Sathurshan Arulmohan

arulmohs@mcmaster.ca | LinkedIn | GitHub | Website | (647)-228-6147

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*

- Software Testing, Signals and Systems, Software Design I-III, Requirements and Security, Concurrent Systems

Experiences

McMaster Engineering EcoCAR EV Challenge

Path Planning Lead *Aug. 2023 - Present*

- Managed a team of 15 members to simultaneously develop ***Cooperative Adaptive Cruise Control***, ***Lane Centering***, and ***Automatic Parking*** features with validation of up to 80% against ground truth
- Collaborated with leads, professors, and engineers to strategize seamless integration of entire architecture

Software Developer *Sep. 2021 – July 2023*

- Led a team of 7 members to design simulation scenarios and ***data flow plans*** for all the team's autonomous features, which helped the team achieve 1st place out of 13 teams in technical deliverables
- 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

Engineering 1P13 Teaching Assistant *Sep. 2022 - Present*

- Mentored up to 125 first-year engineering students in engineering design fundamentals
- Educated students in code development in Python to develop their critical thinking and technical skills

McSCert

Software Research Assistant II *May 2023 – Present*

- Developed ***object detection*** and ***tracking*** algorithms, which provided a 1.65x enhancement over the original implementation for an RC vehicle equipped with a camera and LiDAR
- Researched and analyzed various road topologies to improve vehicle throughput and fuel consumption by 5%
- Implemented ***concurrent pipelines*** to run experiments and perform analytics on ***computer clusters***, resulting in a 24-fold reduction in processing time

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

- Developed an automated pipeline to compare, analyze, and visualize the accuracy of existing ***NLP*** tools' annotations, which allowed the team to run 4 times more experiments
- Improved CRF's (NLP tool) performance to annotate user stories with up to 90% accuracy
- ***Co-authored published paper*** on research findings

Projects

Urbanism: Island City Generator *Jan. 2023 – Apr. 2023*

- Designed a ***Java program*** using ***OOP*** to generate sustainable island cities utilizing 12% less resources

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

- Implemented a ***DBSCAN algorithm*** in MATLAB with up to 85% validity for ***fusing track level data***

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