Amit Raj Reddy Dharam

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Education

Arizona State University **August 2024 – May 2026**
Masters in Computer Science *GPA: 3.83/4.00*
Relevant Courses: Artificial Intelligence, Statistical Machine Learning, Data Mining, Cloud Computing, Natural Language Processing.

Birla Institute of Technology and Science(BITS Pilani) **August 2018 – July 2023**
Dual Degree: B.E. in Computer Science and M.Sc. in Mathematics (with Practice School) *GPA: 7.93/10*
Relevant Courses: Data Structures and Algorithms(C/C++), OOP(JAVA), Machine Learning and Deep Learning(Python), DBMS(SQL).

Experience

Enterprise Technology at Arizona State University **September 2024 - June 2025**

AI Data Science Student Worker *Python, Pytorch, Transformers, Streamlit, Langchain, Ollama, OpenAI API, Neo4j, Git*

- Designed a **Natural Language Query tool** that allows users to filter, extract, and visualize data from multi-table databases with **query execution accuracy above 90%** utilizing conversational inputs.
- Optimized text-to-SQL speed using advanced prompt engineering, **fine-tuned LLMs, and GraphRAG**, resulting in a 15% increase in query execution efficiency over baseline models.
- Integrated LangChain for fast orchestration and **Neo4j** as a vector database for efficient semantic search, deployed on **AWS EKS** for scalable inference, and reduced response time by 30% over 100+ questions each session.

Telus International AI CV **July 2023 - July 2024**

Machine Learning Engineer 1 *Python, Pytorch, Transformers, NLP, Open3D, Git, Docker, AWS, Linux*

- Fine-tuned open-source LLMs on math and scientific topics using **PEFT-based methods** in a RAG pipeline, increasing manual question development throughput by 50% and reducing content generation time by 40%.
- Tested the fine-tuned LLM against standard NLP benchmarks (**MATH, MMLU** etc.) and internal domain-specific datasets, yielding a +6% improvement in benchmark scores.
- Evaluated the fine-tuned 3D object detection and tracking models (**Voxel-based and DeepSORT**) on the **KITTI benchmark**, achieving around 90% precision for object detection and 70% MOTA (Multiple Object Tracking Accuracy) for tracking.

Telus International AI CV **July 2022 - July 2023**

Machine Learning Engineer Intern *Python, Pytorch, Sklearn, Open3D, Git, Docker, Linux*

- Prototyped a method for tracking identified bounding boxes over video sequences using **DeepSORT and ByteTrack**, which was tested on the **MOT17 benchmark** and achieved around 80% mAP for object identification and 75% IDF1 for multi-object tracking.
- Built an automated data extraction pipeline from AWS S3 and SQL databases, resulting in a structured ML dataset library that increased model validation and testing efficiency by 50%.
- Worked with the team to create and evaluate object detection strategies for **3D point clouds using Open3D**. Deterministic approaches proved to be 15% more accurate and simpler to use than point pillar-based approaches.

Projects

Tom-Riddle's Diary (AI Chatbot agent) LINK

Winner - InnovationHacks 2025 *Python, MCP-Chroma, NLP, FastAPI, ChromaDB, CrewAI, Git, AWS*

- Designed and deployed a FastAPI backend using ChromaDB on FastMCP servers to enable long-term semantic memory and efficient diary entry retrieval, reducing response time by 35% and supporting contextual AI reflections.
- Integrated **Google Gemini LLMs** into a conversational backend pipeline, enabling natural language queries and emotional tone analysis—handling over 1,000 personalized interactions with >90% response relevance.

Vizards (Natural language Query agent) LINK

Runners up - Opportunity Hack 2024 *Python, Ollama, Pandas, Flask, NLP, Git, AWS*

- Engineered the backend of a nonprofit-focused **CRM** using Flask and MySQL, integrating surveys, Excel uploads, and manual inputs into a unified system, reducing data silos and improving internal data consistency by 30%.
- Developed **RESTful APIs** and integrated a **lightweight LLM-powered natural language agent**, enabling non-technical users to query backend data in real time—cutting reliance on manual SQL lookups and improving data accessibility by 40%.

Technical Skills

Languages and Technologies: Python, JAVA, JavaScript, C, C++, C#, HTML, Flask, FastAPI, SQL, MongoDB, Neo4j.
ML frameworks and libraries: PyTorch, TensorFlow, Pandas, PySpark, Scikit-Learn, NumPy, Matplotlib, Open3D, OpenCV.
Natural Language Processing (NLP): Hugging Face Transformers, spaCy, BERT, OpenAI APIs, FastText, LangChain, TextBlob.
Cloud & DevOps:Amazon web Services (AWS), Google Cloud Platform, Docker, Kubernetes, CircleCI, Git.
Proficiency: Backend, Machine Learning, Data Engineering, AI engineering.