SRI HARISH MADAMPUR SURESH

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SKILLS

Programming & ML:
Python, PyTorch, Numpy, Pandas, OpenCV
Computer Vision & 3D Perception:
Object Detection, Point Cloud Segmentation, 3D Scene understanding, Occupancy Networks
Model Development & Evaluation:
Model Training, Benchmarking, Dataset Curation, Performance Analysis
Tools & Platforms:
Linux, Git, Docker, ROS, CARLA

PROJECTS

VLM Optimization for Traffic Light/Sign Recognition in AD

- Optimized Vision-Language Models for traffic light and sign recognition in autonomous scenarios
- Improved recognition accuracy by 15% and validated decision-making performance using simulation-based testing in CARLA

Visual-Inertial SLAM using OPENVINS

- Developed and evaluated a Visual-Inertial Odometry pipeline on 1:10 Autonomous Vehicle using camera and IMU data in ROS environment
- Worked on feature tracking, sensor synchronization, and state estimation for robust pose state

Camera based Localization & Tracking

- Implemented a real-time vision-based localization and tracking pipeline using monocular camera input, focusing on robustness perception under various lighting
- Integrated YOLO based detection system to support perception validation across multiple scenes

KITTI-based Object Detection System for Road Safety

- Developed and trained a YOLOv8-object detection system on KITTI dataset
- Built an inference and visualization pipeline to evaluate model performance and reliability

LANGUAGES

- Deutsch: B1
- English: C1

PROFILE

AI Research Engineer with hands-on experience developing and evaluating computer vision models for 3D perception and autonomous systems. Worked on projects involving object detection, tracking, visual-inertial SLAM, and simulation-based benchmarking, with a strong interest in robust, real-world AI systems.

EXPERIENCE

Master Thesis Student – Daimler Truck AG, Stuttgart

Title: Ground Truth Generation for Voxel-Based 3D Occupancy Prediction using Multi-LiDAR Truck Data **Feb. 2025 – Aug. 2025**

- Built a pipeline to generate dense 3D occupancy ground truth labels for training vision-based prediction models on a truck-specific dataset.
- Reduced manual annotation costs by **80%** through point cloud segmentation and voxel densification on the fused LiDAR point clouds.
- Designed and evaluated scalable data pipelines supporting perception model training and validation.

Student Assistant – Institute for Intelligent Systems, Esslingen

Research Assistant **Aug. 2024 – Aug. 2025**

- Trained and evaluated Vision-Language Models (VLMs) for proper instruction following of autonomous vehicles, conducted simulation-based validation, and analysed performance in CARLA to support autonomous behaviour.
- Achieved **15%** higher driving scores via enhanced traffic light/sign recognition.
- Conducted literature reviews, designed experiments, and analysed results to guide model development and evaluation.

HCL Engineering and R&D Services, Bangalore, India

Engineer for Design and Simulation **Aug. 2021 – Apr. 2023**

- Design and Simulation of COWL Anti-ice valves and their components for aircraft. Creation of Manufacturing drawings based on GD&T principles.
- Conducted quality checks and managed the release of finalized drawings to the customer, ensuring all the deliverables were accurate and on schedule.

Team Torpedo, SAE BAJA INDIA ATV Design, Coimbatore, India

Vice-Captain, Amrita Vishwa Vidyapeetham. **May 2018 – July 2021**

- Design and Simulation of Vehicle Dynamics for All Terrain Vehicle.
- Collaboration on the full-cycle development of the vehicle, from initial design, through to physical fabrication, assembly, and performance testing.

EDUCATION

Hochschule Esslingen, Germany

Master of Engineering, Automotive Systems **Sept. 2023 – Aug.2025**

- Specialization in autonomous systems with emphasis on Computer Vision and Deep Learning.
- Hands-on experience in perception algorithms, sensor fusion, dataset handling, and adaptation for autonomous driving tasks

Amrita Vishwa Vidyapeetham, Coimbatore, India

Bachelor of Technology, Mechanical Engineering **July 2017 – Aug. 2021**

- Specialization in Automotive Engineering with emphasis on vehicle dynamics design, powertrain systems, and chassis design.
- Application of Mechanical Systems to Modern Automotive Technologies.