

Nikhil Ponaganti

Senior Product Engineer — Full-Stack & AI Systems

Bengaluru, India 560076 | +91 81060 54474 | nponaganti@gmail.com | nikhilp.in | github.com/NikhilJ3 | linkedin.com/in/nikhil-ponaganti-64096217a

SUMMARY

Senior Product Engineer with 6+ years of experience architecting 0-to-1 products, micro-frontend platforms, and enterprise agentic AI systems. Proven leadership directing frontend teams of 8 engineers and cross-functional teams of 5, scaling products from prototypes into enterprise multi-cloud solutions. Deep expertise in React Micro-Frontends, Next.js SSR optimization, Python backends (FastAPI, SQLAlchemy, AsyncIO), multi-cloud compliance automation with Steampipe and Powerpipe, ontology-driven MCP servers, Local SLMs, and RAG pipelines with LanceDB and pgvector.

EXPERIENCE

NMQ Solutions — Senior AI Engineer (Consultant)

Jul 2026 – Present | Bengaluru

Coruscant — Enterprise AI Hub & Autonomous Agent Platform 0-TO-1 BUILD

Turborepo · React · Vite · NestJS · Fastify · Python · Drizzle ORM · PostgreSQL / pgvector · OpenAI / Claude / vLLM (Nemotron) · MCP · Playwright · SSE

- **0-to-1 Platform Architecture:** Architected and built the enterprise AI hub from scratch as a modular monorepo, establishing a high-performance React and Vite portal shell connected to a resilient NestJS and Fastify gateway router.
- **Autonomous Agent Engine & Routing:** Designed an event-driven agent execution runtime with dynamic tool discovery, multi-model routing across OpenAI, Claude, and local vLLM models (Nemotron, Qwen), and real-time step execution streaming.
- **Enterprise pgvector RAG & Tooling:** Built a hybrid vector knowledge base with confidence scoring, granular folder permissions, and source citations; created custom Model Context Protocol (MCP) integrations and connectors for HubSpot, Notion, and Teams.
- **Playwright Automation & AI Validation:** Orchestrated automated end-to-end and exploratory testing suites using Playwright and Chromium to validate agent crawling and UI rendering; established automated validation pipelines benchmarking model outputs for schema compliance and response quality.

Ofofo Pvt Ltd — Lead Product Engineer

Feb 2023 – May 2026 | Bengaluru

Cross-Platform Cloud Compliance Desktop Application 0-TO-1 BUILD

Electron · TypeScript · Node.js · Python FastAPI · Steampipe · Powerpipe · Local SLMs · Playwright · GCP · Azure · AWS

- **0-to-1 Desktop Engineering & Team Lead:** Architected and shipped the standalone compliance desktop application from scratch, leading an initial 5-engineer team from AxiomIO before transitioning full-time to direct overarching product architecture.
- **Automated Evidence Harvesting:** Integrated Steampipe and Powerpipe SQL query engines with background daemons to automate cloud evidence extraction across GCP, Azure, and AWS, covering the complete Secure Controls Framework (SOC 2, HIPAA, ISO 27001, NIST CSF, PCI DSS, GDPR, CIS CSC v8, Essential 8).
- **Local SLM Fallback & Code Signing:** Packaged cross-platform Electron binaries (configured with macOS Apple Notarization and Windows Code Signing) with bundled Local Small Language Model (SLM) fallback for offline and privacy-preserving audit evaluations.

Ontology-Driven MCP Evidence Resolver Agent

Python FastAPI · Model Context Protocol (MCP) · Steampipe · LiteLLM · Local SLMs · Graphbit Ontology

- **MCP Server Architecture:** Designed an ontology-driven Model Context Protocol (MCP) server mapping natural-language compliance prompts to exact framework controls and executable Steampipe SQL queries.
- **Tool-Calling Loop:** Engineered a closed tool-calling agent loop that feeds verified live evidence back to the LLM for automated remediation guidance, bridging conversational chat directly to real-world cloud state.

AI-Powered Compliance Web Application & Copilot

Next.js · React · TypeScript · Python FastAPI · LiteLLM · Flowise · LanceDB · Neo4j · D3.js · Playwright · SSE

- **Interactive Streaming UI:** Built an AI-native chat interface where assistant responses dynamically render interactive UI widgets—such as editable forms, audit score cards, and live diff views—inline during real-time streaming.
- **Hybrid RAG & Knowledge Graphs:** Engineered document RAG pipelines with LanceDB vector store and LiteLLM proxy; created interactive knowledge-graph visualizations with D3.js to map complex regulatory relationships across thousands of entities in Neo4j.
- **Performance Optimization & E2E Testing:** Implemented Next.js SSR reducing page-load latency by 30%; built automated Playwright browser test suites to validate complex UI workflows and evaluation faithfulness.

vCISO Security & Compliance Platform

Next.js · React · TypeScript · Python FastAPI · PostgreSQL · REST APIs · Docker

- **Virtual CISO Suite:** Built central governance modules for the vCISO platform, enabling organizations to manage security due diligence, track multi-framework compliance posture, and automate security questionnaire responses.

Axiom HR Internal Platform — Micro-Frontend Architecture 0-TO-1 BUILD

ReactJS · Redux · Python (FastAPI / Flask) · SQLAlchemy ORM · PostgreSQL · AWS Cognito · JWT

- **0-to-1 Micro-Frontend Architecture:** Greenfield architecture of Axiom's internal HR SaaS portal, structuring independent React micro-frontends with unified Redux state management to enable isolated team deployments.
- **Data Modeling & Backend Services:** Designed robust backend REST APIs and relational database models using Python, SQLAlchemy ORM, and PostgreSQL, handling organizational hierarchy, approval workflows, and migrations.
- **Security & Access Governance:** Implemented comprehensive role-based access controls (RBAC) and secure token-based authentication integrated with AWS Cognito.

Crypto Force — Real-Time Trading Platform TEAM LEAD

Vue.js · React · TypeScript · WebSockets · Chart.js · Web3.js · REST APIs

- **Frontend Team Leadership:** Led a dedicated team of 8 frontend engineers in designing and shipping a high-frequency cryptocurrency trading platform.
- **Real-Time Data Streaming:** Built sub-millisecond price-feed interfaces and live order book visualizers using WebSockets and responsive charting, eliminating rendering bottlenecks and UI frame drops.

Ofofo Cybersecurity Marketplace — Angular 18 Upgrade

Angular 8 – 18 · TypeScript · @ng-bootstrap · SSR · REST APIs

- **Platform Migration:** Led the major architectural upgrade of the Ofofo marketplace application from Angular 8 to Angular 18 as an AxiomIO consultant, resolving complex breaking changes and introducing SSR for superior speed and SEO.

Xops — Enterprise Operations Tooling

React · TypeScript · .NET Core · Python · REST APIs · Docker

- **Cloud Operations Engineering:** Collaborated as a core developer on Axiom's enterprise cloud management suite, building centralized operational dashboards and integrating real-time telemetry endpoints.

Sam Computronics — Web Designer & Developer

Jun 2020 – Feb 2021 | Hyderabad

- Built automated ticketing and request dispatch tooling for customer operations, significantly reducing manual routing and accelerating customer support turnaround.

SELECTED PROJECTS & CREATIVE WORK

AI-Native Component-Driven Chat UI Library

React · TypeScript · Server-Sent Events (SSE) · Typed Tool-Call Mapping · Tailwind CSS

- Built an open-source component-driven chat UI library designed to replace static text paragraphs with dynamic, interactive inline UI components (forms, score cards, interactive sliders, data drill-downs, and live snapshot diffs) streamed directly via typed LLM tool outputs.

Interactive Web Experiences & Studio Portfolios

JavaScript · GSAP · Lenis · Three.js / WebGL · CSS Animations

- Architected interactive digital design studio platforms (**Uli Studio**, **Grey18 Studios**) with custom smooth-scrolling choreography; built interactive web games (**Escape Room & Treasure Hunt** engine) and a hardware-accelerated **Custom Cursor** interaction engine.

TECHNICAL SKILLS

Frontend & Architecture	React, Redux, Micro-Frontend Architecture (Module Federation, dynamic remotes), Next.js (SSR/SSG), TypeScript, Angular (8–18), Vue.js, Electron, Tailwind CSS, D3.js, Chart.js, Vite, GSAP, Lenis
Backend & Python	Python (FastAPI, Flask, SQLAlchemy, AsyncIO, Pydantic), Node.js, NestJS, Fastify, .NET Core, PostgreSQL (pgvector), SQLite, Drizzle ORM, RESTful APIs, WebSockets, SSE
AI, MCP & Testing	Autonomous Agent Runners, Model Context Protocol (MCP Servers & Tools), Local SLMs, Model Registry & Multi-Model Routers (OpenAI, Claude, vLLM / Nemotron), Hybrid pgvector RAG, LanceDB, Neo4j, Flowise, Playwright, Chromium E2E Automation, Ragas AI Evaluation
Cloud & DevOps	GCP (Cloud Run, Vertex AI), Azure, AWS (Cognito, S3, CloudFront), Docker, Turborepo, GitHub Actions, CI/CD, Electron-Buildier, Steampipe, Powerpipe
Leadership & Delivery	0-to-1 Greenfield Product Engineering, Team Leadership (managed 8-engineer & 5-engineer teams), Technical Scoping & API Contract Architecture, Enterprise Compliance (SOC 2, ISO 27001, HIPAA)

EDUCATION

BITS Pilani — M.Tech in Computer Science (Work Integrated · Weekend Executive)

2024 – 2026 | In Progress

Malla Reddy Institute of Technology — B.Tech in Computer Science & Engineering (7.2 CGPA)

2016 – 2020