

Rohit Mishra

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SUMMARY

Applied AI & Backend Engineer with mid-level experience delivering production-grade AI systems and scalable backend services. Led the development of an AI automation platform that optimized travel fleet scheduling and built a backend gateway for a gamified AI tutoring product, improving operational efficiency and student engagement. Skilled in LLM-powered applications, RAG pipelines, multi-agent architectures, and workflow automation using Python, FastAPI, Node.js, LangChain, LangGraph, and Redis. Seeking to apply this expertise to create reliable AI infrastructure that drives business outcomes.

EXPERIENCE

Fox India Voyages | *Applied AI & Backend Engineer* | *Contract (Remote)* **Oct 2025 - Present**

- Architected a production AI automation platform that transformed unstructured travel operations into optimized fleet schedules using FastAPI, React, Redis, and LLM-driven document understanding.
- Built an optimization engine for vehicle scheduling under capacity, duty-hour, and operational constraints, minimizing fleet usage while generating fully auditable planning decisions.
- Developed secure payment middleware integrating Indecab and Cashfree with real-time verification, OTP authorization, webhook processing, idempotency, and financial audit trails, enabling faster transaction processing and full auditability
- Engineered an AI-powered quotation engine combining LLM reasoning with deterministic pricing algorithms, Google Maps routing, and fuzzy entity matching for automated travel quotations.
- Designed event-driven AI automation workflows using n8n, OpenAI, Recall.ai, Bolna.ai, Unipile, and Google Workspace to automate recruitment, sales outreach, logistics, and voice operations.

Spacey Science (Ed Tech - Startup) | *AI Backend Engineer* **Apr 2025 - Sep 2025**

- Engineered the backend gateway for a gamified AI learning platform using Node.js, Express, Redis, Firestore, and Google Gemini, enabling reliable lesson delivery, real-time student progress tracking, and seamless conversational tutoring, which improved lesson flow and boosted student engagement
- Built the Spacey Nova mentor architecture with intent classification, task routing, and specialized handlers for doubt resolution, guidance, encouragement, and general conversation, leveraging LangChain and LangGraph to deliver context-aware responses that improved tutoring relevance and student satisfaction
- Developed the Socratic lesson evaluation engine using structured prompts, low-temperature Gemini inference, and an auto-repair JSON validation loop, producing reliable routing decisions that reduced misclassification of student responses and streamlined lesson flow
- Implemented a Redis-backed conversation memory system with an in-memory fallback, ensuring persistent, thread-isolated tutoring sessions and lowering response latency for smoother user interactions
- Coordinated the real-time voice interaction pipeline, including session lifecycle handling, speech synthesis, and continuous turn-based conversation support, using Supabase for session state and WebSocket streaming, which delivered smooth voice-based tutoring experiences and increased user satisfaction

Zyrixcraft (Service Based - Startup) | *Founding Software Engineer* **Oct 2024 - Mar 2025**

- Built and deployed multiple production-grade web applications-including corporate websites, e-commerce platforms, real-time communication systems, and portfolio sites-using React, Node.js, Flask, MongoDB, and Railway, which reduced development time and enhanced client satisfaction
- Architected full-stack application backends with authentication, REST APIs, database design, and deployment pipelines, enabling scalable client-facing products across multiple business domains.
- Engineered a real-time messaging platform using Flask, MongoDB, and WebSockets, delivering low-latency bidirectional communication and persistent chat functionality.
- Led frontend development using React and Tailwind CSS, translating product requirements into responsive, high-performance interfaces while improving maintainability through reusable component architecture.
- Established collaborative engineering workflows using GitHub, Postman, and code reviews to improve API quality, streamline development, and accelerate feature delivery.

Excelerate | *Data Analyst Associate* **Jul 2024 - Sep 2024**

- Designed end-to-end data analytics workflows using Python, SQL, PostgreSQL, and Looker Studio, transforming raw datasets into actionable business intelligence for stakeholder reporting.
- Built scalable data preprocessing pipelines to clean, standardize, and validate large datasets, improving downstream analytical accuracy and reporting reliability.
- Engineered normalized PostgreSQL database schemas and optimized query performance to support analytical dashboards and recurring reporting workloads.
- Developed interactive dashboards and visual analytics that enabled stakeholders to monitor key business metrics and make data-driven operational decisions.

- Performed exploratory data analysis and statistical investigation to identify trends, anomalies, and data quality issues that informed business recommendations.

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, SQL, JavaScript, TypeScript
- **AI Engineering:** Agentic AI, RAG, LangChain, LangGraph, LangSmith, LangFuse, LiteLLM, Prompt Engineering, Function Calling, Structured Outputs, LLM Evaluation, Context Engineering, MCP
- **Machine Learning:** TensorFlow, PyTorch, Scikit-Learn, Hugging Face, PEFT, QLoRA, TRL, OpenCV, NLTK
- **Backend:** FastAPI, Flask, Node.js, REST APIs, WebSockets, Server-Sent Events, Authentication, JWT
- **Databases:** PostgreSQL, MongoDB, Redis, ChromaDB, Firestore, SQLite, MySQL
- **Cloud & DevOps:** AWS, Google Cloud Platform (GCP), Vertex AI, Railway, Vercel, Supabase, Git, Postman
- **AI Providers & APIs:** OpenAI, Gemini, Claude, Cohere, OpenRouter, Groq, Cerebras
- **Frontend:** React, Vite, Tailwind, React Flow, Framer Motion, HTML/CSS
- **Automation:** n8n, Make, Workflow Orchestration, Webhooks, Google Workspace APIs, Recall.ai, Unipile, Bolna.ai

PERSONAL PROJECTS

Vantage (AI-Powered Investment Research Platform) | [Link](#)

- Engineered a multi-agentic stock analysis pipeline using LangGraph and FastAPI to automate equity research, sentiment analysis, and quantitative risk assessment for real-time ticker data.
- Implemented a stateful graph architecture with specialized nodes for news scraping (yfinance), sentiment scoring, and volatility calculations, utilizing AgentState as a single source of truth for structured investment memos.
- Integrated a hybrid LLM strategy supporting local inference via Ollama (fine-tuned GGUF models) and cloud-based providers (Gemini, Groq) with JSON-mode enforcement for consistent state merging.
- Developed a high-performance React Terminal UI featuring Framer Motion for smooth micro-animations, Vite for optimized builds, and a responsive design that handles streaming agent updates.
- Deployed a robust full-stack infrastructure using Railway (Backend), Vercel (Frontend), and Supabase (JWT-based Auth), ensuring secure, scalable access to the research pipeline.
- Architected a quantitative risk engine that calculates annualized volatility and daily log returns, automating "Buy/Hold/Sell" decisions based on configurable sentiment and risk thresholds.

Deep Research Agent (AI-Powered Research Assistant) | [Link](#)

- Designed and built an AI research assistant that answers complex queries using LLM-based reasoning, retrieval-augmented generation (RAG), and structured response planning.
- Implemented a dual-agent system via LangChain to decompose queries and retrieve contextual information from web and documents using Newspaper3k, Tavily and Cohere APIs.
- Developed a Streamlit-based web UI for user input, document uploads, and real-time query interaction.
- Integrated DeepEval to assess output quality on relevance, coherence, and factual accuracy.
- Ensured modular, scalable architecture for future expansion and multi-agent support.

EDUCATION

Sage University, Indore | *Bachelor's in Computer Technology - Artificial Intelligence* (GPA: 8.5) Indore

CERTIFICATIONS

- AWS Academy Machine Learning Foundations: Issued July 2023
- AWS Academy Cloud Foundations: Issued June 2023
- HackerRank Python: Issued September 2024