Sachin Fernando

Software Development and Test Engineering ❖ shfernan@uwaterloo.ca ❖ LinkedIn

TECHNICAL COMPETENCIES

programming (C++, Python, MATLAB), ROS/ROS2, software testing (GoogleTest, pytest), OS (Windows, Linux), CI/CD, Docker, simulation (CARLA, Driving Scenario Designer), libraries (scikit-learn, PyTorch, OpenCV)

WORK EXPERIENCE

General Motors **Sept. 2023 – Present**
Software Integration Engineer *Markham, ON*

- Created and maintained virtual vehicle packages to test **controls**, **sensors**, and **actuators** for upcoming EV model lineup using in-house **simulation** and software build processes.
- Owned semi-active damping component releases across virtualization team. Leveraged **version control** workflow to **modularize** component and significantly reduce update time and effort.

Stacktronic **May 2020 – Aug. 2020**
Simulation Engineering Intern *Kitchener, ON*

- Developed model and charging simulations for custom battery pack to determine energy efficiency under various pack configurations using **MATLAB** and **Simscape**.
- Reduced simulation setup process by automating generation of battery characteristics using **MATLAB** scripts.

Dematic Ltd. **May – Aug. 2018, Jan. – Apr. 2019**
Controls Engineering Intern *Mississauga, ON*

- Supported senior engineer in **simulation** and commissioning of 100+ PLC-based conveyor unit systems.

RESEARCH GROUP

University of Waterloo EcoCAR Team (AVTC) **Jan. 2021 – Aug. 2023**
Connected and Automated Vehicle Software Lead *Waterloo, ON*

- Converted stock SUVs from manual control to level 2/3 autonomy by leading perception, controls and V2X algorithm development 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 algorithmic and calibration improvements. Sensor fusion involved **radar, camera, and lidar**.
- Led 15+ member subteam to meet all baseline development goals using **Agile** approach.

EDUCATION

University of Waterloo
Candidate for MASc, Mechatronics Engineering **Aug. 2023**

- **Publication**: A Structured Testing Framework for ADAS Software Development, IAVVC 2023

BASc, Systems Design Engineering **June 2021**

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

Relevant Coursework

- Software Design and Architectures
- Autonomous Mobile Robots
- Computational Intelligence
- Multi-sensor Data Fusion