Aditya Kulkarni

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EDUCATION

University of Texas at Dallas   Dallas, TX
Master of Science, Computer Science. **GPA: 3.74/4**   August 2023 – August 2025
Independent Research: Visual tracking of aquatic animals using ML controlled underwater robots

Savitribai Phule Pune University   Pune, India
Bachelor of Engineering, Computer Science. **GPA: 9.12/10**   August 2017 – May 2021

SKILLS

Machine Learning & AI: Deep Learning, Natural Language Processing (NLP), Computer Vision, LLMs, PyTorch, Transformers.
Big Data Technologies: Apache Spark, Structured Streaming, Kafka, Hadoop Distributed File System(HDFS), SparkSQL.
Data Analytics: Excel, PowerBI
Programming Languages: Python (proficient), C++ (proficient), SQL (proficient)
Databases: MongoDB, MySQL.
DevOps & Cloud: Docker, Git, Jenkins, Kubernetes, Linux, LXC, ELK Stack, Flask, AWS – S3, EC2, Lambda, Databricks

WORK EXPERIENCE

Boehringer Ingelheim   Ridgefield, CT
Data Science Intern   January 2025 – Present
- Developed a **GPT-4**-based framework to classify vendors into nine service categories, including retail and mail-order pharmacies.
- Evaluated and compared various LLMs like **GPT- 4o**, **Claude Sonnet 3.5**, **Llama 70B** for classification of vendors and verified the reasoning behind the rationale.
- Researched various prompting methods like **chain-of-thought** and observed behavior of LLMs on different **structures of prompts** like JSON, Markdown etc., and **improved the accuracy** by up to **8%**.
- Tested and **fine-tuned** a LLM based **RAG** application across **200+** scenarios by analyzing responses, **justifying outputs**, and **optimizing prompts** to enhance accuracy and performance.

University of Texas at Dallas   Dallas, TX
Graduate Research Assistant   May 2024 – December 2024
- Engineered a specialized **object detection system** for aquatic animals using **ResNet50** and **YOLO** architectures.
- Analyzed over 25 articles on state-of-the-art underwater robotics and vision tracking systems and presented a detailed review.
- Partnered with senior researchers at HBS Lab to advance **ML vision** capabilities for **underwater robot navigation**.
- Spearheaded research on **fine-tuning** CodeLlama for software engineering tasks, using **PEFT** methods like **LORA** and **quantization** achieving an impressive **84**% accuracy.

PubMatic Inc.   Pune, India
Software Development Engineer in Test-1   April 2021 – June 2023
- Developed **Python** based automation for **functional test cases** using **Pytest, Jenkins** and private cloud architecture.
- Implemented parallel test execution using **LXC** to maximize efficiency and reducing execution time by **80%**.

PROJECTS

Realtime Reddit News Analysis   May 2024 – August 2024
- Engineered a real-time news classification and interpretation dashboard using **Apache Kafka**, **Spark Structured Streaming** and **Kibana** dashboard for visualizing real-time results using **ELK stack** with capability of processing **50** articles per minute.
- Developed news **classification** and **sentiment analysis** models using fine-tuned **DistilBERT** and **SparkNLP classifierDL** with bias classification accuracy of 83% and sentiment analysis accuracy of 91%.
- *Skills: Apache Kafka, Apache Spark, Structured Streaming, Spark MLflow, ELK Stack, Python, NLP, LLM.*

InvestAid: An AI-powered Investment Dashboard   October 2023 – March 2024
- Designed an AI-powered **investment advisory** system leveraging **NLP** and **aspect-based sentiment detection** techniques.
- Leveraged **Spacy** models to analyze **sentiment and topics** in over 50,000 social media posts and financial news articles, achieving a classification accuracy of **85%** and identifying 10 key topics relevant to financial markets.
- Integrated historical **data analysis** to generate data-driven stock position **recommendations** for top 3 performing stocks.
- *Skills: Python, Spacy, NLP, Time Series Analysis, Deep learning, PyTorch, Tensorflow, Neural network architecture design.*

CERTIFICATIONS

- IBM Data science Professional Certificate: *show credential*