

Guvva Indra Kumar Reddy

Bengaluru | indrakumarreddy.guvva@gmail.com | [linkedin.com/in/indrareddyguvva](https://www.linkedin.com/in/indrareddyguvva)
github.com/indrareddy5 | +91 7288090735

Summary

Perception engineer working at the intersection of classical 3D vision and embodied AI — LiDAR, SLAM, Gaussian splatting, and VLA baselines for manipulation. Drawn to problems where 3D scene understanding meets policy learning, across real-world robotic platforms.

Experience

SLAM Engineer, Merai Newage Pvt Ltd. (A Meril Group Company) – Vapi Dec 2025 - Present

- Built an end-to-end outdoor scene reconstruction pipeline — 30 FPS monocular captures, COLMAP-based structure-from-motion, and 3D Gaussian Splatting training with MCMC-based densification — producing reconstructions used as scene substrates for downstream model behaviour analysis.
- Deployed a VR-based teleoperation pipeline on the Unitree G1 humanoid by integrating Unitree’s open-source xr-teleop package, resolving dependency conflicts across package versions and diagnosing network latency issues that drove a router upgrade for stable real-time control.
- Trained a SmolVLA baseline on the LeHome dataset for cloth folding, reaching 60% / 28% task-success on train / held-out test against predefined metrics; selected SmolVLA over $\pi_{0.5}$ after early experimentation showed the available demonstration scale was insufficient for $\pi_{0.5}$ ’s convergence on this contact-rich task. Built EDA pipelines and a public [Gradio analysis tool](#) for episode inspection, side-by-side state-vs-action visualization, and per-category joint-range analysis.
- Adapted the AWS RoboMaker Hospital Gazebo world into a multi-floor simulation testbed: converted static elevator assets into dynamic, jointed models with ROS-controllable actuation interfaces, and integrated a mobile robot platform.

Software Engineer, Proliant Infotech – Bengaluru Sep 2024 - Jul 2025

- Built a modular ROS node for LiDAR Point Cloud segmentation using Euclidean clustering.
 - Implemented temporal tracking with centroid-based motion filters and cluster ID assignment.
 - Estimated the velocities and orientation of the dynamic obstacles and published them in a custom message format.
 - 100% recall and 80% precision on persons and vehicles across 25 test sequences (10,000 frames) within 35m, at ego speeds up to 1 m/s and dynamic object speeds up to 4 m/s, under daylight and night conditions.
- Built a ROS node that converts Ouster 2D range images to point clouds during bag playback — enabling the team to store compact range images at collection time instead of full PointCloud2 messages, reducing bag file size from 10 GB to 2 GB per session with no loss of downstream data.
- Created a ROS node that detects the sensor’s full & partial occlusion and publishes a warning/error message depending on the scenario.
- Trained a monocular optical flow network to predict ego-vehicle velocity from consecutive image frames and deployed it as a ROS node — designed as a feedback signal to a controller node, complementing odometry-derived velocity estimates.

Intern, Proliant Infotech – Bengaluru Dec 2023 - Sep 2024

- Reduced model training time from 24 hours to 12 hours by pre-caching image tensors offline ahead of training runs — eliminating repeated per-batch conversion overhead — and restructuring inputs to integrate spatial-temporal context across 5-frame sequences.

- Deployed the model on the NVIDIA Jetson Xavier NX platform.
- Collaborated with a cross-functional team to implement stable-baselines DQN RL Model in CARLA 0.9.10 (for urban roads) & CARLA 0.9.8 (for off-road).

Projects

KITTI Dataset to ROS2 bag

- Created a Python package that converts the KITTI Synced Dataset into a ROS2 bag file.
- **Tools / Packages Used:** Python3, rclpy, rosbag2_py, sensor_msgs

Human Centric Video Stabilization

- Developed a package that takes an input video and returns the video with the human in the center of every frame.
- **Tools / Packages Used:** OpenCV, MediaPipe, PyTorch

Skills

Languages & Frameworks: C++, C, Python, SQL, Bash, Markdown

Libraries & Packages: Transformers, Ultralytics, OpenCV, Torch, TensorFlow, Nav 2, PCL

DL Algorithms: CNN, YOLO, Autoencoders, VAE, Transformers, GAN, SmolVLA, π 0.5

Technologies & Tools: ROS2, 3DGS, COLMAP, Git, Docker, GitHub Actions, AWS, GCP, MongoDB, MATLAB, Gazebo, Isaac Sim & Lab, MuJoCo

Soft Skills: Problem-Solving, cross-functional collaboration, technical communication, resilience & patience, adaptability, and time management.

Education

Indian Institute of Technology, Madras

2025

- Bachelor of Science - BS, Data Science and Applications | *Minor in Generative AI*
- **Coursework:** Machine Learning, Deep Learning, Deep Learning for Computer vision, LLMs, NLP

G.PullaReddy Engineering College, Kurnool

2022

- Bachelor of Technology in Electrical and Electronics Engineering
- **Coursework:** Microprocessors, Embedded C, Control Systems, MATLAB

Certifications

- [Deep Learning Specialization](#) from Coursera
- [Deep Learning For Computer Vision](#) from NPTEL
- [Google ML India Bootcamp](#) by Google Developers
- [Google Cloud Big Data and Machine Learning Fundamentals](#) by Coursera
- [How Google does Machine Learning](#) by Coursera