

VINAY LANKA

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Education

University of Maryland

Master of Engineering (M.Eng.) - Robotics

- GPA - 4.0
- Coursework: Multi-Modal Models, Deep Learning, Perception, Localization, Path Planning, Multi-Agent Systems

Expected: May 2025

College Park, MD

Vellore Institute of Technology

B. Tech - Electronics and Communication Engineering

- GPA - 8.83/10
- Technical Lead of the IEEE VIT Student Chapter

Sep 2017 - Jun 2021

Vellore, TN

Experience

Parsons

Drone Program / Parsons X Intern

- Developed 3D reconstruction pipelines (SFM, NeRF, Gaussian Splatting) on UAV surveys for Federal projects.
- Built Parsnip, an IR-RGB image-matching tool via homography and EXIF data with annotations, reducing inspection time.
- Set up the Clearpath Husky A200 robot for Autonomous Outdoor Navigation for the Geophysics team.

Jun 2024 – Present

Denver, CO/ Remote

Gamma Lab, University of Maryland

Graduate Research Assistant

- Worked in the Navigation Team with the Husky and Spot robots to deploy algorithms for robot navigation and perception using Camera, 3D lidar, IMU, and GPS data.
- Implemented Contrastive Self Supervised models for Video Recognition using the SlowFast framework and benchmarked against various backends (MoCo, BYOL, SwAV etc)

Jan 2024 – Jun 2024

College Park, MD

Newspace Research and Technologies

Robotics Engineer

- Developed real-time UAV image projection, orthorectification, and orthomapping pipelines for fixed-wing drone swarms.
- Developed standardized pipelines for UAV video feeds multiplexed with flight data using MISB 0601 KLV standard.
- Successfully Integrated Epsilon E175 EO/IR camera on VTOL prototype, testing object tracking and geolocation.

Jan 2023 – July 2023

Bangalore, IN

Neoflux (Part of TI DMG GmbH)

R&D Robotics and IoT Engineer

- Developed a multithreaded VOIP product with G711 encoding/encryption on Raspberry Pi CM4 for Protection One (Client).
- Built a custom Autonomous 3D Mapping Robot with GPS RTK, EKF, custom path-planning algorithms for precise navigation.
- Developed a set of internal Robotics, Edge ML, and IoT projects for Neoflux (R&D TIDMG GmbH)

July 2021 – December 2022

Bangalore, IN

Projects

Drone Visual Particle Filter (CamDroneLoc) | PyTorch, OpenCV, Gazebo, PX4, Python

May 2024

- Devised and developed a novel particle filter approach to localize drones and provide odometry (position) measurement predictions using visual image encodings (CNN, VecKM, and histogram of feature encodings) as measurements.

EV Charging Bot | ROS2, Python, OpenCV, PCL, Velocity Kinematics

December 2023

- Developed and simulated a car charging robot that autonomously docks into the charging port of an electric vehicle using a custom IK solver using SRI Jacobian methods and a template matching point cloud-based 3D perception module.

Dynamic-Fleet-Management | Multi-Agent Planning, ROS2, C++, CMake

October 2020

- Developed DFM (Dynamic Fleet Management), a multi-robot swarm management platform that enables autonomous navigation to goal positions while avoiding collisions. Implemented a centralized path planner using RVO 2 and the Reciprocal Collision Avoidance Algorithm, achieving high-performance navigation.

HDAL: Human Detection and Localization | C++, OpenCV, CMake

October 2023

- Built a perception system for mobile robots to accurately track human positions in real-time using a YOLO v5 model using Geometric CV methods.

Publications

V. Lanka, V. B. D. Vinjamuri and B. Bhattacharyya, "Designing and Implementing Robot-Web-Suite, A Cloud Based Robotics Platform," 2021 IEEE RAAICON, doi: 10.1109/RAAICON54709.2021.9929637.

Technical Skills

Languages: C, C++, Python, GoLang, JavaScript

Frameworks / Platforms: PyTorch, Tensorflow, Keras, CUDA, OpenCV, Open3D, OpenAI Gym, ESP-IDF, Raspberry Pi, Jetson

Software/Tools: ROS1/2, Gazebo, IssacSim, CMake, Git, CI/CD, GoogleTest, Docker, Kubernetes, SolidWorks