Pranav Mallela

Computer Vision Engineer • ML Engineer

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EDUCATION

University of Michigan   **Ann Arbor, MI**
*Computer Science and Engineering **M.S.** GPA: 4.0 / 4.0*   *Aug. 2024 – May 2026*
Coursework: Self-Driving Cars, AI for Science, Mobile Robotics
Activities: Autonomous Robotic Vehicle Computer Vision Sub-Team, TechLab at MCity 2025 Cohort

Indian Institute of Technology (IIT)   **Ropar, India**
*Computer Science and Engineering **B.Tech** GPA: 8.77 / 10*   *Nov. 2020 – May 2024*
Coursework: Machine Learning, Artificial Intelligence, Data Science, Linear Algebra, Statistics, Probability

SKILLS & PUBLICATIONS

Programming Languages: Python, C, C++, Java, MATLAB, SQL.
Machine Learning Frameworks: PyTorch, OpenCV, Landing AI, TensorFlow.
Publications: Paper **accepted** at **European Conference on AI 2024** (ECAI 2024) in Human-AI Teams.

WORK EXPERIENCE

Honda Motor Company   **Marysville, OH**
Computer Vision Intern   *May 2025 – Aug. 2025*
- Automated bolted joint slip detection using OpenCV and Landing AI to allow a 400% speed-up.
- Integrated optical flow tracking with large-scale deep models to identify slip with 95% accuracy.
- Engineered a modular vision pipeline, promoting code reuse and rapid extension to future automation workflows.

MathWorks   **Hyderabad, India**
Software Engineer Intern   *May 2023 – July 2023*
- Revamped 150+ tests to efficiently exercise overlapping software functionality.
- Leveraged object-oriented software design to develop a testing framework which enabled backward compatibility.
- Spearheaded a team of 5 to build an interview platform in the Summer Hackathon and secured 2nd position.

PROJECT EXPERIENCE

Autonomous Robotic Vehicle (ARV)   *Jan. 2025 - Present*
Computer Vision Sub-Team Member
- Developed a semi-supervised learning pipeline for instance segmentation using YOLOv8 and a custom U-Net.
- Enhanced the labeled dataset size by 10x and reduced the labeling time by 50x, while preserving data quality.
- Built lane detection and waypoint generation modules using HSV color space filtering for downstream path planning.

Vision Language Model (VLM) for Highlight Extraction   *Jan. 2025 – April 2025*
Team Member
- Fine-tuned *Qwen* using LoRA and PEFT via Hugging Face Transformers for the extraction of soccer highlights.
- Utilized Flash Attention to enable a 4x reduction in memory usage, allowing training on small GPUs.
- Constructed a multi-modal fine-tuning dataset of 28k data points using soccer commentary and game footage.

Bicycle Theft Detection Model at College Hackathon   *October 2023*
Team Member
- Employed an autoencoder and LSTM pipeline to detect real-time suspicious activity with high accuracy.
- Developed an algorithm to calculate anomaly scores based on reconstruction loss and secured 1st position.

Large Language Model (LLM) for End-to-End Self-Driving   *November 2024*
Team Member
- Fine-tuned *Mistral* to improve accuracy of predicting the vehicle's next action by 15%.