Deepti Rawat

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Webpage | Google Scholar | LinkedIn | GitHub

Research

I am a PhD scholar at CVIT, IIIT-Hyderabad, advised by Prof. Ravi Kiran Sarvadevabhatla. My work targets road safety in *unstructured* traffic, where heterogeneous vehicle mixes, weak lane discipline and dense occlusion break the assumptions behind Western driving datasets. I build video-language benchmarks for road event understanding, automated violation detection from dashcam and surveillance video, and driver attention models grounded in real-world eye-tracking. I have also worked on surround-view camera-centric 3D perception for ADAS at Qualcomm, and shipped production perception systems for traffic enforcement and retail at Pushpak.AI.

Education

International Institute of Information Technology, Hyderabad — **Jan 2023 – Present**
PhD, Computer Science, Center for Visual Information Technology (CVIT) — *Hyderabad, India*

IIMT College of Engineering — **Aug 2014 – Jul 2018**
B.Tech., Electronics and Communication Engineering — *Greater Noida, India*

Publications

RoadSocial: A VideoQA Benchmark for Road Event Understanding from Social Video Narratives — **CVPR 2025**
Chirag Parikh*, **Deepti Rawat***, Rakshitha R.T., Tathagata Ghosh, Ravi Kiran Sarvadevabhatla

DashCop: Two-Wheeler Traffic Violations Detection Using Dashcam Videos — **WACV 2025**
Deepti Rawat*, Keshav Gupta*, Aryamaan Basu Roy, Ravi Kiran Sarvadevabhatla

MyEye2Wheeler: A Two-Wheeler Indian Driver Real-World Eye-Tracking Dataset — **IEEE ITSC 2024**
Bhaiya Vaibhaw Kumar, **Deepti Rawat**, Tanvi Kandalla, Aarnav Nagariya, Kavita Vemuri

Experience

Qualcomm Technologies Inc. — **May 2025 – Nov 2025**
Research Intern — *Bangalore, India*

- Designed surround-view, camera-centric 3D perception algorithms for autonomous driving.

Pushpak.AI — **Mar 2021 – Dec 2022**
Data Scientist — *CIE, IIIT-Hyderabad, India*

- **Intelligent Traffic Monitoring System.** End-to-end monitoring stack for heterogeneous Indian roads, deployed with law enforcement agencies; vehicle detector trained on 1M+ annotated instances across 15+ classes.
- Built a multi-object tracking pipeline with hybrid post-processing that raised MOTA under low-light and glare, plus violation detection for helmetless riding, red-light jumping and triple riding, and a custom ANPR system.
- Optimised the pipeline for edge inference with DeepStream, TensorRT, TorchScript and TFLite; deployed on Jetson Nano, Raspberry Pi and mobile.
- **E-commerce Visual Intelligence.** Weakly supervised apparel tagging and visual search over CNN embeddings (VGG16, ResNet) with KMeans/DBSCAN clustering; U^2-Net, MODNet and UNet background removal measurably improved cluster purity and retrieval accuracy.

CSIR-Central Electronics Engineering Research Institute — **Jul 2018 – Oct 2020**
Research Trainee, then Research Assistant — *Pilani, India*

- **Health Monitoring System (DST-funded).** Portable IoT system for acquiring and visualising vital health parameters for elderly and rural women's care, with Android and PWA front-ends. Guided by Dr. Jagdish Lal Raheja.
- **Gas-Leak Detection System.** IoT ammonia leak detector (ATMEGA32, HC-05, NodeMCU) with UART sensor-to-cloud transmission via Firebase and mobile alerting. Supervised by Dr. Bhausaheb Ashok Botre.

Technical Skills

Programming: Python, C/C++
Libraries & Frameworks: PyTorch, OpenCV, TensorRT, TorchScript, TFLite, NVIDIA DeepStream
Edge & Embedded: Jetson Nano, Raspberry Pi, Android, Firebase

Awards & Mentoring

Finalist, Telangana Forest AI Grand Challenge: team wildlife monitoring system with species identification, human intrusion detection, and predictive analytics for wildlife location forecasting — 2022
Mentor, TalentSprint: guided working professionals through applied AI/ML projects — 2025