Jashia Mitayeegiri

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EDUCATION

University of North Texas - *Masters in Artificial Intelligence (Machine Learning Concentration)*	**Aug 2022 − May 2024**
Coursework: Deep Learning, Natural Language Processing, Big Data, Generative AI, Prompt Engineering, LLMs	*GPA: 4.0/4.0*
Jawaharlal Nehru Technological University - *Master of Technology in Computer Science*	**Aug 2021 − Aug 2022**
Coursework:Data Analytics, Data Science, High-Performance Computing, Parallel Computing, Business Analytics	*GPA: 9.40/10.0*
Jawaharlal Nehru Technological University - *Bachelor of Technology in Computer Science*	**Aug 2017 − Aug 2021**
Coursework: Data Warehousing and Data Mining, Grid and Cloud Computing, Design & Analysis of Algorithms	*GPA: 8.22/10.0*

SKILLS

Programming Languages: Python, Java, C, C++, MATLAB, SQL, R, react

Big Data & Cloud Tools: Kafka, Hadoop, MongoDB, Zookeeper, MySQL, Azure, AWS, GCP

ML/AI Tools: TensorFlow, PyTorch, JAX, PySpark, LangChain, SciPy, Matplotlib, NumPy, Pandas, Langsmith, Tableau, Power BI, LangGraph

Web Technologies: HTML, Servlets, JSP, CSS, XML, JSON, JavaScript, Django, Streamlit

Container/Workflow Tools: Docker, Git, MLflow, MLOps, CUDA

PROJECTS

Radio Map Estimation with Deep Progressive Network (DPN-RME)
- Developed a DPN for radio map estimation, achieving a 5.5% reduction in RMSE (from 1.64 to 1.55), improving UAV navigation and localization systems.
- Processed multi-dimensional radio signal data for urban and rural environments, enabling real-time radio strength predictions for complex terrains.
- Conducted statistical analysis (e.g., hypothesis testing, regression) to validate model performance, ensuring robustness across diverse environments.
- Enhanced UAV navigation systems, reducing operational costs by 10% and improving mission success rates by 15%.

Real-Time Youtube Data Analytics Using Apache Kafka Streams and AWS
- Built a scalable end-to-end data pipeline to analyze YouTube video trends in real-time, processing over 1 million video metadata entries daily, enabling data-driven decision-making for content creators and marketers. Integrated Kafka Streams, PySpark, and AWS DynamoDB for streaming analytics, reducing data processing latency by 40% and enabling real-time insights.
- Conducted A/B testing on video thumbnails and titles to identify optimal engagement strategies, resulting in a 20% increase in click-through rates (CTR) for top-performing videos.Used statistical analysis (e.g., hypothesis testing, regression) to identify key factors driving video popularity, leading to a 15% increase in viewer retention for targeted content.
- Designed interactive Tableau dashboards to visualize trending video categories, watch time, and audience demographics, empowering business teams.

Autonomous Threat Detection System using LangGraph and MCP
- Designed and implemented a multi-agent cybersecurity system using LangGraph to detect and respond to threats in real-time. The system coordinated agents for log ingestion, threat classification, TTP mapping, alert generation, and result validation. Integrated SIEM data sources (e.g., AWS CloudTrail, Sysmon, Suricata) with LLM-based NER and classification models to extract IOCs and identify threat patterns, improving detection of novel attacks by 30%.
- Leveraged the Model Context Protocol (MCP) to standardize how agents received and shared context, improving modularity and enabling secure, traceable multi-agent workflows. Enriched threat alerts with MITRE ATT&CK mappings and OSINT-based insights, enabling incident response teams to act faster with 92% precision in a simulated production environment.
- Optimized for performance and cost, targeting 1.5s response latency and 99.9% availability, suitable for production-scale deployment in investment advisory tools.Created interactive visualizations to help researchers identify key trends and gaps in literature, improving the quality of academic and industry projects.

Neo4j-Powered Drug Interaction Knowledge Graph for Clinical Decision Support
- Developed a graph-based AI system using Neo4j to analyze over 50,000 patient-drug-disease interactions, enabling data-driven identification of optimal multi-drug combinations with improved patient compatibility.Engineered custom Cypher queries to trace drug synergy paths and detect adverse interactions, improving drug recommendation accuracy by 27% compared to traditional rule-based systems.
- Leveraged graph algorithms (e.g., PageRank, community detection) to uncover hidden drug relationships and influence pathways in high-dimensional clinical datasets. Delivered scalable, interpretable results to healthcare teams, showcasing a robust use of graph ML and domain-specific AI for precision medicine.

Optimization of Ride-Sharing Application with Reinforcement Learning
- Developed a optimize ride-sharing operations using Reinforcement Learning, resulting in a 15% increase in driver productivity and a 10% reduction in rider wait time. Modeled ride paths using a Markov Decision Process and implemented Value Iteration for optimization, reducing average trip duration by 12%.
- Conducted A/B testing on route recommendation algorithms, leading to a 20% improvement in rider satisfaction scores. Applied statistical analysis (e.g., time series analysis, regression) to predict demand patterns, optimizing driver allocation and increasing overall platform revenue by 18%.
- Designed Tableau dashboards to visualize key metrics such as driver earnings, rider wait times, and route efficiency, enabling the operations team to make data-driven decisions.

EXPERIENCE

Software Engineer − Sunus LLC (Client: Kenvue)	**June 2025 − Present**

- Developed a lightweight RoBERTa-based joint model for intent classification and named entity recognition (NER), fine-tuned with LoRA adapters and a BiLSTM-CRF decoder for slot labeling. Achieved 98.4% intent accuracy, 93.7% slot F1-score, and < 100 ms inference latency on CPU-only systems. Engineered a custom dataset of 10K+ user queries using Python scripts for automated text normalization, labeling, and correction, reducing manual annotation time by 75% and optimizing performance across precision, recall, and latency benchmarks.

AI Research Assistant - University of North Texas	**June 2024 − May 2025**

- Developed a Deep U-Net with Scaled Transformers for wireless source localization, reducing RMSE by 28% over baseline models at low sampling rates. Enhanced global context via 12 transformer blocks and cross-attention, delivering over 2× improvement compared to previous SOTA. Improved generalization in dynamic environments by fusing skip connections and transformer-processed features for robust spatial predictions.

Machine Learning Engineer − Predictive Data Solutions	**July 2021 − Jan 2022**

- Worked on producing software facilitating decisive business decisions by quantifying topic similarities and dependencies using NMF topic modeling, Word Embedding, Sentence Transformers, DBSCAN, and tSNE during an internship at Predictive Data Solutions.

Artificial Intelligence Intern - Indian Space Research Organization(ISRO)	**May 2021 − July 2021**

- Developed three chatbots for humanoid speech technologies using context, TF-IDF, and Word2Vec, achieving 94% accuracy and reducing response time from 0.10 sec to 0.04 sec. Enhanced the Word2Vec chatbot with entity and intent extraction and abbreviation handling

PUBLICATIONS AND ACADEMIC RESEARCH

- **J. Mitayeegiri, S. Dong, C. Qiu, Q. Yang, X. Li, Y. Huang, and H. Fan,** *"Radio Map Estimation with Deep Progressive Network",* in 2024 IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR), Aug 2024. DOI: 10.1109/MIPR62202.2024.00038
- **J. Mitayeegiri, M. Athikam, R. Mounika, S. Reddy, D. Yagnapriya,** *"Optimized Retrieval-Based Chatbot Generator,"* Bachelor's Thesis, Aug 2021. DOI: 10.13140/RG.2.2.11614.96323
- **J. Mitayeegiri, D. Yagnapriya** *"Topic Modeling with Latent Semantic Analysis and Latent Dirichlet Allocation,"* Bachelor's Thesis, Jan 2020. Advisor: Dr. M. Chandra Mohan. DOI: 10.13140/RG.2.2.30908.76166
- **J. Mitayeegiri,** *"Transfer Learning for Recognising Faces in Disguise,"* Master's Thesis, July 2022. Advisor: Dr. V. Kamakshi Prasad. DOI: 10.13140/RG.2.2.24197.87521