

Upasana Banerjee

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Experience

AI Intern, Healtether Health, Chennai, India (Jan 2025 - Jan 2026)

- Assisted in building the clinical diagnostic system for patient differential diagnosis using multi-agent framework which utilized GraphRAG over 68000 disease symptoms relationships extracted from SNOMED CT, AIIMS Bhubaneswar and 20+ hospitals in Tamil Nadu.
- Helped to reduce false positives of the diagnostic system by 1.2 times by synthetic oversampling of undersampled rare diseases.
- Built the doctor-patient realtime report generation system using Google medASR model and disease-symptom med-GraphRAG for faster diagnostic report generation with multilingual support for Hindi, Bengali, Tamil, and Telegu.

Data Science Intern, Praxis Business School, Kolkata, India (May 2022 - Aug 2022)

- Gained practical knowledge in Hadoop, Big Data, and MapReduce.
- Created a blog post and a Colab notebook demonstrating MapReduce with Python.
- Implemented Machine Learning pipelines using Spark (Transformers, Estimators, Logistic Regression).
- Built complex pipelines combining Logistic Regression, Random Forest, and Gradient Boosting.

Education & Honors

Neotia Institute of Technology Management and Science, West Bengal, India

Bachelor of Technology in Electronics and Communication Engineering (Aug 2019 - July 2023)

Cumulative GPA: **8.5/10.0**

- Won 2nd position at Amazon ML Hackathon 2021 hosted at HackerEarth
- Won 2nd position at NITMAS Sankalpa Hackathon 2022 for building emotional sentiment analysis system from realtime voice transcription.

Skills

- Programming Languages: Python, C/C++, R
- Backend & Databases: FastAPI, PostgreSQL, Neo4j, Chromadb
- Machine Learning & AI: TensorFlow, PyTorch, LangChain, HuggingFace, vLLM, Scikit-Learn, smolagents, LangGraph, OpenAI Agent SDK, trl
- Cloud & Data Engineering: AWS, BigQuery, Terraform, Databricks
- DevOps: Docker, Kubernetes, Github Actions, Terraform.

Projects & Publications

- **Personalised Fashion Recommendation System:** Developed a deep learning-based fashion recommendation system that generates clothing suggestions from image input. Used CNN and Transfer Learning with ResNet on the ImageNet dataset to extract visual features. Implemented a content-based filtering model to recommend visually similar items.
- **Agentic Web Browser:** AI powered web browsing agent that accepts website URL and performs user-defined browsing tasks including research and form filling built with smolagents, fastapi and helium headless browser.
- **TicketBot:** An end-to-end pipeline for analyzing app reviews using LLM-powered topic discovery, clustering, and trend analysis.
- **Medicine Price Checker:** Medicine price checker in Indian marketplaces and finding cheaper alternative based on the primary drug component powered by TinyFish Web Agent.
- **VideoRAG:** RAG on youtube videos with structural and semantic filters with Qdrant as multimodal embedding store.