HIMANSHU GUPTA

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Education

B.Tech, Computer Science Engineering   **2023–2027**
MIT World Peace University, Pune
CGPA: 8.06 / 10

Coursework: Data Structures, Algorithms, Operating Systems, Computer Networks, DBMS, Machine Learning, Deep Learning, NLP, Big Data, Unix/Linux, Full-Stack, Embedded Systems & IOT, Software Design, Big Data.

Experience

PropertyLens.in | *Full-Stack Lead* 🔗   **(Full Stack – React, Native, Node, SQL, GCP)**
Project: Build end-to-end property listing website.   *Jun 2025 – Aug 2025*

- Led development of a full-scale property listing platform, improving homepage performance (LCP reduced from 4.2s to 1.3s) and reducing bounce rate by 18% across 5k+ MAUs.
- Optimized database queries and indexing, cutting search latency by 90% (480ms to 45ms).
- Scaled backend to handle 1,200+ requests/sec using Redis caching and compression, lowering cloud costs by $11k/month.
- Streamlined CI/CD with GitHub Actions and Docker, reducing deployment time from 20min to 4min and enabling frequent, safe releases.

National Astronomical Observatory of Japan | *ML Research Intern*   **(Research - LSTM, CGAN, VAE)**
Under Prof. Maria Giovanna Dainotti   *Dec 2024 – Apr 2025*

- Implemented Bi-LSTM, CGAN, and Sarimax Kalman filter for GRB (Gamma Ray Burst) light curve reconstruction.
- Reduced GRB plateau parameter uncertainties by up to 40% vs baseline parametric fits, improving downstream cosmological analysis fidelity.
- Tuned Variational Autoencoder + LSTM with skip connections & expanded layers; lowered reconstruction MSE from 0.56 to 0.03.

Publications and Conferences

- **Reconstruction of Gamma Ray Burst Lightcurves: A ML/DL Approach** [Link]   **2024–25**
- **Review of Methods for Weapon Detection Using X-ray Imaging** [Link]   **2024**

Projects

Fake News Classifier [Link]   *Python, Keras/TensorFlow, scikit-learn*

- ∗ Built NLP pipeline on labeled news dataset; LSTM (one-hot + embeddings) baseline 90.9% accuracy; Conv1D-BiLSTM w/ dropout improved to 91.2%.
- ∗ Feature-engineered TF-IDF & CountVectorizer text representations; Random Forest ensemble reached 93.18% accuracy (best fold).

Enhancing LLMs with RAG and Efficient Fine Tuning Techniques [Link]   *Python, LLM, RAG*

- ∗ Enhanced LLM accuracy with RAG and fine-tuning (LoRA, qLoRA), improving performance and reducing costs
- ∗ Evaluated Mistral (7B), GEMA, & Llama2, showcasing RAG and fine-tuning effectiveness in boosting performance

RAG-Based Ipad Q&A Chatbot [Link][Live]   *Python, RAG, LLM, Streamlit*

- ∗ Developed a RAG-based Q&A chatbot on Streamlit for Apple's latest iPads, integrating web scraping, chunking, dual embedding backends (Gemini & Sentence-Transformers), cosine similarity over a JSON vector database, and Gemini LLM to deliver grounded, citation-backed answers.
- ∗ Enhanced with key features like iPad Pro vs Air comparisons, customizable persona/branding, lightweight deployment, and an interactive chat UI with source panel and real-time responses.

Skills and Expertise

- **Programming Languages**: HTML, CSS, C, C++, JavaScript, Python.
- **Systems & Tools**: Unix/Linux, Git GitHub, GitHub Actions (CI/CD), Bash, PostgreSQL, MySQL, GCP, Hadoop.
- **Frameworks / Libraries**: React.js, Node.js/Express, Tailwind CSS, Flask, Pandas, NumPy, Matplotlib, scikit-learn, TensorFlow/Keras, PyTorch, OpenCV, Statsmodels.

Technical Achievements[Link]

- **LeetCode**: Solved 150+ Data Structures & Algorithm problems in C++ ranging from Easy to Hard level.🔗
- **Hackerrank Badges**: Achieved 5-Star rating in Data Structures & complex Algorithms Problem-Solving and in C++ language.🔗
- **Visionary TechFest VU×Binghamton University'24**: Secured 2nd position in 8 hrs hackathon. Built a phishing detection Chrome extension software with backend APIs for fraud scoring using VirusTotal.
- **Hack-MITWPU'25 (Hack-AI-Thon)**: Secured 2nd Position. Built an end-to-end AI-powered dynamic routing system for the Indian military.
- **Smart India Hackathon'24**: Built a real-time vehicle detection and traffic density analysis. Optimized traffic signals dynamically based on traffic density, with real-time graphical data.