Sahil Mangla

98759-35734 | sahilmangla.official@gmail.com | linkedin.com/in/sahil-manglaa | github.com/sahil-mangla

Summary

Second-year Computer Engineering student at TIET with ability to build ML and full-stack systems for real-world problems—EV battery diagnostics, identity fraud detection, and more. International hackathon winner. Applies a disciplined problem-framing approach: define scope, constraints, and architecture before implementation. Driven by the conviction that sustainability and optimization are the defining engineering challenges of this decade.

Education

Thapar Institute of Engineering & Technology — Patiala, India
B.E. in Computer Engineering — *2024 – Present | CGPA: 8.3*

Projects

Volt-AI Battery Intelligence Platform
Python, Scikit-learn, LSTM, FastAPI, Docker, Matplotlib, Seaborn — **GitHub | Live Demo**

- Architected an end-to-end ML pipeline processing **10,000+ EV battery data points** to predict degradation and Remaining Useful Life (RUL) with **~90% accuracy**.
- Engineered **50+ domain-specific features** using Pandas & NumPy; optimized regression and LSTM models evaluated across RMSE, precision, and recall metrics.
- Reduced diagnostic latency by designing a **FastAPI REST layer** exposing real-time predictions; containerized with **Docker** for portable, production-ready deployment.
- Visualized battery degradation trends and RUL forecasts using **Matplotlib & Seaborn**, enabling clear stakeholder reporting of model performance.

Aadhaar Graph Anomaly Detection System | *Python, NetworkX, Scikit-learn, Pandas, Matplotlib* — **GitHub**

- Architected a **graph-based fraud detection system** modeling identity relationships as networks to surface anomalous clusters at scale.
- Optimized classification pipeline to achieve **~82% anomaly detection accuracy**; validated with precision, recall, and F1-score across model configurations.
- Engineered scalable **Pandas ETL pipelines** to ingest and transform large relational identity datasets for downstream ML inference.
- Visualized graph centrality distributions and anomaly clusters using **Matplotlib**, surfacing suspicious identity patterns for analyst review.

MyHeritage Passport | *Next.js, TypeScript, REST APIs, Vercel, AI-assisted Development* — **GitHub | Live Demo**

- Led development of a full-stack web platform in **Next.js + TypeScript** enabling discovery of **3,691+ monuments and 42 UNESCO sites** across India.
- Architected an interactive **map-based UI** with dynamic monument filtering, cultural heritage layers, and a digital passport stamp system.
- Optimized development velocity using **AI-assisted coding tools** (Cursor, Antigravity), reducing component iteration cycles and accelerating feature delivery.
- Implemented REST API integration for monument data ingestion; deployed via **Vercel** with an optimized build pipeline.

Achievements

Winner — AI for Sustainability Hackathon (International) — 2026
Canadian University Dubai — *Dubai, UAE*

- Led end-to-end development of an AI sustainability solution under tight constraints; delivered a working prototype that secured 1st place among 200+ international teams.

Winner — TIET Business Hackathon — 2024
Thapar Institute of Engineering — *Patiala, India*

- Architected and pitched a cross-company collaboration business model in a single night; led cross-functional validation of key assumptions to secure 1st place.

Technical Skills

Languages: Python, C/C++, JavaScript, TypeScript, HTML/CSS
Data Viz: Matplotlib, Seaborn
Infrastructure: Docker, Git, Vercel, pytest
AI Tooling: Cursor, Antigravity, Stitch
ML & Data: Scikit-learn, LSTM, Regression, Classification, Pandas, NumPy
Web & Backend: Next.js, FastAPI, REST APIs
Databases: PostgreSQL, OracleDB

Certifications

Supervised Machine Learning: Regression and Classification — DeepLearning.AI / Stanford University **[Credential]**