

PAVAN KALYAN VETLA

✉ vetlapavankalyan5@gmail.com ◇ 📞 +91 90523 09653 ◇ 🌐 GitHub/PavanKalyanV5 ◇ 🌐 LinkedIn/vpavankalyan

PROFESSIONAL SUMMARY

- **Software Engineer** building **AI-powered backend systems** in production from **agentic RAG** pipelines and **ML forecasting** engines to the **distributed .NET architecture** they run on.
- Deep experience with **.NET Core**, **.NET Orleans**, and **event-driven microservices**, applying **Domain-Driven Design**, **CQRS**, and **Event Sourcing** to real business-scale problems.
- **Applied AI** in production: integrating **Semantic Kernel**, **LLMs**, and **ML models** into distributed **.NET** systems with full-stack **React/TypeScript** experience.

EXPERIENCE

Software Engineer

Jun. 2024 - Present

Kovalty Technologies - *Client: Location Services*

Hyderabad

Responsibilities:

- Built an **agentic RAG chatbot** on **.NET 8** and **Semantic Kernel** where the model autonomously chains tools **vector-search retrieval**, exact data lookups, and **ML-based forecasting** to answer operational queries.
- Implemented a **continuous-learning feedback loop** that indexes corrections into the knowledge base in real time, no retraining required.
- Developed an **ML forecasting engine** (**LightGBM** & **SSA**) modeling volatility, leading indicators, and seasonality to project operational volumes, guiding resource allocation and scheduling.
- Developed multiple **AI/ML-powered features** and an **MCP Server** using **Python FastAPI**, automating **business analytics** and **report generation** by **82%**.
- Developed **APIs** and services using **C# .NET 8 Core** with **Domain-Driven Design (DDD)** against **SQL Server** and **Azure Cosmos DB**.
- Integrated **external client servers** via an **API Gateway Pattern** to isolate core systems, improving overall **reliability** and **system stability**.
- Implemented **event-driven automations** on **.NET Orleans** using **CQRS/Event-Sourcing** to handle complex business rules.
- Built a **distributed usage monitoring and alerting system** on **Orleans actors** and **Azure Queues** to aggregate high-volume external API calls.
- Automated key **business workflows** via **scheduled job execution services** (daily, weekly, hourly), reducing manual intervention by **78%**.
- Delivered over **95%** of assigned user stories within **sprint timelines**, contributing across the full **Agile SDLC**.

Software Engineer Intern

Jan. 2024 - Jun. 2024

Kovalty Technologies - *Client: Location Services*

Hyderabad

Responsibilities:

- Built core application panels (**Admin**, **Assignment**, **User**) using **React**, **Redux**, and **Material UI**, and implemented application-wide **themes** by refactoring reusable components across **250+** files.
- Performed **post-deployment verifications** after each release and supported **T3 support operations** deployed **5+** hotfixes and maintained **99.9% uptime** via proactive **Azure Monitor** health checks.

EDUCATION

Gayatri Vidya Parishad College of Engineering (A)

CGPA: 9.19

Bachelor of Technology in Computer Science

2020 - 2024

Sri Chaitanya Jr College

CGPA: 9.94

Intermediate (MPC)

2018 - 2020

Dr. K L Prasad School

2017 - 2018

Secondary School (CBSE)

TECHNICAL SKILLS

Languages:	C#, C++, Java, Python, JavaScript, SQL
AI & Agentic Systems:	Semantic Kernel, Retrieval-Augmented Generation (RAG), Vector Search, LLM Integration (Gemini, GPT), MCP Server, LightGBM, Time-Series Forecasting (SSA)
Backend Development:	.NET Core, .NET MVC, WebAPI, Python, FastAPI, Flask, Orleans, Swagger
Frontend Development:	React.js, Redux, Formik, Material UI (MUI)
Databases:	SQL Server, MySQL, MongoDB, Azure CosmosDB
Cloud & DevOps:	Microsoft Azure, Azure DevOps, Docker, CI/CD
Design Patterns:	CQRS, Event Sourcing, API Gateway, DDD, MVC, Factory, Singleton, Object-Oriented Design
Tools & Workflow:	Visual Studio, VS Code, SQL Server Management Studio, SQL Developer, GitHub, Azure Repos, Postman
Development Methodologies:	Agile, Scrum, Kanban

PROJECTS

Theo Personal AI Workspace

Rust, .NET, TypeScript, GraphQL, Neo4j

Personal Project (planned open-source release)

Jun. 2025 - Present

- Architected a polyglot backend **Rust** (shared CRDT sync core via **yrs**, compiled to WASM/native/mobile), **.NET** (agent orchestration via **Microsoft Agent Framework** and **Neo4j** graph queries), and **TypeScript** (content/sync service) unified behind a **ChilliCream Fusion** federated **GraphQL** gateway with zero schema changes on either subgraph.
- Built an Intelligent **Council**, a multi-agent orchestration system supporting leader/worker collaboration modes with durable **checkpointing** runs paused mid-execution survive a service restart via a custom **SQLite-backed** checkpoint store, verified live against an actual process kill.
- Implemented real-time collaborative editing using **CRDTs** (**yrs**, Yjs-wire-compatible) relayed through a self-hosted **Hocuspocus** server, enabling simultaneous multi-device editing of the same note.
- Built an agentic **CLI** (**theo ask**) driving the full background-execution and checkpoint-approval loop against the same gateway used by the web/mobile clients, including dynamic per-repo scoping of **git/MCP** tool execution.
- Implemented **semantic response caching** via a dedicated task-only embedding column, and enforced a configurable per-period **spending cap** across all AI runs via a custom budget-guard service.
- Integrated **multi-model AI routing** (Claude, GPT, Gemini) through a self-hosted **LiteLLM** proxy and exposed an **MCP server** for external client read/write access, secured via **mTLS**/short-lived signed JWTs between services.

Game Intelligence Platform

React, TypeScript, Zustand, AST Parsing

Personal Project (planned open-source release)

2025 - Present

- Built a static-analysis platform for visual novel game files in **React/TypeScript**, including a full per-label statement **AST parser** (conditionals, menus, scene directives, jumps/calls) powering story-structure, route-mapping, and character-analysis tools.
- Built a deterministic **Route Map** graph explorer for branching narrative structure, a **semantic search** engine over dialogue/content, and a per-character **Dossier** view aggregating dialogue share and story links.
- Integrated **AI-generated content** (walkthroughs, custom mods) grounded in parsed structural data rather than raw dumps, with a **revise/feedback loop** and versioned generation history.
- Built an **IndexedDB**-backed analysis cache and a persistent **Zustand** store (session-scoped for text, in-memory for binary/media) to survive tab switches without data loss, verified with an end-to-end test suite against real game files.

CERTIFICATIONS

• Microsoft Orleans .NET [Udemy]	Certificate Link
• Microsoft Certified: Azure Data Scientist Associate [Microsoft]	Certificate Link
• Machine Learning Specialization [DeepLearning.AI / Stanford]	Certificate Link
• Google Cloud Engineer Path [Google Cloud]	Certificate Link