

# 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

- Integrated **sensor fusion** algorithms for pre-tracking processing to enhance autonomous features within the vehicle
- 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*