DURGA PRASANNA PEDDIREDDI

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SUMMARY

Software Engineer with 5+ years of experience specializing in distributed backend architectures and AI-integrated data platforms. Strong experience building high-throughput Python (FastAPI/Flask) services and optimizing PostgreSQL-backed systems supporting 100K+ daily transactions. Skilled in operationalizing research-grade AI into production-ready RAG systems and high-throughput data pipelines; focused on delivering resilient, low-latency systems in complex environments.

EDUCATION

Texas Tech University January 2024 – December 2025
Master of Science in Computer Science Lubbock, TX, USA

SKILLS

Languages: Python, SQL (PostgreSQL, MySQL), JavaScript (ES6+), Bash/Shell
Backend & Distributed Systems: FastAPI, Flask, Django, REST APIs, Microservices Architecture, Asynchronous Processing, System Design
Data Engineering & Analytics: ETL/ELT Pipelines, Medallion Architecture, Relational Data Modeling (Star Schema), Pandas
Applied AI & Vector Systems: LangChain, LlamaIndex, Vector Databases (FAISS, Chroma), LLM Integration
Infrastructure & DevOps: Docker, Redis, Celery, CI/CD (GitHub Actions), AWS (EC2, S3, RDS)
Tooling & Engineering Practices: Git, Pytest, SQLAlchemy, Alembic (Migrations), Logging & Monitoring, Jira (Agile/Scrum)

PROFESSIONAL EXPERIENCE

Rawls College of Business, Texas Tech University **Lubbock, TX**
Backend Engineer - *Graduate Assistant* **January 2025 - December 2025**

- Engineered Python-based backend services and REST APIs for a research platform with 1K+ daily users, achieving a ~15% reduction in response latency through asynchronous task optimization and concurrent request handling.
- Built modular pipelines for ML and RAG-style workflows (ingestion and retrieval), accelerating analytics iteration by ~2× while ensuring reliable data flow and system stability.

Data Engineer- *Graduate Assistant* **March 2024 - December 2024**

- Architected Python- and SQL-based ETL pipelines processing 100K+ records per cycle, eliminating manual preprocessing bottlenecks and improving data availability for downstream ML workloads.
- Modeled relational data schemas and optimized complex PostgreSQL queries (CTEs, aggregations), improving query performance and establishing repeatable, production-grade data standards.

Infosys Limited **Telangana, India**
Senior Software Engineer **September 2021 - November 2023**

- Led the architecture and development of distributed Python (Django/Flask) microservices handling 100K+ daily transactions, optimizing throughput and ensuring fault tolerance across 20+ enterprise workflows.
- Delivered API-driven integrations across cloud and on-prem environments, reducing architectural coupling and improving platform maintainability while preserving backward compatibility.
- Strengthened production stability through structured logging and root-cause analysis (RCA) practices, reducing recurring system failures and operational escalations by ~30%.
- Automated CI/CD workflows and backend standards, increasing deployment reliability and developer productivity by ~20% through improved containerization and test automation.
- Owned backward-compatible schema evolution to ensure safe production rollouts and data consistency.

Software Engineer **October 2020 - Aug 2021**

- Developed backend application logic and REST-based integrations for enterprise workflows, emphasizing modularity and extensibility of core service components.
- Executed high-integrity data migrations for 200K+ records, using Python-based validation scripts to modernize legacy systems with zero production downtime during schema transitions.
- Enhanced backend observability through improved error handling and automated logging, reducing manual intervention during production incident resolution.

PROJECTS

Retrieval-Augmented Generation (RAG) System Tech: Python, LangChain, Chroma, LLM APIs

- Implemented an end-to-end RAG pipeline to ingest and index 400+ technical documents, using recursive chunking and vector embeddings to enable grounded, context-aware semantic search.

Medallion-Style Data Warehouse for Analytics Tech: SQL, Python, Data Modeling

- Designed a multi-tier (Bronze/Silver/Gold) data platform to automate ETL transformations for ~50K monthly records, improving analytical query performance by ~30% through dimensional modeling.

Scalable Backend Service for Event-Driven Workflows Tech: Python, PostgreSQL, Docker, Redis

- Orchestrated an asynchronous backend service to process ~5K concurrent daily event tasks, utilizing retry logic and failure handling to maintain data consistency and system fault tolerance.

CERTIFICATIONS & ACHIEVEMENTS

- *Better Together Award* (Infosys 2023) - Client recognition for collaboration and delivery excellence.
- Coursera Certifications: Enhancing LLM Accuracy with RAG, Generative AI and Large Language Models.