**Sachin Fernando**

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**TECHNICAL SKILLS**

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| --- | --- |
| **Software** | **Hardware** |
| programming (C++, Python, MATLAB), ROS, software testing (GoogleTest, pytest), OS (Windows, Linux), CI/CD, Docker, simulation (CARLA, Driving Scenario Designer), libraries (scikit-learn, PyTorch, OpenCV) | vehicle testing and CAN interfacing (dSPACE ControlDesk, Vector CANalyzer), sensor calibration (radar, lidar, camera), electrical testing/debugging |

**EXPERIENCE**

**University of Waterloo EcoCAR Team Jan. 2021 – Present**

*Connected and Automated Subteam Lead Waterloo, ON*

* Led team converting stock SUV’s from manual control to level 2/3 autonomy by managing perception, controls and V2X algorithm development as part of the EcoCAR [Mobility Challenge](https://avtcseries.org/about-avtc/past-competitions/ecocar-mobility-challenge/) and [EV Challenge](https://ecocarevchallenge.org/ecocar-ev-challenge/) using **ROS** based architecture in **Python** and **C++**.
* Improved codebase quality through development of scalable testing framework. Automated tests cover unit, integration and closed loop system level testing using **CARLA, GoogleTest, pytest** and **Gitlab CI**.
* Achieved near 25% increase in tracking accuracy from previous year through **sensor calibration** and alternative **sensor fusion** techniques. Accuracy measured against real-world ground truth collected using OxTS hardware.
* Ensured vehicle performance met engineering standards through vehicle-in-the-loop tests on local track. Gained proficiency with **CAN** interfacing, sensor calibration and controller debugging using **dSPACE ControlDesk**.

*Project Manager*

* Met all baseline development goals using **Agile** approach for 40+ student team across 5 distinct subteams (Automated, Controls, HMI/UX, Integration, and Communications) in yearlong competition cycle.
* Improved inter-team transparency of work tracking by developing custom team-wide dashboard using **Python**.

**Stacktronic May 2020 – Aug. 2020**

*Battery Systems Intern Kitchener, ON*

* Developed model and charging simulations for custom battery pack to determine energy efficiency under various pack configurations using **MATLAB’s Simscape Electrical** toolbox.
* Reduced pack frame’s form factor by 15% by re-designing mounting geometry using **Onshape CAD** platform.

**Dematic Ltd. May – Aug. 2018, Jan – Apr. 2019**

*Controls Intern Mississauga, ON*

* Supported senior engineer in **controls** **development** and commissioning of 100+ conveyor unit system.
* Validated PLC logic for merge and sortation system using RSLogix with **Emulate 3D**.

**EDUCATION**

**University of Waterloo**

*Candidate for MASc, Mechatronics Engineering* **(Expected) Aug., 2023**

* Thesis: An Automated Testing Framework for Perception Algorithm Development
* Engineering Dean’s Entrance Award (85%+ admission average)

*BASc, Systems Design Engineering* **June, 2021**

* Presidents Scholarship of Distinction (95%+ admission average)

**INTERESTS**

* physical fitness, kickboxing, hiking, (trying to) cook, watching The Office on Netflix … again