

Jerin Peter

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EXPERIENCE

OpenMind AGI

Robotics Engineer

San Francisco, CA

Sept 2025 to Present

- **Architected a robot-agnostic autonomy platform** in ROS 2 that runs one software stack on **6 robots from 3 vendors** (Unitree Go2, Go2 Lite, G1 humanoid; LimX TRON1 biped; Deep Robotics M20, X30). Defined a standard robot interface (velocity commands, odometry, TF, scans, IMU, map services, status messages) with thin per-robot adapters over 5 vendor transports (SDK, UDP, TCP, WebSocket, SSH); **3 new platforms integrated in July 2026**.
- **Integrated each robot through practical design choices:** a ROS 1 to ROS 2 bridge container for the X30 instead of porting vendor software; a vendor map bridge for the M20 exposing the standard map service; a dual navigation dispatcher (vendor navigation or Nav2, chosen per site); one shared charging flow with robot-specific final approach.
- **Built the orchestrator:** a ROS 2 node with a REST API (30+ endpoints) that the app, cloud services, and AI runtime use for mapping, navigation, scheduled patrol, charging, map management, and deployment; subsystem lifecycle control, state persistence, and unified fault reporting.
- **Made the robots reliable unattended:** ran multi-day stress runs, including **3 weeks of continuous testing** of scheduled patrol and auto-charging on Go2 and M20; converted field failures into safeguards (heartbeat inactivity alerts, a localization watchdog that halts navigation on pose loss, restart-safe state).
- **Perception, navigation, and control:** per-platform Nav2 (3D obstacle voxel layer, route graphs, keepout zones, frontier exploration), an MPPI local planner, and hybrid localization (Numba-accelerated scan matching, AMCL, camera-based visual place recognition) with automatic recovery.
- **Human-robot interaction and AI:** integrated VLM/LLM function calling for natural-language robot control; built a G1 humanoid gesture system where non-programmers teach arm motions by demonstration (record and replay); person following with LiDAR and camera tracking.
- **Simulation and tooling:** created the OM1-sim Gazebo simulation (Go2 with simulated charging) and Isaac Sim support for TRON1; multi-container Docker builds for x86 and Jetson ARM; shared ROS 2 message definitions used across the stack.

IIT Palakkad Technology IHub Foundation

Project Engineer, Mobile Robotics

Palakkad, India

Jul 2023 to Feb 2024

- Built an outdoor autonomous robot end to end: RTK GPS with NTRIP corrections, IMU, and wheel encoders fused with an EKF for centimeter-level localization; motor control on a Teensy microcontroller; custom PCB; ROS navigation stack.

Asimov Robotics

Robotics Software Engineer (Intern)

Kochi, India

Aug 2022 to Jun 2023

- Migrated deployed service robots to ROS Noetic and debugged odometry drift on real hardware using oscilloscope and log analysis.

TECHNICAL SKILLS

Languages: Python, C/C++ (embedded), Bash

Robotics: ROS 2, ROS 1, Nav2, MPPI, AMCL, EKF, slam_toolbox, RTAB-Map, GTSAM, ICP, behavior trees

Perception and AI: OpenCV, visual place recognition, Numba, VLM/LLM function calling, PyTorch, Isaac Sim, Gazebo

Systems: Zenoh, DDS (FastDDS, CycloneDDS), REST APIs (Flask), Docker, Linux, NVIDIA Jetson, Foxglove, Git

Hardware: Unitree Go2/G1, LimX TRON1, Deep Robotics M20/X30, RTK GPS, LiDAR, IMU, I2C/SPI/UART/CAN

EDUCATION

University of California, Riverside

M.S. in Robotics, GPA 3.88/4.0

Riverside, CA

Apr 2024 to Jun 2025

Rajagiri School of Engineering and Technology

B.Tech in Electronics and Communication Engineering, GPA 8.14/10

Kochi, India

Aug 2019 to Jun 2023

MENTORING, AWARDS AND PUBLICATIONS

Mentoring: Conducted 15+ hands-on robotics workshops for students and engineers.

Awards: IEEE IAS CMD International Robotics Contest, 1st (2020) and 2nd (2021); European Rover Challenge 2022, Best Maintenance Task.

Publications: 3 first-author peer-reviewed papers: IEEE AIC 2022 (Best Paper Award), ACM AIR 2023 (Best Paper Presentation), Springer LNME 2025.