Niveditha Nerella

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PROFILE

I turn data into decisions. Data Scientist with a strong focus on building end-to-end production-ready solutions using machine learning, AI and NLP. Experienced in model development, deployment, data pipelines, and visualization, with a passion for translating complex data into meaningful business insights. Actively seeking full-time opportunities starting May 2026.

EDUCATION

Purdue University, M.S., in Computer and Information Technology GPA: 3.9 / 4.0 — Aug 2024 – May 2026
Mentor, ML@Purdue | Graduate Teaching Assistant for Calculus II
Relevant Courses: Deep Learning, Data Mine (with Caterpillar Inc.), NLP, Explainable AI, Applied Generative AI

National University of Singapore, B.S. (Honors), in Data Science and Analytics — Aug 2019 – May 2023
Minor in Computer Science, Study Abroad with Purdue University
Relevant Courses: Machine Learning, Data Science, Artificial Intelligence, High Dimensional Data Analysis

PROFESSIONAL EXPERIENCE

Purdue's Rosen Center for Advanced Computing (RCAC), Graduate Data Science Intern — May 2025 – Present
- **Fine-tuned and deployed LLaMA 3.2 3B-Instruct** using **qLoRA** and **PEFT** to generate question-answer-specific feedback, optimizing model efficiency and performance on **Hugging Face**.
- Designed and deployed **LLM-based NLP pipelines** and interactive **React** visualizations for ACID-R, a DoD-funded platform, enabling natural-language vendor capability analysis and faster, data-driven sourcing decisions.

HTX - Home Team Science and Technology Agency, Data Scientist, Decision Science — Aug 2023 – Aug 2024
- Developed **location-based crime prediction model** improving forecasting accuracy from **48% to 91%**, enabling optimized resource allocation.
- Built and deployed a **document-generation chatbot** for creating Approval of Requirements (AOR) documents using **Azure ML** and **OpenAI API**.

SKILLS

Programming Languages: Python, R, SQL, Javascript, CSS, React
Data Science & Analysis: Pandas, NumPy, Scikit-learn, StatsModels, Matplotlib, Seaborn, Tableau, Streamlit
Machine Learning & AI: Regression, Classification, Clustering, Ensemble Methods, XGBoost, Neural Networks, Hyperparameter Tuning
Deep Learning & LLMs: PyTorch, Hugging Face Transformers, LoRA, PEFT, qLoRA, LangChain, OpenAI API, Azure OpenAI, Prompt Engineering
Natural Language Processing: Text Classification, Named Entity Recognition, Topic Modeling, Sentiment Analysis, RAG

PROJECTS

Expert LLM System, Master's Thesis — Sep 2025 – Present
- Built and deployed **an Expert LLM system using retrieval-augmented generation (RAG)** that delivered grounded, domain-specific answers, **reducing support ticket escalations by ~30%**.
- Engineered a **production-grade LLM pipeline** (document parsing, embeddings, vector search, prompt orchestration) with **hallucination-mitigation guardrails**, improving answer precision and consistency.

GANs vs. Diffusion: Who Generates CelebA Better? — Jan 2025 – Mar 2025
- Built and compared GAN and diffusion models to generate realistic face images on a CelebA subset.
- Evaluated image quality using **Frechet Inception Distance (FID)**.

LLM Data Scientist, with Caterpillar Inc. through Purdue Data Mine — Aug 2024 – May 2025
- **Implemented an LLM-powered data dashboard** that processes and visualizes data from sensors installed in heavy machinery.
- Modified LAMBDA, a novel open-source, multi-agent data analysis system to work with company specific data formats.

ACHIEVEMENTS

- **Publications:** *"Leveraging AI to Drive Operational Excellence in the Manufacturing Sector"* at the **10th International Conference on Operational Excellence** (Portugal, Sep 2025).
- **Conferences:** PEARC '25, All Things Open 2025, Supercomputing 2025 (SC25), Scholarship to Attend WiCyS'26 (Women in CyberSecurity)