Anshuman Phadke

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Education

Vellore Institute of Technology July 2019 – July 2023
Bachelor of Technology Electronics and Communication Engineering *CGPA: 9.57/10.0*

Experience

Autopilot Developer Sep 2025 – Present
Drone Research Center - Indian Institute of Technology, Bombay *Mumbai, India*

- Developed a real-time Automatic Target Detection and Surveillance (ATDS) pipeline using YOLOv8-obb model and ByteTrack for multi-object tracking, deployed on NVIDIA Jetson Orin NX
- Building a full-stack UAV Traffic Management (UTM) system featuring 3D airspace corridors, graph-based routing, and scheduling algorithms using Python with a PostgreSQL/PostGIS backend for Maharashtra
- Developing a real-time terrain-following navigation pipeline for GPS-denied environments using Siamese neural network–based scene matching fused with SLAM-based pose estimation
- Trained and fine-tuned deep learning models on custom datasets on NVIDIA A6000 GPUs using PyTorch with CUDA stream-based parallelism; conducted hyperparameter tuning, ablation studies, and evaluation

ADAS Engineer Aug 2023 – Jul 2025
Mercedes-Benz Research & Development India (MBRDI) *Bengaluru, India*

- Developed production-grade radar signal processing software and a Radar Analytics Tool (RAT) enabling multiple ADAS functions, including Blind Spot Monitoring, Active Brake Assist, and Adaptive Cruise Control
- Developed a CNN-based audio perception system using ResNet-50 and MFCC features for emergency vehicle detection, classification, and direction-of-arrival estimation
- Developed internal Python applications that reduced manual workflows by approximately 90% and improved engineering productivity, saving nearly $125,000
- Filed **8 patents** with the Indian Patent Office in the autonomous driving domain

Student Trainee Intern Sep 2022 – May 2023
Mercedes-Benz Research & Development India (MBRDI) *Bengaluru, India*

- Developed a simulation framework for autonomous parking systems to digitally validate ultrasonic sensor performance
- Conducted performance studies of ultrasonic sensors across multiple vehicle platforms using ANSYS HFSS and SBR+, with Python and MATLAB post-processing pipelines to evaluate results against defined system KPIs

Projects

SSTV-Based IoT Data Acquisition and Analytics | Research Paper Feb 2023

- Designed an IoT-based data acquisition and analytics system for remote regions, enabling reliable sensing, transmission, and analysis under constrained connectivity

Team Assailing Falcons (SAE Aero Design East) | Website Dec 2020 – May 2023

- Vice Captain and Propulsion Head of a 14-member team competing in SAE Aero Design East (Advanced Class), achieving **Global Rank 3**, Rank 1 in Technical Presentation, and Rank 1 in Design Report
- Developed a Python-based ground station data acquisition system for real-time avionics telemetry
- Developed a drop zone detection and autonomous navigation system

ADAMS – Advanced Driver Assistance and Monitoring System | Project Link Nov 2020 – Jan 2021

- Built a computer vision and deep learning-based driver monitoring and assistance system with features like: facial recognition, emotion classification, drowsiness detection, head movement

AgriHero – Smart Agriculture Platform | Project Link April 2021 - June 2021

- Built a distributed IoT sensing and ML platform delivering real-time environmental and agronomic insights to enable data-driven decision support and improved accessibility for rural stakeholders

Technical Skills

Programming: Python, C/C++, Embedded C, MATLAB, Linux, HTML, CSS, PostgreSQL
Frameworks & Deployment: PyTorch, TensorFlow, OpenCV, Plotly, Dash, Seaborn, scikit-learn, Matplotlib, Flask, Folium, Pandas, NumPy, ROS, TensorRT, ONNX, Docker, Kubernetes
Hardware & Tools: NVIDIA Jetson (Orin NX, Nano), Raspberry Pi, Arduino, ESP32, STM32, Git, Jira, Confluence, ArduPilot, PX4, Vector CANape/CANoe, ANSYS HFSS & SBR+, QGIS