NISHITH GUDA

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Graduate student in Computer Science with strong academic and project experience across full-stack development, machine learning, and cloud platforms. Proficient in Python, C++, React, FastAPI, SQL, and TensorFlow, with hands-on exposure to Docker, Kubernetes, AWS, and CI/CD pipelines. Skilled in building scalable web applications, AI/ML models, and data pipelines, while applying Agile, DevOps, and security best practices. Adept at requirement gathering, documentation, and collaboration with cross-functional teams, and passionate about delivering secure, reliable, and data-driven systems.

Skills

Programming Languages
Python · JavaScript · TypeScript · C++ · C# · Java · SQL · .NET
Machine Learning & AI
TensorFlow · PyTorch · scikit-learn · Hugging Face Transformers · Computer Vision · NLP
LangChain · Reinforcement Learning · MLOps · Audio Signal Processing
Web Development
React · Angular · Vue.js · Node.js · Express · Flask · FastAPI
HTML · CSS · RESTful APIs · Full-Stack Development
Data & Cloud Infrastructure
PostgreSQL · MongoDB · Firebase · AWS · Azure · GCP · Docker · Kubernetes
ETL Pipelines · BigQuery · Snowflake · Data Warehousing
Development Tools & Methodologies
Git · Linux · CI/CD · VS Code · Postman · Agile/Scrum
OOP · Distributed Systems · Microservices · Software Testing

Education

Expected in December 2026 — **Master of Science in Computer Science** The University of Texas At Dallas, Richardson, TX

December 2024 — **Bachelor of Science in Computer Science** University of Texas At Dallas, Richardson, TX

Certifications

Deep Learning:DeepLearning.AI / Coursera (2024)

Projects

AI Compiler – Legacy Code Migration Assistant (August 2025)

- Modernized legacy Python/Java codebases using LLMs and CodeBERT, generating cloud-ready async code with automated type hints and stronger maintainability.
- Built a FastAPI microservice for real-time migration suggestions and auto-generated unit tests, reducing developer workload and refactoring efforts by 40%.
- Produced detailed migration reports highlighting structural changes, performance improvements, and automated recommendations for enterprise modernization initiatives.
- Benchmarked upgraded modules across multiple repositories, demonstrating improved performance, maintainability, and reduced technical debt in production-ready environments.

LLM-Driven UI Navigation Assistant(January - May 2025)

- Developed an AI-powered assistant converting natural language queries into accurate UI actions using BERT encoders, reinforcement learning, and FAISS-based retrieval.
- Designed and deployed a React banking simulator UI with metadata capture, confidence scoring, and automated test harness validation for workflows.
- Optimized retraining pipelines using PyTorch + Hugging Face, cutting model retraining cycles by 30% and enabling faster iteration of prediction models.
- Validated system performance on 10,000+ UI screens from RICO/Screen2Words datasets, achieving over 85% prediction accuracy across diverse user interactions.

Voice-to-Fingerstyle Music Generator (June - July 2025)

- Built a PyTorch-based sequence-to-sequence model generating realistic fingerstyle guitar tablature directly from raw audio, using the GuitarSet dataset.
- Preprocessed musical input with librosa to extract spectral features, pitch contours, and temporal sequences, significantly improving transcription fidelity and accuracy.
- Designed a post-processing arranger module to refine transitions between generated chords, producing playable and musically accurate tablatures validated by musicians.
- Delivered a web prototype for audio upload, tablature generation, and playback visualization, improving accessibility for musicians exploring AI-assisted composition.

Capstone Project — Evaluation of AI-Driven Testing Platforms - Smart Data Solutions (August - December 2024)

- Collaborated with an enterprise client to evaluate AI-powered testing tools, focusing on scalability, integration, and enterprise-readiness for production systems.
- Built a testing environment with containerized services to run, benchmark, and validate multiple AI-driven testing platforms under consistent workloads.
- Conducted comparative analysis of tool performance, identifying trade-offs in accuracy, coverage, and speed across diverse application scenarios.
- Delivered detailed evaluation reports and recommendations, guiding the client's adoption strategy for future AI-driven testing solutions.