Manvik Talwar
AI/ML Engineer

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Computer Science student focused on Generative AI and MLOps with hands-on experience building and shipping production AI systems.

Work Experience

AI Development Intern   Jun 2025 - Aug 2025
Path Infotech

- Designed, built, and deployed a production-ready AI chatbot leveraging Azure OpenAI, Azure Cognitive Search, and Azure Blob Storage; the solution is live on company servers and prepared for commercialization.
- Ensured 99.9% uptime while supporting 100+ concurrent users, engineered backend services that reduced API response times by 25% through optimized routing and compact payload handling, and implemented automated CI/CD on Azure App Service to cut release lead time.
- Led ingestion and semantic indexing of internal documents, implemented a RAG-enabled query pipeline with clickable citations, and collaborated with frontend and product teams to ready the product for customer rollout.

Projects

Deep Learning Based Watermarking with DWT and CNN

- Architected a production-grade image security system using a convolutional encoder-decoder architecture to embed invisible binary watermarks, ensuing secure authentication of digital assets.
- Achieved high imperceptibility with a PSNR exceeding 40dB, leveraging specialized loss functions during training to maintain original image quality while ensuring the watermark remains undetectable to the human eye.
- Engineered a robust extraction pipeline resilient to digital attacks, including gaussian noise, JPEG compression, and cropping etc by integrating Digital Signal Processing techniques and OpenCV for feature extraction.

FloatChat — ARGO Ocean Data Explorer

- Architected a full-stack conversational interface to query ARGO oceanographic datasets with a local RAG pipeline (Qwen LLM + ChromaDB).
- Implemented FastAPI backend, PostgreSQL for structured metadata, and interactive Streamlit visualizations.

Core Skills

C/C++, JavaScript, Python, SQL, FastAPI, Flask, HTML/CSS, React, Streamlit, Azure App Service, Azure Cognitive Search, Azure OpenAI Service, CI/CD, Docker, Git, Hugging Face Transformers, LLM Quantization, Pandas, PyTorch, Retrieval-Augmented Generation (RAG), Scikit-learn, TensorFlow, Vector Databases (ChromaDB & FAISS), MongoDB, PostgreSQL, SQLite

Education and Awards

Manipal University Jaipur   Aug 2023 - Aug 2027

Bachelor of Technology Artificial Intelligence and Machine Learning

- 3 x Student Excellence Award