KIRAN AJITH

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EDUCATION

Professional Master of Engineering, Robotics
University of Maryland, College Park, MD — Expected 2024
Bachelor of Technology, Electronics and Communication Engineering
Vellore Institute of Technology, Vellore, India — 2022

SKILLS

Programming Languages:	C, C++, Java, Python, MATLAB, Verilog HDL, HTML, CSS, Javascript
Software:	ROS2, MoveIt2, Gazebo, Git, SolidWorks, Proteus, Multisim, ArduPilot, PX4
Hardware:	Arduino, Intel FPGA, Raspberry Pi
Packages:	Pandas, NumPy, TensorFlow, PyTorch, Scikit-learn, Matplotlib, OpenCV

EXPERIENCE

Graduate Teaching Assistant — Jan 2023 - May 2023
A James Clark School of Engineering, University of Maryland — *College Park, MD*

- Spearheaded course preparation and strategic planning for ENEB355 Algorithms in Python. Crafted and assessed assignments, quizzes, and comprehensive projects. Hosted weekly office hours and interactive lab sessions, offering robust academic guidance and mentoring to undergraduate students.

Graduate Research Assistant — Oct 2022 - Jan 2023
Daikin Energy Innovation Lab, University of Maryland — *College Park, MD*

- Contributed to the RoCo project, focusing on software validation and robotic enhancements. Demonstrated a 30% boost in operational efficiency of existing prototypes by seamlessly integrating high-resolution thermal cameras, optimizing imaging accuracy, broadening field of view, and enhancing overall energy sustainability.

Embedded Systems Engineer Intern — Nov 2020 - Dec 2020
Kerala State Electronics Development Corporation — *Kerala,India*

- Engaged in hands-on PCB design and troubleshooting for various electronic devices. Contributed to the production and manufacturing of security systems, focusing on CCTV and access control mechanisms.

PROJECTS

ARIAC 2023 Kitting Task Addressed the kitting task in the ARIAC (Agile Robotics for Industrial Automation Competition) conducted by the National Institute of Standards and Technology (NIST), which involved picking up parts with a UR3e arm and placing them on Autonomous Guided Vehicles(AGVs), and completing a kit; developed using ROS2 Galactic, C++ and Python and simulated in Gazebo.

Kuka Mobile Robot Modeled a Kuka mobile robot using Solidworks; simulated a pick and place application in Gazebo with ROS Noetic; validated forward and inverse kinematics with Matlab's Peter Corke toolbox with 98% accuracy in mathematical calculations.

Camera Pose Estimation and Panoramic Image Stitching Computer vision application for camera pose estimation and panoramic image stitching using Python and OpenCV, implementing algorithms for noise reduction, edge detection, line detection, homography computation, SIFT feature detection, and brute force feature matching.

Machine Learning Based Gesture recognition system Developed an LSTM model to train a self-created dataset that predicts American Sign Language (ASL) using Tensorflow. Obtained an 86% accuracy in predicting test data.

Traffic light detection A real-time traffic light detection system using YOLOv3 and colour thresholding with a confidence of 0.7, implemented in a variety of lighting and weather conditions, enhancing safety in autonomous driving applications.