YASH GOLANI

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SUMMARY

A machine learning and embedded robotics engineer with expertise in Python, data analysis, and applied AI solutions. With a strong background in Robotics and Automation, I build and optimize intelligent systems using data driven insights, and take clear ownership of system reliability, calibration processes, and evidence workflows in real world deployments and production environments responsibly.

SKILLS

Programming: Python, C, C++, Embedded C, Flask, FastAPI, React, JavaScript
Development & DevOps Tools: Kafka, Redis, Celery, PostgreSQL, Docker, Postman, Git
Machine Learning: Pandas, NumPy, Matplotlib**,** Scikit Learn, TensorFlow, PyTorch, Keras, XGBoost, LightGBM, OpenCV
Agentic AI: Hugging Face, LangChain, RAG, LLM, VLM (Qwen-VL / LLaVa)
Soft Skills: Ownership | Stakeholder management | System design

PROJECTS

- **Object detection using Turtlebot 4:** Operating through ROS with real time perception and object classification using YOLO V8n.
- **Smart Agriculture System:** Automatic hydroponics system with monitoring using ESP32, sensors, ML, & Firebase integration.
- **Spider Mimic Quadruped:** Developed a four-legged bio inspired robot mechanical modeling using Arduino, IoT, & AutoCAD.

EXPERIENCE

ESSI Integrated Technologies | PLC Programming - Systems Engineering Intern | New Delhi *June 2025 – May 2026*

1. Radar Based Speed Detection and Evidence System

- Built a production grade radar and camera-based speed enforcement system using TI mmWave radar, providing multi object tracking up to 20 targets, and configurable business logic, delivering 50 ms decision latency in real world roadside trials.
- Developed a Flask and JavaScript dashboard for real time monitoring, analytics, and violation review, supporting hundreds of evidence records with structured, review ready bundles for field workflows and enforcement reporting.
- Integrated and stabilized radar pipelines with robust parsing, point cloud processing, Doppler analysis, and multi firmware handling across 3 hardware variants and multiple firmware versions, validated on a 100 m × 40 m road coverage area.
- Improved system reliability with watchdogs, health checks, and automated crash recovery, achieving 95% uptime over 3 months with average service recovery in ~2 minutes, enabling long running continuous operation over months.
- Implemented radar camera calibration and PTZ auto slew using mounting geometry, spatial offsets, and road alignment, achieving 90% target lock success under 2 seconds, with calibration taking minutes and performed weekly.

2. Automatic Number Plate Recognition (ANPR) and MLOps

- Worked on high throughput, low latency pipelines supporting 1600 cameras statewide, using Kafka for transport and Redis for state and caching, delivering end to end processing under 10 seconds for alert generation and downstream actions.
- Designed resilient microservices with automatic restarts and RTSP reconnection logic, maintaining 90% uptime over 3 months, with a continuous reconnection protocol that retries in 10 second cycles to handle unstable live feeds.
- Implemented a scalable multi camera analytics architecture using FastAPI and Docker, handling 25 FPS for VMS recording and 3-4 FPS for analytics per stream, with modular services across 4 core services for independent scaling.
- Fabricated an MLOps retraining platform with live ingest up to 10 GB, YOLO assisted auto annotation of 1000 images in 1 minute, GPU training in 2–3 hours, model benchmarking, and Ultralytics exports using FastAPI, Celery, Redis and Docker.

EDUCATION

B.Tech Robotics & Automation | Symbiosis Institute of Technology, Pune | **Grade:** 7.51 CGPA *September 2022 - May 2026*
Class XII | K.R. Mangalam World School, Ghaziabad, Uttar Pradesh | **Grade:** 70% *March 2021 - June 2022*
Class X | K.R. Mangalam World School, Ghaziabad, Uttar Pradesh | **Grade:** 90% *February 2019 - March 2020*