VINEET GANDHAM

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EDUCATION

Texas A&M University, College Station, Texas | *Master of Computer Science* | CGPA: 4.0/4.0 May 2025
Manipal Institute of Technology, Manipal | *B.Tech in Computer Science, Minor in Big Data* | CGPA: 9.37/10.0 July 2022
Courses - ML | LLMs | Data Structures and Algorithms | Databases | Object Oriented Programming | Operating Systems | Distributed Processing | Network Security | Cloud Computing | Software Engineering | Parallel Programming

SKILLS AND CERTIFICATIONS

Languages	Python, Java, C/C++, SQL, Javascript/HTML/CSS, Ruby, Bash
Software Frameworks	Spring Boot, Hibernate ORM, ReactJS, Typescript, Flask, FastAPI, SQLAlchemy ORM, NodeJS, Hibernate gRPC,Protobufs, MQTT, Redis, Kafka, Spark, Zookeeper, Pytorch, Langchain, Tensorflow,Numpy, Sklearn Pandas, Matplotlib, Pytorch Geometric, Gephi, CUDA, OpenMPI
Tools	Git, Ubuntu Linux, Docker, Kubernetes, Google Cloud(GCP), JUnit, Katalon Testing, Postman, Jira, Maven
Open Source	EinsteinPy, contributed to Python CI/CD pipelines. (arXiv:2005.11288)
Certifications	• Google Cloud Engineer

EXPERIENCE

• **Texas A&M University**, ***Graduate Research Assistant*** Jan 2024 - Present

- Spearheading the implementation of a **GraphRAG-based LLM** for a digital twin product to automate the analysis of documentation and logs, targeting a **50% reduction in debugging time.**
- Developed an **MLOps library** to automate preprocessing, training, deployment, and serving of ML time series models via MQTT for 1000+ **IOT sensors** on a local cloud, utilizing real-time data via TDEngine time series database.
- Identified and implemented the most efficient tools (**FastAPI, Celery, SQL, Redis, EMQX MQTT broker**) for real-time data processing in the MLOps pipeline, optimizing system performance and **reducing deployment time by 90% from 8 hours to 30 minutes**.
- **Resolved inconsistencies in 1 million referral records and 10,000 doctor data entries** by scraping and wrangling data with NumPy and Pandas, leading to improved data accuracy and smoother analytics processes.

• **Texas Instruments**, ***Software Developer*** July 2022 - July 2023

- Contributed to the migration of a critical Ruby on Rails app to **Java Spring Boot**. Analyzed the legacy system using BDD test cases and developed a **full-stack web application** using **ReactJS, Spring Data, MyBatis, and Kubernetes**.
- Ensured new system preserved key features while **integrating Role Based Access Control and deployments with Kubernetes.**
- **Developed a versioned Excel-like data comparison tool** using **ReactJS AG Grid and Spring Boot**, enabling efficient comparison of millions of records. I **improved data processing speed by 25%** by optimizing SQL queries and database schema.
- Implemented a reusable formula validation module for the comparison tool via Java Spring Expression Language, which **reduced errors by 30%**. Responsible for the logic that dynamically pulled data from various sources and ensured consistency in the platform.
- **Led a cross-functional team** for migrating a cloud ML inference platform to in-house infra, successfully **saving $55K USD** annually.
- Built and maintained a Node.js server to control power, data transfer for Linux-based embedded devices. I also **automated deployment with Docker and Bash scripts, reducing manual work and completing the project in under 3 months.**

• **Texas Instruments**, ***Software Developer Intern*** Jan 2022 - June 2022

- **Developed and standardized Python libraries** for embedded and validation teams, integrating APIs from Atlassian, Klocwork, and Qmetry. Automated design specifications to align with **Automotive SPICE Level X**, ensuring compliance with hardware safety standards throughout development.
- **Implemented Google Analytics** to track user engagement and application usage, providing data-driven insights that helped prioritize development tasks and guide management decisions. .

PROJECTS

- **Healthy Behaviour Challenge (Ruby on Rails, Cucumber testing)(repo)** - Developed a full-stack Ruby on Rails application as part of a collaborative team effort, implementing features such as challenge creation, participant tracking, and user authentication. • Demonstrated proficiency in Docker containerization, Agile, automated testing with RSpec (90% coverage) and Cucumber (93% coverage), and successful deployment on Heroku.
- **x86 mini-kernel(C programming, Kernel Development)(private repo)** - Crafted a OS kernel from scratch with: Memory management: Handled contiguous frame allocation (with bitmap). • Thread management: Low level thread context switch code. • Hard Disk Driver and File System: Disk driver facilitating data storage and retrieval operations on a Linux-based file system leveraging inodes.
- **Tiny Social Networking Service (C++, Distributed Systems)(repo)** - Developed a distributed social networking platform employing gRPC-based communication, with over four replicas, offering synchronization, scalability, availability, and fault tolerance. • Architected a central master, employing a Zookeeper-like leader-election functionality for heartbeat, server boot-up competition, and registration.
- **LLM Projects (Hugging Face, PyTorch, GPT-4)** - Developed a secure, multi-agent assistant using LangGraph and open-source LLMs, enabling automated email, PDF analysis, meeting scheduling, and web search while safeguarding private data. • Developed a tool using OpenAI GPT-4 APIs to detect and fix security flaws in C code, generating diff files with 95% accuracy in patch recommendations.