AKASH GURNALE

Pune, Maharashtra, India

Lead Software Engineer | Applied AI & Agentic Systems

Email: akash.gurnale@gmail.com • Phone: +91-7507859158 • LinkedIn: linkedin.com/in/akash-gurnale •
GitHub: github.com/AkashGurnale • Portfolio: akashgurnale.com • Medium: medium.com/@akash.gurnale

PROFESSIONAL SUMMARY

Engineering leader with **7+ years of experience** building production AI applications, agentic systems, and cloud-native distributed architectures at scale. Currently leading engineering for **Bajaj Markets** (serving **16M+ users**), architecting Python-based AI microservices, **LangGraph** agent orchestration, **Amazon Bedrock** and **Azure OpenAI** integrations, Zero-UI conversational search agents, and multi-turn voicebots. Core engineering philosophy: *Models handle ambiguity, interpretation, and reasoning; deterministic software strictly governs business rules, validation, and execution*. Proven record optimizing selective inference, latency budgets, and engineering economics while leading high-performance distributed microservices across AWS (**EKS, ECS, Lambda, MSK, OpenSearch**) and modern cloud platforms.

TECHNICAL SKILLS

Agentic AI & LLMs:	Agentic Systems, LangGraph, Tool Calling, Workflow Orchestration, State Management, Multi-Turn Context, Structured State, Deterministic Execution, Amazon Bedrock, Azure OpenAI, Prompt Design.
Search & Knowledge (RAG):	Bedrock Knowledge Bases, Hybrid Search, OpenSearch, Amazon Neptune (Graph), S3, Vector Embeddings, Reranking, Qdrant, Context Retrieval Pipelines.
Compute & Backend:	AWS (EKS, ECS, Lambda), Docker, Kubernetes, FastAPI, Python Microservices, Java, Spring Boot, REST APIs, PostgreSQL, MongoDB, Distributed Systems.
Messaging, Cloud & Security:	AWS MSK (Kafka), SQS, CloudWatch, Cognito, KMS, Secrets Manager, CloudFormation, CodePipeline (CI/CD), Infrastructure Automation.
Evaluation & Leadership:	LLM Evaluation, Langfuse, DeepEval, LLM Tracing, Hallucination Detection, System Architecture, Technical Direction, Mentorship, Production Ownership.

PROFESSIONAL EXPERIENCE

Lead Software Engineer — Bajaj Finserv Direct Limited (Bajaj Markets)

March 2022 – Present | Pune, India

Leading engineering initiatives for Bajaj Markets, a high-throughput BFSI marketplace serving 16M+ users.

- **Zero-UI Conversational Agent:** Engineered an autonomous Zero-UI conversational search agent enabling **16M+ customers** to discover financial products, evaluate structured multi-attribute options, and complete transactional applications (loans, insurance, credit cards) through natural-language dialogue rather than traditional multi-screen navigation.
- **Agent Orchestration & Tool Calling:** Architected high-throughput Python AI microservices leveraging **LangGraph**, **Amazon Bedrock**, and **Azure OpenAI**, implementing structured function calling, dynamic intent classification, and deterministic API tool execution connecting conversational agents to core backend transaction services.
- **Knowledge Retrieval & Graph Search:** Engineered contextual search and retrieval pipelines utilizing **Bedrock Knowledge Bases**, **OpenSearch** (hybrid lexical/vector indexing), **Amazon Neptune** (graph modeling for product relationships), and **S3**, grounding conversational agents in verified catalog data while maintaining multi-turn structured state.
- **Deterministic Execution & Selective Inference:** Implemented confidence-based routing logic to invoke LLMs selectively for ambiguity resolution while delegating business rule validation, pricing calculations, and transaction execution strictly to deterministic application software to minimize latency and optimize token budgets.
- **Event Streaming, Observability & Voice AI:** Orchestrated asynchronous agent workflows using **AWS SQS** and **MSK**; instrumented end-to-end production observability via **Langfuse** (LLM tracing) and **AWS CloudWatch / Kibana**; deployed voicebot infrastructure with **Exotel** and **Taurus** dialers for speech-driven customer assistance.
- **Cloud-Native Infrastructure & Scale:** Scaled 15+ **Spring Boot** microservices across **PostgreSQL** and **MongoDB** (reducing API latency by 30%); automated containerized deployments on **AWS (EKS, ECS, Lambda)** using **CloudFormation** and CI/CD pipelines (**CodePipeline**), cutting release cycles by 40%; mentored an 11-member engineering team.

PROFESSIONAL EXPERIENCE (CONTINUED)

Associate Consultant — Infrasoft Technologies Pvt. Ltd. (now Kiya.ai) December 2020 – February 2022 | Pune, India

Onsite consulting engineer for Bajaj Finserv Direct in a regulated fintech environment.

- **Fintech Platform & Banking SDKs:** Engineered scalable financial modules and developed **5+ reusable partner banking SDKs** consumed across enterprise banking clients with strict security, fault-tolerance, and CMMI compliance standards.
- **Modular Architecture:** Built modular client application features utilizing **VIPER and Clean Architecture** patterns, establishing decoupled boundary separation between networking layers, domain business rules, and UI presentation components.
- **Secure Banking Integrations:** Implemented secure REST API communication, credential management, and transactional flows for partner banking applications in compliance with financial data security mandates.
- **Telemetry & Performance Tuning:** Instrumented end-to-end user telemetry and profiled memory consumption under constrained mobile bandwidth, contributing to an **18% reduction** in user drop-offs during transactional origination.

iOS Developer — Magneto IT Solutions Pvt. Ltd. March 2019 – December 2020 | Pune, India

Production application delivery across international retail e-commerce and enterprise logistics.

- **Production Application Delivery:** Developed and launched **8+ native iOS applications** across consumer retail, real estate, and enterprise logistics domains using Swift, UIKit, and REST APIs.
- **Architecture Modernization:** Led core application architecture redesign, improving runtime performance benchmarks by **30%**, isolating technical debt, and accelerating development velocity by **20%**.
- **E-Commerce & Digital Platforms:** Engineered product catalog browsing, cart state management, and secure payment integrations for international retail client platforms associated with **60%+ business growth**.
- **Mobile Release Management:** Managed application build configurations, code signing provisioning, certificates, and release staging across international client accounts.

SELECTED TECHNICAL RESEARCH

The Economics of Machine Comprehension — AI Systems Research • 6-Part Publication akashgurnale.com/context-economics

- **AI Engineering Research:** Investigated the economics and mechanics of AI-assisted software engineering, evaluating how repository topology, modularity, and context boundaries influence autonomous AI developer agent navigation and token consumption.
- **Benchmark Tooling & Telemetry (CEB & CEEM):** Developed the **Context Economics Benchmark (CEB)** harness to quantify agent navigation overhead under zero human interference; authored the **Context Economics Event Model (CEEM)** schema to normalize execution telemetry across tool-calling agents.

EDUCATION

Master of Business Administration (MBA) — IT Management — Amity University, Noida, Uttar Pradesh Graduated 2023

Bachelor of Computer Engineering — Savitribai Phule Pune University, Pune, Maharashtra Graduated 2021

LANGUAGES

English (Fluent), Hindi (Fluent), Marathi (Native).