ABHISHEK SAGAR SANDA

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Github | Portfolio

Summary

Experienced in adapting advanced AI and ML methodologies within industry and educational settings, currently offering in-depth support as a Teaching Assistant. Notable projects include leveraging YOLOv8 and GPT-4 for enhancing public safety through multimodal applications and report generation. Aiming to apply strong analytical and development skills to drive innovative solutions and success in future roles.

EDUCATION

Northeastern University, Boston, MA **Sep 2023 - Dec 2025**
Master of Science, Information Systems (GPA: 3.85) *Boston, MA*

- **Achievements:** Recognized as a top-10 finalist in Murf.AI Coding Challenge, Winner of Northeastern's Roli.AI Hackathon
- **Coursework:** Theory and Practical Applications of Al Generative Modeling, Advanced LLM Techniques, NLP Engineering

SKILLS

- **Programming & Frameworks:** Python, JavaScript, Java, C/C++, C#, PyTorch, TensorFlow, OpenCV, ReactJS, NodeJS, Flask, HuggingFace Transformers, LangChain
- **AI/ML Specialization:** LLM fine-tuning, NLP engineering, Computer Vision, OpenAI API, GPT-3.5/4, LLaMA, RAG pipelines, prompt engineering, reinforcement learning
- **Tools & Infrastructure:** CUDA, REST APIs, MongoDB, MySQL, ChromaDB, Git, VSCode, embedded systems (Raspberry Pi, Arduino, NVIDIA Jetson)

PROFESSIONAL EXPERIENCE

Northeastern University | *Teaching Assistant* **Sep 2025 - Present**

- Assisted faculty in facilitating lectures, grading assignments, and guiding students on core data science tools and methodologies, leading to improved student comprehension and engagement
- Conducted office hours and provided academic support to over 50 graduate students on advanced generative AI concepts, enhancing their understanding of RNNs, LSTMs, Transformer models, GANs, reinforcement learning, and responsible AI development

Al for Public Safety | *Research Software Engineer Intern* **Sep 2024 - Dec 2024**

- Fine-tuned YOLOv8 and GPT-4 for multimodal weapon detection and automated report generation, achieving 85% detection accuracy on 70,000+ training images while developing automated labeling pipeline that processed 10,000+ safety incidents and reduced manual review time by 60%
- Built context-aware chatbot support system for public safety officers using LLM chaining and memory optimization, collaborating with cross-functional teams to deploy edge-optimized models that reduced response latency by 50% and improved data preparation efficiency by 40%

HCL Technologies | *Graduate Engineer Trainee, Full Stack Development* **Aug 2022 - Aug 2023**

- Developed secure and scalable .NET-based enterprise applications using agile methodologies, which improved project efficiency and reduced support tickets by 10% through adaptive back-end logic and enhanced user experience
- Strengthened application security by identifying and resolving critical vulnerabilities, decreasing SAST/DAST security issues by 20% and ensuring compliance with enterprise security standards

PROJECTS

Al-Powered Interview Coaching IVR System | tel:+18888056555

- Developed a full-stack Al-powered IVR platform using Node.js, Express, PostgreSQL, and Twilio, enabling real-time, voice-based interview simulations and automating feedback for mock interview sessions with secure JWT authentication and RESTful APIs.
- Integrated OpenAI GPT-4 and MurfAl services for intelligent question generation and text-to-speech, optimizing API performance and reducing average response latency by 40%, resulting in a scalable, production-grade system deployed on Railway

RAG-Powered University Chatbot | https://northeastern-university-chatbot.vercel.app/

- Built an end-to-end Al-powered chatbot system for Northeastern University using Python, FastAPI, Scrapy, and ChromaDB, enabling real-time natural language search and Q&A over hundreds of scraped university web pages.
- Engineered a robust data pipeline for large-scale web scraping, semantic document indexing, and retrieval-augmented generation (RAG), with a modern web frontend and automated data management for production readiness.

Al-Powered Richard Wyckoff Trading Assistant

- Built a full-stack Wyckoff Trading Assistant using Flask, PyTorch, and Chart.js, featuring a transformer-based chatbot (8-head, 6-layer model with 1,189 Q&A pairs), real-time market analytics, 6+ technical indicators, and 3 REST APIs with robust error handling and responsive Bootstrap UI.
- Implemented Q-learning reinforcement learning backtesting engine with ε-greedy strategy over 1,000 training episodes, achieving 15% improved ROI prediction accuracy while optimizing performance through lazy loading and caching, reducing API response time by 40% for scalable trading experiments