Sathurshan Arulmohan

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LinkedIn | GitHub | Website

Technical Skills

- **Programming Languages:** Python, MATLAB, Java, C, Arduino code (C++), C#
- **Technical Skills/Tools:** GitHub, GitLab, NLP, Software Testing, Bash, CAD, Verilog, Arduino, Linux

Education

- **McMaster University |** Bachelor of Engineering: Software Engineering Co-op **|** *Sep. 2021 – April 2025*
  - **Relevant Courses:** Object Oriented Programming (OOP), Data Structures and Algorithms, Digital Systems

Work and Leadership Experiences

Software Stack Developer | *Sep. 2021 – Present*
McMaster's EcoCAR Challenge: CAVS Sub Team; Extracurricular

- Enhanced autonomous features within the vehicle to improve drive quality and safety
- Designed **error diagnosis** code to ensure the vehicle system always receives accurate values for calculations
- Integrated code using **MATLAB** to determine the vehicle's exact location and other vehicles' relative positions with under 2.5% relative error, to support autonomous driving algorithms

Engineering 1P13 Teaching Assistant | *Sept 2022 – Present*
McMaster University: Faculty of Engineering; Part-Time

- Mentored up to 45 first-year engineering students about engineering design fundamentals
- Educated students in effective code development in **Python** and **CAD** to develop their critical thinking and technical skills

Software Assistant Researcher | *May 2022 – Aug. 2022*
McSCert; Internship

- Compared, analyzed, and visualized the accuracy of existing **NLP** tools' annotations to find specific elements that need improvements
- Developed a simple **NLP** tool to determine redundancy in other tools' calculations
- Improved CRF's (NLP tool) performance to annotate user stories with up to 90% accuracy

Student Technology President | *Sep. 2019 – June 2021*
R.H. King Academy: King Technology Council; Extracurricular

- Created a network in the school's system to live-stream all events and specific classes, improving the accessibility of educational resources for students with learning hindrances
- Automated audio and visual effects in the auditorium using **Java** to save up to 20% of the time on manual procedures

Projects

DBSCAN Sensor Fusion Implementation | *Oct. 2022 – Nov. 2022*

- Implemented a DBSCAN algorithm in **MATLAB** for sensor fusion on an autonomous vehicle simulation. This implementation can cluster vehicles into correct tracks with up to 85% validity
- Analyzed the implemented algorithm on different test cases to discover new ways to improve the implementation

Semantic Search within Research PDF | *Sept. 2022*

- Created a program that performs a semantic search with up to 80% accuracy on pdf research papers using **NLP** tools
- Led a team of 3 students throughout this project at Hack the North to implement the Frontend and Backend

Recycling System Automation Simulation | *Jan. 2022 – Mar. 2022*

- Designed an effective method to identify, sort, and dispose incoming waste in **Python** to increase the number of items that can be recycled by a factor of 1.5
- Developed a function that will automatically correct the relative orientation and position of the Q-bot to minimize the error of moving parts in the system

Awards / Certificates

- **Schulich Leader 2021:** *The Schulich Foundation*
- **Canadian Computing Competition 2021 Certificate:** *University of Waterloo CEMC*