

Ashwath Karthikeyan

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EDUCATION

University of Illinois at Urbana-Champaign

December 2024

Master of Engineering in Autonomy and Robotics

SRM Institute of Science and Technology

May 2023

Bachelor of Technology in Mechatronics Engineering

GPA: 3.81/4.00

- Received a scholarship for academic performance in freshman year

EXPERIENCE

Stellantis N.V.

Chennai, India

Systems Engineering Intern

July 2019

- Learned the basics of Model-Based Systems Engineering in R&D units
- Developed the system models on IBM Rational Rhapsody using vehicle functional requirement diagrams
- Obtained buy-in to build the system models based on testable parameters and deployed the refined models for production

PROJECTS

Lane Adherence of Autonomous Vehicle with Traffic Sign Detection

August 2023 – December 2023

- Developed a computer vision algorithm to detect the lanes on the road and safely navigate the autonomous vehicle within the lanes
- Designed and implemented safety benchmarks for the car to maintain at all times, such as maximum velocity, optimum acceleration, etc., designing and tuning a controller to this end
- Implemented stop sign detection and calculated safe stopping distance accordingly with a purely vision system

Development of a Tendon-Driven Robotic Leg Displaying Gait Motion

June 2022 – May 2023

- Designed and developed a novel Tendon-Driven Technology to actuate the joint motions of a Humanoid Robotic Leg
- Used SOLIDWORKS to design the mechanical features of the Robotic Leg and Simulink to simulate and predict the motion of the Robotic Leg in the various phases of the gait cycle
- Demonstrated the feasibility and effectiveness of the model using an experimental rig built in-house

Autonomous Rover Performing SLAM in ROS

October 2022 – December 2022

- Designed and developed packages in ROS to navigate a mobile robot to a fixed goal with the help of manual control within a simulated environment
- Deployed and controlled the robot autonomously based on input from onboard virtual LIDAR sensors, odometry sensors and cameras using Python programming language
- Added dynamic obstacles to the environment map to further test the capabilities of the SLAM algorithm in reaching the required position

PUBLICATIONS

- "[Development of Tendon-Driven Robot Leg Displaying Gait Motion](#)" – Published conference paper to the International Conference on Data Science, Agents and Artificial Intelligence (ICDSAIAI) 2023

CERTIFICATIONS & TRAININGS

- Certified SOLIDWORKS Associate (CSWA)
- MATLAB and Simulink Course offered by MathWorks