LALITH KOUSHIK VANAM

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PROFESSIONAL SUMMARY

Software Engineer with **4+ years of professional experience** designing and building scalable, production-grade web and AI-enabled systems. Specialized in **ASP.NET Core, RESTful APIs, React/TypeScript, and Retrieval-Augmented Generation (RAG)** architectures. Proven experience delivering industrial analytics platforms, AI-powered data exploration tools, and reusable enterprise components with a strong focus on system design, maintainability, and real-world operational impact.

CORE TECH STACK

Backend & APIs	ASP.NET Core MVC, Web API, FastAPI, RESTful Services
AI / LLM Systems	RAG Pipelines, SQL-RAG, Graph-RAG (NetworkX), Ollama LLM
Frontend & Visualization	React.js, TypeScript, Plotly.js, JavaScript, HTML/CSS
Databases	PostgreSQL, TimescaleDB, MSSQL
Architecture & Patterns	Clean Architecture, Repository Pattern, Microservices
DevOps & Tooling	CI/CD Pipelines, Git, Cloudflare

PROFESSIONAL EXPERIENCE

Full Stack & AI Software Engineer June 2024 – May 2026
Midstream AI *Houston, TX*

- Designed and owned a **pipeline leak detection analytics platform** using ASP.NET Core MVC and Plotly.js, enabling engineers and stakeholders to analyze operational trends through interactive dashboards.
- Architected reusable frontend and backend components adopted across multiple enterprise applications, reducing development effort and improving UI consistency.
- Built and integrated an **AI-powered conversational analytics assistant** using Ollama LLM, enabling natural-language queries over pipeline operations and structural metadata.
- Implemented server-side aggregation logic, optimized data access layers, and structured APIs for scalable analytics workloads.
- Collaborated with domain experts to translate operational requirements into production-ready software features.

Full Stack Developer August 2022 – May 2024
LTIMindtree *Hyderabad, India*

- Worked on industrial seep detection and leak analysis systems used in real-world oil and gas pipeline monitoring environments.
- Analyzed and enhanced seep plot and alarm analysis workflows, supporting trend-based visualizations using Excel macros and dataPARC systems.
- Gained exposure to the **end-to-end lifecycle of industrial software**, including configuration generation, real-time data ingestion, visualization, alarm validation, and production delivery.
- Developed a strong understanding of operational reliability, data accuracy, and system validation requirements in safety-critical applications.

SYSTEM DESIGN & ARCHITECTURE

- Designed microservice-based systems supporting analytics and AI workloads.
- Built end-to-end RAG pipelines combining relational databases, graph-based knowledge extraction, and LLM inference.
- Implemented clean separation of concerns using repository patterns, service layers, and API-first design.

- Designed AI systems with streaming responses, fallback strategies, and extensible agent-based architectures.

SELECTED PROJECTS

Agentic-AI Analytics Platform
Designed and developed a **microservices-based AI analytics platform** for industrial data exploration using FastAPI, PostgreSQL (TimescaleDB), and React/TypeScript. Implemented SQL-RAG and NetworkX-based Graph-RAG agents integrated with Ollama LLM to enable natural-language-to-SQL queries and graph analytics. Built real-time streaming APIs and automated Plotly.js visualizations, demonstrating a production-ready approach to AI-driven data analysis.

Pipeline Leak Detection Insights Application
Developed a standalone ASP.NET Core MVC application providing operational insights for pipeline leak detection. Implemented interactive dashboards (tables and charts) using Plotly.js, repository-based data access, server-side aggregation controllers, and dynamic client-side analytics. Designed the application with scalability and maintainability in mind for real-world industrial usage.

EDUCATION

Master of Science in Computer Science, University of Houston — May 2026

Bachelor of Technology in Computer Science, Keshav Memorial Institute of Technology — 2020 – 2024