

Manas Sharma

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EDUCATION

Manipal Academy of Higher Education
Bachelor of Technology, Computer Science, 8.7 cgpa

Bengaluru
Jul 2023 - Present

EXPERIENCE

Machine Learning Intern

Reliance Industries Limited

Video Analytics Division

May 2025 - Jul 2025

- Built a real-time occupancy detection system using **YOLOv11** and **DeepSort** to track chair usage across **RTSP streams** and webcam feeds, achieving **30+ FPS** throughput with sub-second latency on GPU deployment.
- Designed a **Multi-Camera Manager** with spatial deduplication and priority-based conflict resolution to eliminate duplicate counts across overlapping FOVs, enabling unified analytics for multiple camera feeds.
- Implemented adaptive tracking with **motion blur detection**, reflection filtering, and position interpolation, improving tracking accuracy by **25%** in challenging lighting and occlusion scenarios.
- Developed a **FastAPI** backend with **WebSocket** real-time updates and **SQLAlchemy** persistence, generating comprehensive analytics including interaction ledgers and peak occupancy windows with automated cleanup utilities.

PROJECTS

Distributed Message Broker | *Go, Protobuf, gRPC*

- Built a distributed message broker using **HashiCorp Raft** for consensus and **partition sharding** for scalability, achieving **100K+ msg/sec** throughput with fault-tolerant streaming across **3-node clusters**.
- Implemented **leader-follower replication** with ISR; integrated **Gzip/Snappy/LZ4 compression** reducing storage by **60%** and achieving **sub-5s failover** times.
- Developed segmented commit logs with **log compaction** and fsync durability; built **Prometheus monitoring** and **Docker/Kubernetes** deployments supporting **1000+ partitions** with zero-downtime updates.

Fleet Vehicle Data Gateway | *FastAPI, Next.js, PostgreSQL, TypeScript, WebSocket*

- Built a production-grade real-time fleet monitoring system with **WebSocket streaming** for 50+ vehicles; achieved **sub-second latency** for GPS telemetry delivery with automated position updates on interactive Leaflet maps.
- Implemented **multi-provider OAuth 2.0** (Google, GitHub) with JWT authentication and **RBAC** for user/admin roles; designed intelligent geofencing with polygon-based boundary detection and enter/exit alerts.
- Deployed on **GCP Cloud Run** with **CI/CD pipeline** using **Cloud Build, Artifact Registry**, and Docker multi-stage builds; integrated Prometheus monitoring, structured logging, and health checks.

Marketplace Price Prediction | *PyTorch, FastAPI, Next.js, MongoDB, Docker*

- Trained a **BiLSTM + attention** model on **1.48M** product listings to predict prices from text and metadata, achieving **0.430 RMSLE** and beating XGBoost/LightGBM baselines.
- Built a FastAPI serving layer with rate limiting, caching, batch/CSV upload, and SHAP explanations; paired with a Next.js frontend for predictions and model dashboards.
- Automated hyperparameter search with Optuna (30+ trials with pruning) and exported models to ONNX.
- Dockerized the full stack with multi-stage builds and docker-compose; deployed on **GCP Cloud Run** with CI via GitHub Actions for linting, tests, and build checks.

TECHNICAL SKILLS

Languages: Go, Python, TypeScript, JavaScript, SQL, C++, Java, HTML/CSS

Machine Learning : LLMs, RAG, PyTorch, Scikit-learn, OpenCV, LangGraph, ONNX

Frameworks & Libraries: Next.js, React.js, FastAPI, Node.js, Tailwind CSS, LangChain, gRPC, Protobuf

Cloud & Infrastructure: Docker, Kubernetes, GitHub, Git, GCP, PostgreSQL, MongoDB, ChromaDB, Linux

Computer Fundamentals: Data Structures, OOP, DBMS, Operating Systems, Computer Networks

ACHIEVEMENTS & CERTIFICATIONS

- Solved **300+** problems on LeetCode and CodeForces.
- Led my team to secure a **Top 10** position in **Honeywell SDG Hackspace 2025** among 100+ teams
- **Certifications:** Deep Learning Specialization, Azure AI Fundamentals.