May – Aug 2025

- Designed a API response schema that improved cross-service communication between Java and Python.
- Engineered backend data-processing that generate CSV/JSON outputs for direct use in analytics or ML workflows.
- Used UTF-8 encoded CSV/JSON byte streams to improve memory efficiency and reduce encoding ambiquity.
- Reviewed and updated API documentation with clear input/output descriptions and example Python scripts.

Platform Software Engineer - Ford Canada | *Python, C++, GCov* Sept – Dec 2024

- Developed a Python CLI for the AUTOSAR State Management API in a containerized Linux environment.
- Automated state flow logic to evaluate runtime conditions and perform transitions automatically.
- Enabled testers and integrators to easily control system states by eliminating manual navigation of state architecture.
- Created C++ test suites, increased line coverage from 45% to 94% and condition coverage from 50% to 85%.

Controls System Engineer - Brock Solutions | *Python* Jan – Apr 2024

- Built human machine interfaces for integrated real-time updates and visualized plant processes.
- Engineered process simulations to replicate full plant behavior enabling rapid validation of HMI Designs.
- Wrote scripts to generate synthetic time-series data and accelerated state transitions.

Projects

Qwen 3 VQA Model Tuning | *Python, PyTorch, Qwen 3, VLM, LoRA, Hugging Face*

- Fine-tuned Qwen 3 to perform driving scene QA reasoning using camera and LiDAR data from the NuScenes dataset.
- Built a training pipeline using LoRA, quantization, and HuggingFace TRL to perform under limited GPU resources.

Snake Game Reinforcement Learning | *Python, PyTorch, Deep Q-Networks*

- Modeled a Deep Q-Network to learn optimal control policies for the snake game using reinforcement learning.
- Implemented epsilon-greedy exploration, and discounted future rewards to stabilize and improve performance.

Path Following Robot | *Python, Raspberry Pi, OpenCV, YOLOv8, Git*

- Designed and implemented a real-time computer vision system for color-based object detection and path following.
- Applied a camera homography transformation, enabling accurate navigation and target localization.
- Proposed and tested YOLOv8 object detection model to notify upon locating the target.