KRITHIK RAJAVELU

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A UK citizen, Graduated from Arizona State University, with a Master's degree in Robotics and Autonomous Systems and with around three years of Experience. Actively seeking full-time opportunities to further enhance my skills and contribute to the domain of Robotics, Automation, and AI.

EDUCATION

Arizona State University, *MS in Robotics and Autonomous Systems* | Arizona, USA — GPA: 3.75 / 4.0 — May 2024

PSG College of Technology, *BE in Robotics and Automation* | Coimbatore, India — GPA: 8 / 10 — Aug 2022

EXPERIENCE

Robotics Software Engineer | Void Robotics — Jan 2025 - Present

- Configured and logged into ngrok on an Nvidia Orin Nano, built and deployed Docker containers, and executed bash scripts for software setup and execution.
- Developed and tested a simulated TurtleBot3 on a personal machine, successfully implementing waypoint navigation to four predefined locations using ROS 2, Nav2, and RViz2.
- Performed remote system deployment and containerization, developed an autonomous navigation simulation, and implemented interprocess communication using ROS 2.
- Built a generalized image processing pipeline in C++ to detect and count objects across diverse images, ensuring consistent performance without image-specific logic.

Robotics Software Engineer | Persimmon Technologies — June 2024 - December 2024

- Identified and rectified issues in determining slip conditions for end effectors and performed kinematic analysis on robots to ensure accurate motion execution.
- Addressed setup challenges with tools and test fixtures, streamlining the process and improving the efficiency of robot simulations.
- Tackled performance bottlenecks in robot motion trajectory calculations by rewriting the code from MATLAB to Python, optimizing it for direct execution on a Linux-based control system. This reduced processing time by **40%**, significantly improving real-time execution, system efficiency, and responsiveness.

Robotics Software Engineer | ASU LAB — Aug 2023 - May 2024

- Worked on the Project, Intelligent Parking Guidance through AI and IoT to empower Drivers and Autonomous vehicles.
- Assisted as a part of the localization team in the development of a parking space localization algorithm and in the construction of a vehicle localization and tracking pipeline for an intelligent parking framework.

Mechatronics Engineer | Craftsman Automation — Jan 2022 - May 2022

- Designed an IoT- driven pick and place robot employing Arduino uno, enabling seamless wireless control via a cloud connected mobile application. Enhanced this robot further, by making it autonomous.

SKILLS

Languages	Python, C/C++, Catkin, CMake, Matlab, Git, Bash, LaTeX, SQL
Robotics	ROS, Gazebo, Rviz, MoveIt, Arduino, NodeMcu Sensor Fusion, PLC, SPI, I2C, CAN, Ethernet
Software	Linux, Docker, OpenCV, Solidworks, Fusion360, Simulink, Kiel, Proteus, Autoware
Certifications	Robotics Software Engineer, Udacity Nanodegree – (2023) | Supervised Machine Learning, Coursera – (2024)

PROJECTS

Multi-Robot Garden Maintenance Teams — Sep 2023 - Dec 2023

- Successfully implemented advanced **Voronoi cells**-based control algorithms on garden maintenance teams for lawn mowing and watering applications, resulting in a **20%** increase in path-tracking precision in dynamic environments.
- Developed **collision-avoidance** protocols between robot teams, ensuring efficient and safe operations.

Sustainable Trash Classification using CNN, sorting with M280 Cobot — Jan 2023 - April 2023

- Successfully implemented a **Collaborative robot (Cobot)** capable of leveraging **Convolutional Neural Networks (CNN)** to accurately classify objects as recyclable or non- recyclable.
- Integrated **Robotic Capabilities** to execute efficient pick and place operations, ensuring the proper segregation of recyclable and non -recyclable items into their respective bins.

Visual Tracking UAV - *Mambo Drone* — Jan 2023 - April 2023

- Developed a high-performance, **low-level flight control** algorithm with an integrated **Kalman Filter** for an Drone.
- Championed an optimized red color detection algorithm, slashed processing time by **30%**, and improved efficiency.

Home-Delivery Bot | Robotics Software Engineer, *Udacity Nanodegree* (Scholarship Scholar) — Dec 2022 - April 2023

- Developed a robot in Gazebo (**ROS**) & integrated with **feedback control** for state dynamics.
- Implemented SLAM and sensor fusion (Rotary Encoder, Odom & IMU) for navigation & deployed AMCL.