

CHRIS SUNNY THALIYATH

Robotics & Autonomous Systems Engineer

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Profile

Robotics software engineer with 7+ years of experience in perception, motion planning, and autonomous systems across ADAS ([Mercedes-Benz](#)), autonomous lawn mowers ([Electric Sheep Robotics](#)), and autonomous golf carts ([Bosch](#)). Expert in multi-modal perception (camera, LiDAR, radar), SLAM, sensor fusion, 6-DOF pose estimation, and real-time distributed systems. Proficient in Python, C++, PyTorch, ROS/ROS2, and simulation platforms including CARLA, Gazebo, Unity, and Isaac Sim. Driven by continuous reinvention, human-centered technology, and values of peace, empathy, and excellence.

Experience

[Mercedes-Benz Research and Development India](#)

2022 – Present

Level 3 ADAS – HAF 95 & HAF 135

- Architected production-ready real-time distributed control modules for L3 ADAS, defining system boundaries, interfaces, and requirements.
- Developed LiDAR-based clustering, tracking, and classification pipelines using Euclidean clustering, Hungarian matching, CenterPoint3D, and PointNet for small object detection.
- Implemented monocular depth estimation and BEV-based perception models (PyTorch, BEVDet) to replace LiDAR with camera-only occupancy grids.
- Hands-on with multi-modal BEVFusion (Camera + LiDAR); explored Vision-Language Models (VLMs) for semantic scene understanding.
- Built multi-LiDAR and multi-camera calibration pipelines using ARUCO markers; implemented ICP/NDT-based alignment and ego-motion estimation.
- Designed SLAM–IMU–GPS fusion achieving centimeter-level localization accuracy.
- Implemented MPC, LQR, Pure Pursuit, and 2-DoF controllers integrated with vehicle dynamics.
- Maintained Gen5 ADAS validation pipelines using Airflow, Docker, CI/CD, and large-scale data replay.
- Deployed perception and planning stacks on NVIDIA Orin (IDC6) optimized with TensorRT and CUDA.
- Developed CAN/CAN-FD drivers, DBC decoding, and ROS interfaces.

[Electric Sheep Robotics](#)

2021 – 2022

Fully Autonomous Lawn Mowers

- Improved SLAM-based 6-DOF pose estimation using EKF fusion of LiDAR, camera, IMU, and GPS.
- Built navigation pipelines across Isaac Sim, Gazebo, and Unity enabling sim-to-real transfer.
- Designed synthetic data pipelines for Vision-Language Models.
- Integrated Visual Teach & Repeat (VT&R) navigation (Prof. Tim Barfoot, University of Toronto).
- Deployed autonomy stack on NVIDIA Orin.

[Arway.ai](#)

2020

Spatial Computing & AR Platforms

- Implemented kidnapped-robot relocalization using Bag-of-Words techniques.
- Cross-compiled ORB-SLAM2 C++ binaries for Unity, Android, and iOS.
- Built a custom SLAM-based relocalization system replacing ARKit/ARCore.

[Bosch Global Software Technologies](#)

2018 – 2021

Autonomous Low-Speed Golf Cart

- Developed LiDAR-SLAM using Velodyne VLP-16 with EKF fusion (LiDAR + GPS + IMU).
- Implemented NDT/ICP-based relocalization with OpenStreetMap lane-level context.
- Built waypoint planners and integrated lane-keep assist and cruise control.
- Developed ROS drivers for CAN, EPS, throttle/brake, radar, ultrasonic sensors.
- Deployed autonomy stack on NVIDIA Drive PX with RTOS (QNX, Linux-RT).

Vanora Robots

2017

Agricultural Autonomous Robot – Rubber Tapping

- Developed ROS drivers for Sabertooth 2x32 motor controllers on Raspberry Pi.
- Programmed embedded controllers (Arduino, STM32) for real-time motor control.
- Implemented encoder-based odometry integrated with ROS navigation stack.
- Built Visual SLAM pipelines using depth camera (Xbox Kinect) fused with odometry.
- Designed ArUco marker-based auto-docking for wireless charging.

Education

M.Tech in Artificial Intelligence & Machine Learning

2023 – 2025

Indian Institute of Technology Jammu

- Driver drowsiness detection using Android, DLIB facial landmarks, and CNNs.
- End-to-end L3 autonomous vehicle stack using BEV fusion and MPC.

B.Tech in Computer Science

2013 – 2017

Shiv Nadar University

- Built CNC machines, drones, lane-following and self-balancing robots.
- Designed Shazam-like audio recognition using FFT-based fingerprints.
- Automated greenhouse system using Arduino, Raspberry Pi, OpenCV, and web UI.

Skills

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| <ul style="list-style-type: none">• Perception, SLAM, Localization, Mapping• Motion Planning (MPC, LQR, Optimization)• Multi-modal Sensor Fusion• PyTorch, TensorFlow, OpenCV | <ul style="list-style-type: none">• ROS, ROS2, DDS• Python, C++, CUDA• CARLA, Isaac Sim, Gazebo, Unity• Git, Docker, CI/CD, JIRA, Confluence |
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Patents

- [DE102024133915A1 – Method and device for reconstructing missing road lanes using LiDAR technology](#). Inventors: Patnaikuni Srikhar, Aswathy Radhakrishnan, **Chris Sunny Thaliyath**. Assignee: Mercedes-Benz Group AG.

Awards

- First Place – Lane Following Competition, Galgotias University (2014)
- Second Place – Lane Following Competition, IIT Delhi (2015)
- Qualified – University Rover Challenge (2017)
- Bosch Appreciation – ROS vs Adaptive AUTOSAR Technical Talk
- Bosch Appreciation – Top Cycle-to-Work Candidate

Leadership

Head of Robotics Club, Shiv Nadar University (2016–2017). Mentored junior engineers at Bosch and Mercedes-Benz. Leadership philosophy rooted in empathy, truth, and collective growth.

Personal Traits

Curiosity, Integrity, Courage, Empathy, Self-Reflection, Discipline, Patience, Faith, and Love for Humanity.