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 selecting and tuning Cartographer over SLAM Toolbox in ROS 2 simulations
- Enhanced UAV detection recall by 35% by fine-tuning YOLOv8 and training PyTorch models
- Increased feature-match rate by 20% by implementing multi-view registration and sensor-calibration

Robotics Engineering Intern May 2024 – Aug. 2024
Kick Robotics *Bethesda, MD*
- Reduced QA cycle time by 20% by building ROS 2 validation pipelines using PyTest and GoogleTest
- Decreased system latency by 15% by refactoring ROS 2 control stack and integrating Jetson Nano firmware
- 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 pipelines for IMU/camera fusion
- Achieved 99.9% system uptime by implementing Vehicle Control Unit (VCU) control signaling over CAN
- Increased test coverage by 40% by building Git/JIRA pipelines for unit and HIL testing
- Improved component procurement by creating detailed BOMs and technical documentation for embedded system designs

Projects

Text-to-Command Navigation | *ROS 2, LLM, LoRA, PyTorch, PyQt5* Nov. 2024 – Dec. 2024
- Achieved 98.5% translation accuracy by fine-tuning T5-Small with LoRA for natural language commands
- Built ROS 2 integration pipeline by developing PyQt5 interface

CareBotix - AI Patient Monitoring | *YOLOv8, OpenCV, PyQt6, Flask, MongoDB* Apr. 2025 – Apr. 2025
- Won Best Health Track Project Award by designing AI-based patient monitoring with YOLOv8 fall detection
- Built full-stack 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

Technical Skills

Languages: Python, C++, CUDA, Bash, MATLAB
Frameworks: ROS 2, PyTorch, TensorFlow, Flask, Gazebo, Isaac Sim
Developer Tools: Git, Docker, AWS, Azure, GCP, Jira, Arduino, Raspberry Pi, SolidWorks
Libraries: OpenCV, YOLOv8, PCL, Open3D, NumPy, Transformers, CAD/CAE

Notable Achievements

Publications: "Wireless Animatronic Hand Using Infrared Sensor" – ICDSMLA 2021, Springer Nature Singapore
Leadership: President of COSMO (Mechatronics Department Club), REC – Led team and organized SYNCHRONIX inter-college symposium (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 – Morgan Hacks 2025
Recognition: Best Product Analyst Award – Designer's Consortium, REC