Sai Jagadeesh Muralikrishnan

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Education

University of Maryland College Park, MD
Master of Engineering in Robotics — CGPA: 3.8/4.0 *Aug. 2023 – May 2025*
- Relevant Coursework: Control Systems, Machine Learning, Computer Vision, Perception, Planning

Rajalakshmi Engineering College Chennai, India
Bachelor of Engineering in Mechatronics — CGPA: 8.7/10.0 *Aug. 2018 – Jul. 2022*
- Relevant Coursework: Embedded systems, Controls, Power electronics, Computer Vision

Experience

Graduate Research Assistant Sep. 2024 – May 2025
Maryland Robotics Center — DARPA Triage Challenge *College Park, MD*
- Achieved 18% better localization accuracy by tuning Cartographer over SLAM Toolbox in ROS 2 on Linux
- Enhanced UAV object detection recall by 35% by fine-tuning YOLOv8 with PyTorch and CUDA acceleration
- Increased feature-match rate by 20% by implementing image registration and sensor calibration

Robotics Engineering Intern May 2024 – Aug. 2024
Kick Robotics *Bethesda, MD*
- Reduced QA cycle time by 20% by building CI/CD pipelines for ROS 2 using Docker, PyTest and GoogleTest
- Decreased system latency by 15% by refactoring ROS 2 stack and and system integration with Jetson Nano
- Improved depth-map accuracy by 12% by calibrating Basler ToF & RealSense D435 cameras

Embedded Systems Engineer Oct. 2022 – Jul. 2023
TuTr Hyperloop *Chennai, India*
- Reduced processing latency by 25% by designing C++ and Python sensor fusion pipelines using MATLAB
- Achieved 99.9% system uptime by implementing Vehicle Control Unit (VCU) control signaling over CAN
- Increased test coverage by 40% by building Git/version control pipelines for unit and HIL testing
- Improved component procurement by creating BOMs and technical documentation for system designs

Projects

Text-to-Command Robot Navigation | *ROS 2, Transformers, LoRA, PyTorch, Gazebo* Nov. 2024 – Dec. 2024
- Trained T5-Small and LoRA models achieving 98.5% sequence accuracy on 24,581 synthetic data instructions
- Validated ROS2-Gazebo integration by analyzing performance metrics and optimizing training methods

CareBotix - AI Patient Monitoring | *YOLOv8, OpenCV, PyQt6, Flask, MongoDB* Apr. 2025 – Apr. 2025
- Designed AI-based patient monitoring with YOLOv8-pose detection, winning Best Health Track Project Award
- Built full-stack hardware architecture by developing PyQt6 GUI and Flask backend with MongoDB

Multi-Agent Robotic Exploration | *ROS 2, MCTS, Gazebo, OpenCV, Open3D, PyQt5* Nov. 2023 – Dec. 2023
- Validated MCTS path planning through 200+ simulations by developing ROS 2 nodes with SLAM updates
- Built visualization system using OpenCV/Open3D with PyQt5 dashboard and managed with repository

Technical Skills

Languages: Python, C++, CUDA, Bash, MATLAB, Linux, Shell Scripting
Frameworks: ROS 2, PyTorch, TensorFlow, Flask, Gazebo, Isaac Sim
Developer Tools: GitHub, GitLab, version control, Docker, AWS, GCP, Jira, AutoCAD, SolidWorks
Libraries: OpenCV, YOLOv8, PCL, Open3D, NumPy, Transformers, CAD/CAE
Soft Skills: Cross-functional, Verbal communication, Team player

Notable Achievements

Publications: "Wireless Animatronic Hand Using Infrared Sensor" – ICDSMLA 2021, Springer Nature Singapore
Leadership: President of COSMO (Mechatronics Department Club), REC –(Apr 2021 - Apr 2022)
Scholarships: Pathways to PhD Scholarship, Pathways to Profession Scholarship – Maryland Robotics Center (MRC)
Awards: Best Paper Award (3rd Place) – International Conference on Data Science, ML & Applications 2021
Hackathons: 3rd Place Winner and Best Health Track Award for CareBotix – Morgan Hacks 2025
Recognition: Best Product Analyst Award – Designer's Consortium, REC