# Sathurshan Arulmohan

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LinkedIn | GitHub | Website

## Skills

- **Programming Languages:** MATLAB, Simulink, Java, Python, Bash, C, C++, C#
- **Technical Skills/Tools:** Git, Linux, ROS, Technical Writing, Software Testing, OOP, NLP, CAD, Verilog, Arduino
- **Other:** Fluent English, Moderate French, Microsoft Office (Word, PowerPoint, Excel), G Driver's License

## Education

**McMaster University**
**Bachelor of Engineering: Software Engineering Co-op |** *Sept. 2021 – April 2025*

- **Relevant Courses:** Signals and Systems, Software Design I-III, Requirements and Security Considerations

## Work and Leadership Experiences

**McMaster Engineering EcoCAR EV Challenge:** Extra-Curricular
**Path Planning Lead |** *Aug. 2023 – Present*

- Leading a team of 15 members to simultaneously develop ***Cooperative Adaptive Cruise Control***, ***Lane Centering***, and ***Automatic Parking*** features while rigorously validating functionality through ***software testing***
- Collaborating with leads, professors, and engineers to strategize seamless integration of entire architecture

**Software Developer |** *Sept. 2021 – July 2023*

- Led a team of 8 members to design ***simulation scenarios*** and ***data flow plans*** for all the team's autonomous features
- Integrated ***sensor fusion***, ***track-level clustering***, and ***road segmentation*** algorithms for perception pipeline
- Developed code in MATLAB to create ***boundary boxes*** at any orientation and determine relative positions and speeds of objects with under 2.5% error

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

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

**McSCert:** Co-op
**Software Research Assistant II |** *May 2023 – Aug. 2023*

- Developed ***object detection*** and ***tracking*** algorithms for an RC vehicle equipped with a camera and LiDAR
- Researched and analyzed various road topologies to improve vehicle throughput and energy consumption
- Implemented ***automatic pipelines*** to run experiments and perform analytics in parallel on ***computer clusters***

**Software Research Assistant I |** *May 2022 – Aug. 2022*

- Compared, analyzed, and visualized the accuracy of existing ***NLP*** tools' annotations to find specific elements that require improvements
- Improved CRF's (NLP tool) performance to annotate user stories with up to 90% accuracy
- ***Co-authored published paper*** on research findings

## Projects

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

- Implemented a ***DBSCAN algorithm*** in MATLAB with up to 85% validity for ***fusing track level data***
- Analyzed the implemented algorithm on various cases to discover new ways to improve the implementation

**Automated Recycling System 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 method to automatically correct the bot's returning state to minimize errors by 17%

## Awards

- **CAE Scholarships in Computing and Software Engineering:** McMaster University, $3,400 scholarship
- **Provost's Honour Roll Medal 2022:** McMaster University, Faculty of Engineering
- **Schulich Leader 2021:** The Schulich Foundation, $100,000 scholarship