

Siddharth Rama Sushil

Robotics | Computer-Vision | Deep-Learning



EDUCATION

University of California, San Diego; M.S Electrical & Computer Engineering

Fall 2025 - Present

- Concentration: Intelligent Systems, Robotics & Control
- Related Coursework: Digital Image Processing, Statistical Learning, Computer Vision

Indian Institute of Information Technology, Jabalpur; B.Tech Mechanical Engineering

2019 - 2023

- GPA: 3.83/4 (Top 5% in my batch of 101 students)
- Related Coursework: Human-centric Robotics, Industrial IoT, Smart Sensors, Data Structure & Algorithms, C++

PROFESSIONAL EXPERIENCE

Addverb Robotics, Robotics Engineer

Aug 2023 - July 2025

Perception

- Lead Architect for Object Recognition & 6DOF Pose Estimation modules, designing and deploying from scratch.
- Built a visual-inertial SLAM pipeline, fusing IMU + vision and reducing tracking dropouts by 35% in low-texture environments.
- Engineered a **self-calibrating camera system** that preserved ±2 mm accuracy over long durations by correcting for structural droop. **Deep Learning**
- Deployed Reinforcement Learning-driven grasping system using vision & policy learning, boosting pick & place success.
- Applied semantic segmentation to classify SKUs, chargers, and conveyors for improved robotic perception.
- Linked scene understanding with error logs to generate context-aware diagnostics for rare failures, cutting debugging time by 45%. Systems Optimization
- Dockerized robotics stack into modular containers with CI/CD pipelines for automated embedded deployment.
- Built an auto-update workflow where code pushes generated Docker images directly deployed to robots.
- Performed time-series analysis for root-cause diagnostics, optimizing system performance under real operational constraints.

Deployment

- Led on-site deployment for robotic systems with Siemens, ISITEC, Adidas, ensuring successful rollout under real-world constraints.
- Implemented field debugging and rapid iteration, reducing downtime and accelerating system stabilization post-deployment.

Defence Research and Development Organisation, Research Intern

Jan 2023 - July 2023

- Problem Statement: Identify key challenges in early warning missile detection systems.
- Conducted in-depth research on implementing CNNs for infrared small target detection (IRSTD).
- Gained expertise in low signal-to-noise ratio (SNR) image processing, shape detection, and DL-based feature aggregation.
- Built and preprocessed IR image datasets, incorporating pixel-level annotations and multi-directional noise analysis.

HONORS & ACHIEVEMENTS

Published utility patent for the IoT-Enabled 3D Spatial Monitoring Device	2023
 Gold Medalist, IIIT Jabalpur — best cross-disciplinary project among 400+ students 	2023
 International Grant Awardee, TIGC La Trobe University — Top 10 of 200+ teams across Asia 	2022
• National Winner, L&T Techgium Hackathon — 1st prize of \$12,000, outperforming 30k+ students from 450 unit	iversities 2022

KEY PROJECTS

Urban Drainage Inspection and Maintenance System: Top-10 project in pan-asia hackathon

2023

- Applied Orb SLAM with depth cameras and LIDAR for mapping urban drainage layouts.
- Explored **predictive maintenance** by leveraging models like **ResNet** and **YOLO** to process live images and video feeds.

Autonomous Disinfection Robot with Real Time Mapping: Awarded Best Interdisciplinary Project

2022

- Utilized the ROS Navigation Stack and gmapping to perform real-time 2D SLAM for generating occupancy grids.
- Evaluated model performance using metrics such as mean average precision (mAP) and F1 score.

TECHNICAL SKILLS

Areas Robotics, SLAM, Artificial Intelligence, Sensor Fusion, Deep learning, Augmented Reality, Transformer Models Programming ROS, ROS2, C++, Python, Bash, Arduino IDE

Frameworks Point Cloud Library (PCL), OpenCV, Eigen, ORB-SLAM2 Tensorflow, Keras, Docker, Git, PyTorch, TensorRT, scikit-learn

Hardware Raspberry Pi, Nvidia board, Arduino, Micro controller, Stereo camera, TOF Sensor, PLCs, 3D/2D Lidar.

POSITIONS OF RESPONSIBILITY

Senator, Student Committee, IIIT Jabalpur

Apr 2021 - May 2022

• Represented 2,000+ students in institutional governance, driving policy discussions and leading onboarding for 620 freshmen.

President, Music Club, IIIT Jabalpur

Feb 2021 - May 2022

• Directed a 12-member team to build a vibrant cultural ecosystem, delivering 35+ events that engaged 1,000+ students.