GOPAL GUPTA

Data Scientist & Machine Learning Engineer | Computer Vision | LLMs | Real-Time AI Systems

Data Science enthusiast with experience building YOLO-based object detection and graph-powered RAG agents, blending practical engineering with cutting-edge AI research concepts.

SKILLS

- **Languages:** Python, C++, C, SQL.
- **Frameworks & Platforms:** TensorFlow, Flask, FastAPI, YOLO, DeepSORT, LangGraph, LangChain.
- **Libraries:** Pandas, Scikit-learn, XGBoost, Transformers, Scikit-image, Matplotlib, Seaborn, Pickle.
- **Tools:** Jupyter Notebook, Google Colab, Tableau, Power BI, Overleaf.

PROJECTS

Feature Importance & SHAP Analysis | RandomForest GitHub
- Built and evaluated **ML models** on a real-world clinical dataset for **heart failure risk prediction**.
- Performed data preprocessing, and model evaluation using appropriate performance metrics.
- Applied **SHAP** to deliver transparent, interpretable model insights for global and local predictions.
- Compared feature importance with SHAP explanations to support data-driven decision making.

Agentic Graph RAG | LLMs & Knowledge Graphs GitHub
- Built Agentic Graph **RAG** system with **LLMs, LangGraph, and Neo4j** for intelligent reasoning.
- Implemented dynamic pipelines to retrieve documents, query databases, and generate responses.
- Enabled modular, scalable, end-to-end RAG workflows with **Python, APIs, and knowledge graph**.
- Deployed system supporting LLM decision-making, RAG retrieval, and graph-based knowledge.

Credit Card Transactions Fraud Detection | CatBoost GitHub
- Built a **ML model** to detect **fraudulent credit card transactions** using a real-world Kaggle dataset.
- Applied preprocessing, feature engineering, and class-imbalance handling to improve accuracy.
- Trained and compared including **XGBoost** and **CatBoost** models using precision-focused metrics.
- **CatBoost** achieved **95.6% recall** and **0.84 F1** on val, and **71.3% recall** with **0.73 F1** on test data.

INTERNSHIP

Computer Vision Intern — PAWAC Drones Remote | Jun, 2025 – July, 2025
- Developed **YOLOv8**-based detection models for **vehicles, number plates, and weapons** using TensorFlow for drone-based surveillance applications to improve security in urban areas.
- Designed and implemented complete data and model pipelines — including data collection, preprocessing, augmentation, annotation, training, and evaluation.
- Collaborated with the deployment team to test trained models for **real-time performance**.
- Established the foundation of Computer Vision workflows at PAWAC Drones, creating reusable datasets, scripts, and documentation for future projects.

Academic Profile

Degree/Certificate	Year	Institution	%/CGPA
B.Tech	2022–2026	Mechanical Engineering IIT BHU, Varanasi	7.28 (I-VI Sem)
CBSE (Class XII)	2021	Shining Glorious Scholars Public School	84.6%
CBSE (Class X)	2019	Shining Glorious Scholars Public School	84%

LinkedIn | Email | GitHub | Kaggle | Codeforces | HackerRank