

KARAN ARORA

AI Systems Engineer & Agent Architect

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github.com/karanarora-aideveloper

PROFESSIONAL SUMMARY

AI Systems Engineer & Agent Architect with **6+ years** of software engineering experience building enterprise data systems, distributed cloud backends, and autonomous multi-agent systems. Currently employed at **HCL Technologies** driving data transformation pipelines and AI-accelerated engineering, while concurrently leveraging advanced AI systems to design, build, and deploy multiple high-performance production products. Deeply specialized in **Agent Memory architectures** (episodic & hierarchical state persistence), the **Google Antigravity SDK**, **Opencode CLI**, and custom **Model Context Protocol (MCP)** servers. Proven track record delivering mission-critical applications across enterprise financial systems (**Citibank**), distributed IoT platforms (**Capgemini**), and diverse production AI architectures.

CORE TECHNICAL COMPETENCIES

Agentic AI & LLMs:	Agentic AI, Large Language Models (LLMs), Model Context Protocol (MCP), Generative AI (GenAI), Retrieval-Augmented Generation (RAG) , LangChain, LangGraph, Agent Memory Architectures (Persistent SQLite WAL Vector Memory), Google Antigravity SDK, Multi-Agent Orchestration, Tool Calling / Function Calling, Spec-Driven SDLC.
Languages & Core:	Python (FastAPI, Pandas, Scikit-learn), TypeScript , JavaScript (ES6+), Node.js, SQL, Bash scripting.
Full-Stack & Frameworks:	Next.js 16 (App Router, Server Actions), React 19 , React.js, React Native, FastAPI, Node.js/Express, Tailwind CSS v4, Framer Motion, Streamlit.
Storage & Databases:	PostgreSQL, SQLite (WAL Vector DB), NoSQL databases (MongoDB), Redis, Pinecone, ChromaDB.
Cloud, DevOps & Protocols:	AWS (Lambda, EC2, S3, CloudFront, SQS, API Gateway), Docker, Vercel, Git/GitHub, CI/CD, REST APIs, WebSockets, MQTT.

PROFESSIONAL EXPERIENCE

Data Analyst / Systems Engineer • [HCL Technologies](#) Apr 2025 – Present | India

- Responsible for data analysis, transformation pipelines, and systems management within the Shiksha educational ecosystem (a tablet application deployed for teachers).
- Engineered automated ETL workflows using **Python and Pandas** for data cleaning, transformation, and multi-source reporting, cutting manual analysis turnaround by **40%**.
- Developed backend services and integration layers using **Node.js** to ensure data integrity, reliability, and real-time dashboard accuracy.
- Integrated AI-assisted engineering workflows (Cursor AI, GitHub Copilot, Antigravity) across team modules, accelerating feature delivery and internal tooling.
- Collaborated with product managers, UI/UX designers, and engineering leads to translate complex data telemetry into product improvements and scalability roadmaps.

Senior Consultant • [Optimum Infosystem \(Client: Citibank\)](#) Nov 2024 – Apr 2025 | Contract

- Architected responsive real-time cybersecurity telemetry dashboards in **React.js** and Tailwind CSS, visualizing enterprise compliance metrics and incident logs.
- Developed Python backend automation microservices interfacing with Splunk APIs, eliminating manual report reconciliation and reducing reporting inconsistencies by **30%**.
- Engineered automated report validation services on AWS EC2 with scheduled background workers, integrated directly with custom React UI drill-down filters and Power BI Embedded modules.
- Collaborated with cybersecurity and infrastructure teams across Agile sprints to ensure secure, low-latency telemetry data flow.

Consultant • [Capgemini](#) May 2021 – Sep 2024 | Pune/Bangalore, India

- Engineered core modules for **SmartOffice**, a scalable enterprise IoT workplace analytics platform deployed across web (React.js) and mobile (React Native).
- Collaborated on building and deploying **Node.js REST APIs on AWS Lambda** with API Gateway, integrating **AWS SQS** for event-driven asynchronous messaging.
- Structured and optimized high-throughput **MongoDB** database queries for room allocation, occupancy analytics, and real-time sensor logs over MQTT protocol.
- Led frontend and mobile performance optimization including code splitting, lazy loading, and offline state management using Context API and AsyncStorage.

FEATURED AUTONOMOUS AI SYSTEMS & PRODUCTION PROJECTS

Founder OS — Autonomous Multi-Agent Operating System & Agent Memory Runtime

[Multi-Agent System](#) • [Live Production](#)

- **Autonomous Multi-Agent Runtime:** Architected an orchestration platform that coordinates specialized autonomous subagents to execute long-running background tasks, project telemetry, business analytics, and developer workflows.
- **Persistent Agent Memory Architecture:** Engineered a stateful agent memory subsystem using **SQLite in WAL mode** combined with semantic vector embeddings. Retains durable episodic memory, conversation graphs, and state machines across complex multi-step sessions without context degradation.
- **Google Antigravity SDK & Opencode CLI:** Integrated Google Antigravity SDK and Opencode CLI for spec-driven unattended code authoring, automated tool invocation, and self-healing test loops.

Autonomous Outreach Engine & Custom MCP Suite

[Tool-Use](#) • [Multi-Channel Automation](#)

- **Custom Model Context Protocol (MCP) Servers:** Authored and deployed production MCP servers (Gmail MCP, LinkedIn Automation MCP, SERP Scraper MCP) allowing LLMs to directly execute authenticated tools for discovery, lead enrichment, and communications.
- **Stateful Follow-Up Engine:** Built multi-step agentic pipelines that analyze incoming replies, classify intent, maintain candidate conversation context, and trigger automated follow-up sequences.

stackaitools.com — Curated AI Directory & Autonomous Indexing Engine

[Live Product](#) • [stackaitools.com](#)

- Architected an automated AI tools aggregation platform with autonomous scraping agents that discover, evaluate, and categorize emerging AI products globally.
- Built with **Next.js 16**, Python scraping microservices, PostgreSQL, and automated programmatic SEO pipelines driving organic developer traffic.

shoppersdeals.in — Live E-Commerce Deals Aggregator & Price Intelligence

[Live Product](#) • [shoppersdeals.in](#)

- Built and launched a multi-platform deals aggregation and price-comparison engine tracking real-time pricing across Amazon, Flipkart, Myntra, and Meesho.
- Full-stack architecture: Next.js frontend, Python/Flask scraping workers, dual-database design (PostgreSQL for transactions, MongoDB for price histories), AWS EC2, and WhatsApp bot price-drop alerts.

AI-Powered Quantitative Crypto Trading System

[Python](#) • [Delta Exchange](#) • [Algorithmic Trading](#)

- Engineered an algorithmic trading control panel for Delta Exchange India perpetual futures in Python with a Streamlit admin UI and custom backtesting engine.
- Designed a multi-gate risk manager enforcing strict position sizing, max daily drawdowns, and HMAC-signed WebSocket feeds with instant Telegram alerting.

kundlipandit.in — AI Vedic Astrology & Planetary Analysis Platform

[Live Product](#) • [kundlipandit.in](#)

- Developed an AI-driven Vedic chart generation and planetary transit calculation platform delivering personalized life guidance via fine-tuned LLM prompts.
- Built with Next.js, responsive astrological chart rendering, and serverless API backends.

EDUCATION & CREDENTIALS

FORE School of Management — Master of Business Administration (MBA)

2019 – 2021

LNCT Bhopal — Bachelor of Engineering (BE), Computer Science & Engineering

2013 – 2017

Certifications: Agile Scrum Master (SimpliLearn) • Machine Learning for Business Professionals (Google Cloud) • Software Product Management (Univ. of Alberta)