**Sachin Fernando**

Software Simulation, Testing, & Integration  sachinfern26@gmail.com  [LinkedIn](https://www.linkedin.com/in/sachinfernando/)

**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**

*AV/EV Software Integration Engineer Markham, ON*

* Created and maintained high fidelity simulation packages for **autonomous** and electric vehicle programs. Virtualization extended to **supervisory** **controllers**, **sensors**, and **actuators** using combination of in-house **simulation** tools, **C++**, and **MATLAB/Simulink.**
* Expanded automated test set to reduce validation time and effort whilst minimizing defects.

**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](https://avtcseries.org/about-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**

*MASc, Mechatronics Engineering*  **Aug. 2023**

* **Publication**: [A Structured Testing Framework for ADAS Software Development](https://ieeexplore.ieee.org/document/10328120?fbclid=IwAR3ajjvn_uijjc9JKT9X4KXhI5cjTd1tEKv1watjnDVj3M8wBldaneBp6xo), IAVVC, 2023

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

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

**Relevant Coursework**

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