Ark Malhotra

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ark-malhotra/

SqrtNegativOne

Education

B.Tech   **Netaji Subash University of Technology**, CSE   Aug 2024 – June 2028
   - CGPA: 8.3 (1+2 semesters)

Experience

ML Department Mentor, Google Developer Student Club NSUT   Nov 2024 – present
- Contributed to society projects such as **makemore** (character level text generator using **PyTorch**), AI factchecking, and the code for the Zero Day Apocalypse competition under the society's flagship event.
- Managed recruitment for 600+ applicants in the ML department, selecting less than 20 after coding a dataset for the Kaggle competition witnessing participation from 200+ teams from 4 countries, and conducting interviews.
- Ranked **top 17%** in an international ML Kaggle competition with a team of three, using libraries such as scikit-learn, pandas, numpy, matplotlib, and seaborn for EDA and baseline models.

ML Engineer, Team Debugging Society   Oct 2024 – present
- Organised and helped judge an inter-college data science ML competition with 50+ participants.

Projects

Backend for FloatChat: Conversational Interface for Oceanographic Data Visualisation   Sept 2025 – Oct 2025
SIH 2025 Project
- Brainstormed with a 6-member team under a strict time limit to deliver a functional prototype for SIH 2025.
- Selected as one of the top 90 teams from over 200 teams in the college.
- Used **FastAPI** to build a **REST API** backend for modularity and compatibility with various frontends.
- Exposed an **MCP** interface to allow AI agents to connect with ARGO Oceanographic **API endpoints**.
- Used **PydanticAI** and **LangChain** to implement efficient **RAG** pipeline for context retrieval and response generation.
- Used **Docker** for containerization and easy deployment.

Modular AI Factchecking Pipeline   June 2025 – July 2025
Python backend for an AI factchecking app.
- Implements a modular architecture for integration of web-scraping, NLP-based semantic search, and either LLM-based or NLI-based claim verification.
- Used local LLMs through **Ollama** for cost-efficiency.
- Used **LangChain** for **RAG** to achieve better accuracy and context-awareness.

Personal Website   Oct 2024 – July 2025
Portfolio website and blog
- Built using **HTML**, **CSS**, and **Typescript** with the Eleventy framework for blogging.
- Implements responsive-design, a markdown engine, and an RSS feed.

Hand Cricket Multi-Agent Bandit model   June 2025 – June 2025
Python backend for a Multi-armed-bandit using Experts-As-Arms to beat you at Hand cricket.
- Statically typed game-theoretic agent to win at Hand cricket by analyzing patterns in players' moves.
- Multi-armed-bandit using Experts-As-Arms model composed of **PyTorch neural networks**, n-Gram expert-models, and other heuristics weaved through the Hedge algorithm.

Skills

Languages: C++, C, C#, Javascript, Typescript, Python

Technologies: HTML, CSS, Javascript, Typescript, Python, Tailwind, Svelte, Git, Docker, FastAPI, REST API, Django, LangChain, PydanticAI, Numpy, Pandas, Scikit-learn, PyTorch, Matplotlib, Seaborn

Core Concepts: Machine Learning, Artificial Intelligence, Backend, MCP, RAG, Object Oriented Programming