

SURIYA KASIYALAN SIVA

BOSTON, MA. | kasiyalansiva.s@northeastern.edu | +1 8573975671 | [LinkedIn](#) | [GitHub](#)

EDUCATION

Northeastern University, Boston, MA
Master of Science in Robotics

Sep 2023 – (Expected) May 2025

Courses: Robot Mechanics & Controls, Control Systems Engineering, Pattern Recognition & Computer Vision, Robot Sensing & Navigation, Autonomous Field Robotics, Reinforcement Learning

Panimalar Engineering College, Chennai, India
Bachelor of Engineering in Mechanical Engineering

Aug 2018 – June 2022

SKILLS

Programming Languages: Python, C++

Frameworks & Libraries: OpenCV, TensorFlow, PyTorch

Tools & Software: Linux, Git, Visual Studio, MATLAB, Simulink, ROS, SolidWorks, Gazebo, Arduino, Fusion 360

Additional Skills: Image Processing, Feature Extraction, Model Validation

Certification: Programming for Everybody, Robotics: Aerial Robotics, AI Foundation with IBM badge, Machine Learning

EXPERIENCE

HCL Technologies, India | *Graduate Engineer Trainee, Full-time*

Nov 2022 – July 2023

- Designed a comprehensive wellhead system by utilizing advanced design tools including PTC Creo, ensuring the system meets client specifications, enhancing project efficiency.
- Facilitated seamless coordination between onshore and offshore teams, ensuring project success through weekly scheduled meetings. Spearheaded the initiation of strategic, optimized processes, contributing 20% to the successful completion of the project within a dynamic team environment.

Roboram Education, India | *Research Intern*

Jan 2022 – Mar 2022

- Designed and built an exoskeleton suit handling data from multiple ultrasonic sensors for accurate obstacle detection, resulting in a 50% improvement over existing cane model.
- Utilized firmware development with ultrasonic sensors, Arduino MEGA, and mobile vibration motors for precise obstacle detection, surpassing traditional speaker-based method.

ACADEMIC PROJECTS

Automated Segmentation & Labeling of Insect Legs | *Python, OpenCV*

Jan 2024 – Apr 2024

- Automated insect leg labeling in DeepLabCut using Canny edge detection, morphological operations, and Shi-Tomasi Corner Detection, reducing manual labeling time by 40%.
- Evaluated accuracy with a confusion matrix, demonstrating high precision and scalability for research automation.

Visual SLAM Implementation | *Python, ROS, Rviz*

Jan 2024 – Apr 2024

- Implemented SG-SLAM for real-time localization and mapping with RGB-D datasets, integrating 2D semantic and 3D point cloud data, and benchmarking performance against existing algorithms.
- Leveraging a dynamic feature detection algorithm for real-time localization and mapping, optimizing data exchange and enabling efficient navigation and exploration of expansive environments.

Sensor Integration and Navigation | *Python, ROS, NumPy, MATLAB, Linux*

Jan 2024 – Apr 2024

- Developed ROS drivers for RTK-GPS and VectorNav IMU sensors to enhance navigation accuracy.
- Implemented sensor fusion for dead reckoning with calibration, filtering, and trajectory analysis.
- Analyzed GNSS data, comparing standalone and RTK systems, and used Allan variance plots to characterize IMU noise.

Precision Navigation with IMU & GPS: Exploring Sensor Fusion Strategies | *Python, ROS*

Mar 2024 – Apr 2024

- Integrated IMU and GPS data, improving trajectory accuracy by 20% through least squares calibration. Achieved 90% localization accuracy using IMU-GPS fusion with Particle Filtering.
- Reduced RMSE and MAE using GPS-grounded Particle Filter for state prediction.

Control Strategies for Quadrotor Position and Altitude | *Matlab*

Sep 2023 – Dec 2023

- Performed an extensive analysis to select optimal control strategies for quadrotor position and altitude, incorporating Linear Quadratic Regulator (LQR), LQG, and PI controller methods.
- Assessed performance including stability, and adaptability, using real-world considerations such as sensor and process noise and achieved 20% increase in stability.