Mudit Gupta

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Education

- **Manipal Institute of Technology** — India
  B.Tech in Data Science; CGPA: 8.2 — *2022 - Present*
- **Dhruva Public School** — India
  12th Grade; Grade: 85% — *2020 - 2021*
- **DPS Gautam Buddha Nagar** — India
  10th Grade; Grade: 91.8% — *2016 - 2019*

Experience

- **STAQO** — On Site
  AI Intern

– **Foam Defect Detection and Density Calculator (June 2025 - Present)**: Developing a YOLO-based object detection model at the Sleepwell factory, including custom dataset creation. Integrated the system into a real-time pipeline using Intel RealSense camera with depth estimation capabilities.

– **AI Visualization Tool (May 2024 - July 2024)**: Developed an LLM-powered chart recommendation system with Highcharts integration for sales data visualization.

Research Papers

- **Sleep Stage Classification Using In-Ear EEG Data (Publication in Progress)**:
  – Developed a novel approach for sleep stage detection using in-ear EEG data with **86% accuracy**.
  – Achieved **Cohen's kappa of 0.82**, representing state-of-the-art performance in the field.

Projects

- **MultiModal Retrieval Augmented Generation using Llava LLM (GitHub)**:
  – Developed a multimodal Retrieval-Augmented Generation (RAG) pipeline with optimised performance using Llava LLM for text, audio, and image processing.
  – Achieved 92% information retrieval accuracy across diverse data modalities
  – Tools used: OpenAI Whisper, gTTS, Gradio, BitsAndBytes, Accelerate.
- **AI Travel Planner – Multi-Agent System : (GitHub)**:
  – Developed a sophisticated multi-agent travel planning system using LangGraph and Streamlit, featuring a Supervisor Agent, Flight Agent, Hotel Agent, and Itinerary Agent to collaboratively plan and optimize travel itineraries.
  – Integrated real-time flight and hotel data via SerpAPI, and supported both OpenAI and local Ollama (Llama 3.2) for flexible language model processing, enabling natural language input and comprehensive itinerary generation.
  – Tools used: LangGraph, Streamlit, SerpAPI, OpenAI, pydantic.
- **Chicago Traffic Crash Analysis using PySpark (GitHub)**:
  – Analyzed traffic crash data to identify peak patterns—3–7 PM, weekends (22 % higher), and Friday evenings (18% of weekly crashes)—along with seasonal and geospatial hotspots.
  – Uncovered key causes such as failure to yield (24%) and driver error (63 %), informing safety strategies for high-risk zones.
  – Tools used: Hadoop, PySpark, Jupyter Notebook, Folium, Matplotlib.

Technical Skills

- **Programming**: Python (Advanced), C++ (Intermediate), SQL (Intermediate), NoSQL
- **Data Science**: Statistical Analysis, Data Visualization, EDA, Feature Engineering, Dimensionality Reduction
- **Machine Learning**: Regression, Classification, Clustering, Probabilistic Models, Ensemble Methods
- **Deep Learning**: Neural Networks, CNNs, RNNs, LSTMs, GRUs, Encoder-Decoder Models, Transfer Learning, Transformers
- **Generative AI**: Open-Source Models (Llama 3.2, Mistral-7B, Gemma, Llava), Commercial APIs (GPT-4-Turbo, Claude Sonnet), Libraries (LlamaIndex, LangChain, LangGraph, Ollama)
- **Tools & Platforms**: Git, MongoDB, Oracle SQL, Hadoop, PySpark, Jupyter, VS Code, Google Colab, Linux

Certifications

- **Introduction to Computer Vision and Image Processing (Certificate)**:
- **Big Data Specialization**:
  - Introduction to Big Data (Certificate)
  - Big Data Modeling and Management Systems (Certificate)
  - Big Data Integration and Processing (Certificate)
- **Reinforcement Learning Specialization**:
  - Fundamentals of Reinforcement Learning (Certificate)
  - Sample-based Learning Methods (Certificate)
- **Introduction to LangGraph (Certificate)**:

Achievements

- **Project Sahyog - Manipal Hackathon Finalist (GitHub)**:
  - Qualified into the top 20 out of 300 teams (1200+ participants) in a pan-India Hackathon.
  - Developed a platform to empower SMEs by providing essential tools and resources, fostering collaboration, and integrating three major components: a Business Directory(RAG pipeline, live chat, and an inbuilt marketplace with ONDC integration.
  - Tools used: MERN stack, Flask, Ngrok, Llamaindex, Sockets.io, Python, Vercel
- **Smart India Hackathon**: Qualified the university round, creating an AI agent to traverse through complex legal queries.
- **Inter-Department Table Tennis Tournament**: Winner out of 30 branches and 10+ fixtures

Leadership & Co-curricular Activities

- **Startup Dev Head: Ecell MIT**:
  - Spearheaded the development of the Business Clinic pipeline, transforming ideas into viable startups. Conducted market testing with 60+ students, refining effectiveness and scalability. Managed **15+ startup clients** in 3 months
  - Led team of 20+ executives, fostering collaboration and enhancing organizational capabilities
  - Executed Pitch Tank event with **450+ participants, 15 finalists, and 17 VCs**, managing ₹1.5L prize pool
  - Coordinated Innovation Mela: **1.5km expo with 140+ stalls** showcasing MSMEs, startups, and research projects
  - Developed **Startup Chatbot** (GitHub) using LlamaIndex & ChromaDB, serving 25,000+ attendees with comprehensive startup details during Innovation Mela
  - Launched Startup Scoop newsletter (2k+ subscribers) and organized startup competition series
- **Fitness Enthusiast**:
  - Maintain consistent workout routine combining gym training, yoga, and badminton
  - Won inter-department table tennis tournament against 30+ teams