Kumkum Mishra

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EDUCATION

BTech CSE	Sharda University, Uttar Pradesh	CGPA: **9.10**	August 2023 - August 2027
Intermediate(CBSE)	Govt. Girls Senior Sec. School, Delhi	CGPA: **9.14**	April 2022 - April 2023
High School(CBSE)	Rajkiye Sarvodaya Kanya Vidhyalaya, Delhi	CGPA: **9.08**	April 2020 - April 2021

PROFESSIONAL SUMMARY

Machine learning engineer with experience in **deep learning**, **large language models**, and applied research, building production-grade **machine learning pipelines** across finance, **program analysis**, and **sustainability-focused applications**, with a strong focus on scalability, performance optimization, and efficiency.

SKILLS

Languages: C++, Python, SQL
AI/ML: Data Preprocessing, Computer Vision, Natural Language Processing (NLP), Clustering, Predictive Modeling, LLMs, Transformers, Model evaluation, Hyperparameter tuning, Experiment tracking, Data pipelines.
Frameworks & Libraries: PyTorch, Scikit-Learn, Pandas, NumPy, Matplotlib, Streamlit, Flask.
Platforms: Jupyter Notebook, Visual Studio Code, Google Colab, Kaggle
Tools: MS Excel, MS Word, Git, GitHub, PowerPoint, MySQL, SQLite
Soft Skills: Technical Leadership, Clear Technical Communication, Deadline-Driven Execution.

WORK EXPERIENCE

Freelancing - Upwork   September 2025 – December 2025 (Remote)
Freelance Machine Learning Engineer – LLM Systems | Deep Learning

- **Quantitative Trading Model (NIFTY Options Prediction)**
  Built a **TCN-based** deep learning model to predict NIFTY CALL/PUT probabilities using 1 year (2024) of **high-frequency** (1-second) market data, **engineered 30+ technical indicators** and sliding-window **time-series datasets**.
  Implemented **GPU-accelerated training**, evaluation, and **inference pipelines** with performance analysis for **real-time trading** use cases.
- **Automated Program Repair with Quantized LLMs**
  Designed and implemented an end-to-end automated program repair pipeline for Python and Java using **CodeT5**, covering bug localization, patch generation, and validation on **40+ benchmark programs**.
  Extended a research paper implementation with energy consumption tracking (CodeCarbon), cloud-GPU scalability, and comprehensive evaluation metrics for 10 LLM/SLMs models.

Birla Institute of Technology and Science, Pilani (BITS Pilani)   April 2025 – July 2025 (Remote)
Research Intern – **Machine Learning | Deep Learning | Semantic Segmentation | PyTorch**

- Contributed to the **confidential Image Analysis for Indian Driving Environments** research project, applying computer vision techniques on real-world driving data to derive insights while strictly adhering to academic research standards and institutional IP policies.

PROJECTS

NeuroDigest — Personalized Content Digest & Learning Assistant   July-2025 – October-2025
Project – **FastAPI | Streamlit | SQLModel (SQLite) | Groq/Ollama (LLMs) | requests | Docker**   GitHub

- Built a full-stack personalized digest and learning assistant that aggregates Hacker News, Reddit, and RSS feeds, converts user engagement into a compact user knowledge profile (UKP), and generates weekly LLM-powered learning roadmaps with role-specific plans and AI-graded practice, processing **30+ news items weekly**. Improved system usability and reliability through session-state caching, safe Streamlit reruns, defensive schema handling, and routing fixes to deliver a stable, responsive end-to-end learning workflow.

ShareWay — Smart Carpooling Platform   October-2025 – November-2025
Project – **OpenStreetMap | Aadhaar e-KYC | Carbon Tracking**   GitHub

- Accomplished an **AI-powered carpooling** platform enabling users to book or offer rides through intelligent route and time matching. Integrated secure Aadhaar-based identity verification, in-app payments, and dual driver–passenger modes. Designed a reward system offering cashback and points for rides and a **CO2 impact tracker** to promote eco-friendly commuting and reduce carbon emissions in urban areas.

ACHIEVEMENTS & HACKATHONS

- **Cyber Cup 5.0(Amity University): 2nd Runner-Up** for an AI carpooling system reducing traffic and carbon emissions.
- **SIH 2025: Internal level finalist** for building a sustainable AI carbon-aware prompting tool.
- **Recommendation letter** from **BITS Pilani.**

CERTIFICATES

• Oracle Cloud Infrastructure 2025 Certified AI Foundations Associate | Certificate	October 2025 – October 2027
• Oracle Cloud Infrastructure 2025 Certified Generative AI Professional | Certificate	October 2025 – October 2027
• Machine Learning A–Z: AI and Python | Certificate	January 2025 – February 2025
• PyTorch for Deep Learning Bootcamp | Certificate	June 2025 – July 2025