

DHANANJAY KUMAR SINGH

Engineering Leader | Solution Architect | GenAI & Agentic AI

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PROFESSIONAL SUMMARY

Engineering leader and hands-on solution architect with 20+ years designing, scaling, and modernizing cloud-native distributed systems across financial services, life sciences, utilities, oil & gas, retail, and geospatial domains. Most recently Associate Director of Software Engineering at Morningstar, owning architecture and delivery for 60 engineers across 6 squads spanning India, Australia, and the UK. Led decomposition of legacy .NET monoliths into event-driven microservices on AWS — cutting time-to-market ~50%, production incidents 90%, and infrastructure cost 30% — and drove Generative AI and agentic workflows into the SDLC to reach 90% tool adoption within two months. Known for translating ambiguous requirements into pragmatic architecture, leading from the front on high-stakes technical calls, and partnering with CTO and MD-level stakeholders on technical strategy, budget, and build-vs-buy decisions. Mentored and promoted 8 engineers into leadership roles.

CORE COMPETENCIES

Architecture & Design: Solution Architecture, Enterprise Architecture, Cloud-Native Architecture, Microservices Architecture, Event-Driven Architecture, Distributed Systems Design, Domain-Driven Design (DDD), CQRS, Integration Architecture, API Design (REST, gRPC), Multi-Tenant SaaS Architecture, Architecture Governance, Technical Due Diligence

Engineering Leadership: Engineering Leadership (Manager of Managers), Globally Distributed Team Leadership, Technical Strategy & Roadmap, Executive Stakeholder Management (CTO / MD), Budget & Resource Planning, Build-vs-Buy Evaluation, Estimation, Agile & Scrum Delivery, Hiring, Mentoring & Succession Planning

GenAI & Agentic AI: LLM Applications, RAG (Retrieval-Augmented Generation), Vector Embeddings & Semantic Search, Agentic AI Workflows, Prompt Engineering Standards, LangChain, Claude Code, GitHub Copilot, LLM APIs, AI-Driven SDLC Transformation, LLM Observability, Responsible AI & Governance

Platform Engineering: Platform Modernization, Legacy Transformation, Monolith-to-Microservices Decomposition, CI/CD at Scale, Infrastructure as Code, Containerization, Performance & Cost Optimization

Reliability & Security: Observability Strategy & Dashboarding, Production Reliability, Incident Management & Root Cause Analysis, DevSecOps, Application & Cloud Security, Vulnerability Management & Remediation, Secure SDLC, Security Governance

TECHNICAL SKILLS

Cloud & Infrastructure: AWS (ECS, ECR, EventBridge, SQS, SNS, S3, CloudWatch, IAM), Microsoft Azure (Azure DevOps, Blob Storage), Docker, Terraform (IaC), Kubernetes (PoC), Serverless, Multi-Region Design

Languages & Frameworks: C#, .NET Core, ASP.NET, Python, FastAPI, Node.js, JavaScript, React, Angular, Vue.js, Web API, WPF, WCF

AI / GenAI: LLM APIs, LangChain, Hugging Face (Transformers, Datasets), RAG Pipelines, Vector Embeddings, PyTorch, Model Fine-Tuning, Prompt Engineering, GitHub Copilot, Claude Code

Data & Storage: SQL Server, PostgreSQL, NoSQL, Redis, DocumentDB, Amazon S3, Azure Blob Storage, Microsoft Dataverse

DevOps & Quality: Jenkins, GitHub Actions, Azure DevOps, Harness, TDD, DDD, Agile

Observability & Reliability: New Relic, CloudWatch, Splunk, Dashboards & Alerting, SLIs / SLOs, Root Cause Analysis, Incident Management

Security & DevSecOps: Checkmarx (SAST), Wiz (CSPM / cloud security posture), BlackDuck (SCA), SonarQube, DevSecOps, Vulnerability Triage & Remediation, Secure SDLC, Security Champion practices

Messaging & Integration: AWS EventBridge, SQS, SNS, Kafka (PoC), gRPC (PoC), REST APIs, Zapier, n8n (PoC)

Enterprise Platforms: Microsoft Dynamics 365 (Sales), Power Platform, SharePoint, ArcGIS and GIS platforms

PROFESSIONAL EXPERIENCE

Associate Director, Software Engineering (Solution Architect)

Morningstar — Gurugram, India | Dec 2019 – Jul 2026

Owned architecture and engineering delivery for cloud-based wealth management and CRM platforms used by financial advisers across Australia and the UK.

Architecture & Platform Modernization

- Selected event-driven microservices over incremental monolith patching after assessing scale, team topology, and delivery bottlenecks — cutting time-to-market ~50% and enabling 6 squads to ship independently
- Led decomposition of 4 legacy .NET monoliths into 12 independently deployable microservices over 3 years using Domain-Driven Design, reducing production incidents by 90% and enabling per-squad release cycles

- Architected and scaled cloud-native systems on AWS supporting 3,000 daily active advisers, reducing infrastructure cost by 30% through right-sizing and automation
- Built and shipped backend services and REST APIs in Python (FastAPI) alongside the core .NET Core service estate, running them through the same containerized build-to-deploy pipeline — staying hands-on in code as a polyglot architect rather than reviewing from a distance
- Designed event-driven integration patterns using AWS EventBridge and SQS for asynchronous service-to-service communication, and applied CQRS to separate read and write paths for performance
- Containerized applications with Docker; Jenkins-driven CI/CD pipelines built and pushed images to Amazon ECR for deployment on AWS ECS, standardizing build-to-deploy workflows across 6 squads
- Owned Terraform-based infrastructure-as-code for AWS provisioning, including hands-on capacity and configuration changes as scaling needs evolved
- Ran proof-of-concepts on Kubernetes, Kafka, and gRPC to evaluate container orchestration, high-throughput streaming, and low-latency API patterns for future platform direction
- Owned a product built on the Microsoft Dynamics 365 Sales module, leading customization and external system integration; used Zapier for cross-platform workflow connectivity and evaluated n8n for self-hosted orchestration

Generative AI & Agentic AI Adoption

- Drove Generative AI adoption across 6 engineering teams — prompt engineering standardization, LLM-assisted code review, and documentation automation via GitHub Copilot — reaching 90% AI tool adoption within 2 months
- Designed and implemented RAG (Retrieval-Augmented Generation) pipelines using LangChain and vector embeddings for internal knowledge retrieval and automated documentation generation
- Enabled squads to build agentic, multi-step AI workflows for complex engineering problem-solving, and shipped AI-powered product features using LLM APIs, RAG, and vector search into the advice platform
- Cut PR cycle time from 3 days to 1 day, code review turnaround from 36 hours to 12 hours, and increased story-point throughput by 50% through AI-assisted development workflows
- Tracked adoption and quality metrics to iterate on AI tooling, and continuously evaluated emerging LLM platforms and orchestration frameworks to recommend the highest-impact technologies

Observability, Reliability & Security Engineering

- Established the observability practice across 6 squads using New Relic, CloudWatch, and Splunk — working hands-on with teams to set up service health dashboards, latency and error-rate alerting, and log queries so squads could self-serve root-cause analysis rather than escalate
- Drove a 90% reduction in production incidents by pairing observability coverage with structured incident response, root cause analysis, and systemic follow-through on recurring failure patterns
- Served as Security Champion, leading a team that reviewed and resolved 500,000+ security findings across Checkmarx (SAST), Wiz (cloud security posture), BlackDuck (SCA), SonarQube, and Harness — embedding security-by-design across the SDLC
- Worked directly with engineers to triage, prioritize, and remediate application and cloud security findings, coaching squads on secure coding practices and reducing recurring vulnerability classes at source
- Overhauled the CI/CD pipeline, increasing deployment frequency from 1/month to 5/month and cutting change lead time from 120 minutes to 10 minutes

Leadership, Delivery & Stakeholder Management

- Led 60 engineers across 6 delivery squads spanning India, Australia, and the UK, improving delivery velocity by 20–25% through structured engineering practices, coaching, and process improvement
- Owned end-to-end delivery for CRM platforms serving the Australia and UK regions; transformed UK release cadence from once every 2–3 months to weekly while maintaining 99.99% uptime
- Presented technical strategy, goal progress, and delivery risk to the Global CTO, local CTO, and local MD, aligning engineering execution with executive business priorities
- Supported annual budget planning, including increment and promotion pool allocation, cost-vs-revenue analysis, and build-vs-buy decisions for platform and AI tooling investments
- Mentored and promoted 8 engineers into leadership roles — 2 Senior Engineering Managers, 2 Engineering Managers, and 4 Principal Software Engineers; initiated and led biweekly engineering-wide knowledge-sharing sessions

Solution Architect / Technical Lead / Onsite Lead

Tata Consultancy Services (TCS) — India & United States (onsite) | Mar 2010 – Dec 2019

- Led architecture and delivery of enterprise applications for 5 clients across Utility, Oil & Gas, Retail, and Life Sciences domains over a 9.8-year tenure, progressing from Technical Lead to Solution Architect / Onsite Lead

- Led solution design for 6 client RFP responses, winning 2 engagements worth a combined \$12M USD — covering estimation, resource planning, and technology strategy
- Delivered an end-to-end laboratory operations workflow platform (Healthcare Workflow Platform) using ASP.NET, AngularJS, WPF, and SQL Server
- Modernized a GIS-based planning platform, designing a new web application on Angular, Web API, and ArcGIS to improve performance and usability
- Conducted technical and architecture audits for global applications, identifying performance bottlenecks and delivering actionable design improvements
- Spent 3+ years onsite in the United States working directly with client stakeholders on solution design and delivery governance

Senior Software Engineer

Genesys International — Mumbai, India | Aug 2008 – Feb 2010

- Built GIS and geospatial analytics applications for global clients, including a geospatial risk analytics platform for US insurance use cases
- Contributed to a panoramic 360° street-level mapping platform processing large-scale imagery and spatial datasets

Software Engineer

RMSI Pvt Ltd — Noida, India | Jul 2006 – Aug 2008

- Developed GIS-based land management and government planning systems, delivering land-ownership and planning modules over large geospatial datasets — foundational experience in large-scale data systems

INDEPENDENT PRODUCT & AI ENGINEERING

Founder / Architect & Engineer — AdviseSphere (advisesphere.com)

Independent product suite for financial advisers | Jul 2026 – Present

- Architected and shipped CRMPro (client relationship management) and PortfolioPro (portfolio recommendations) as live products, with CompliancePro, CashflowPro, and ResearchAndAnalyticsPro in development, delivered through a unified marketplace dashboard
- Implemented LLM- and RAG-powered recommendation features in PortfolioPro, grounding adviser-facing portfolio suggestions in retrieved client and market context
- Built and evaluated a RAG pipeline with semantic search (cosine similarity, retrieval-accuracy evaluation) and fine-tuned a pretrained LLM using Hugging Face Transformers and Datasets, diagnosing failure modes including overfitting and exploding gradients
- Implemented Transformer self-attention, multi-head attention, positional encoding, and full encoder blocks from first principles in PyTorch (no high-level abstractions) to build model-level understanding behind the product's AI features
- Used Claude Code within VS Code with spec-driven development practices to go from specification to deployed applications across the suite

EDUCATION

M.Tech, Physical Metallurgical Engineering — Indian Institute of Technology (IIT) Roorkee, 2004–2006

B.Tech, Metallurgical and Materials Engineering — Indian Institute of Technology (IIT) Roorkee, 1999–2003

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

TOGAF 9.1 Enterprise Architecture Framework — 5-day practitioner training programme, Tata Consultancy Services (2018)

Web Application Developer Associate 10.2 — Esri, issued Mar 2014 (Credential ID CXQSBGSCKEF4KJYD)

Selected coursework:

Cloud & AWS: AWS Certified Solutions Architect – Associate exam preparation series (SAA-C01, SAA-C02), AWS Essential Training for Architects, AWS Well-Architected Framework: Cost Optimization Pillar, Serverless and Microservices for AWS, Cloud Architecture: Core and Advanced Concepts

Architecture & Data: Enterprise Architecture in Practice, Software Architecture: Breaking a Monolith into Microservices, Microservices: Design Patterns, Software Architecture: Patterns for Developers, Data Mesh Architecture: Core Concepts, Azure Data Factory

AI & Deep Learning: Hugging Face NLP / LLM Course (official), Agentic AI Architecture Foundations: Designing Autonomous AI Systems, Artificial Intelligence Foundations: Neural Networks, Deep Learning: Getting Started

Leadership & Product: Leadership Principles for Emerging Leaders (Bill George), Strategic Thinking, Inclusive Leadership, Becoming a Product Manager, Creating a Product-Centric Organization

ADDITIONAL INFORMATION

20+ years across enterprise, SaaS, and fintech platforms, including 8+ years in architecture and engineering leadership. Extensive experience leading globally distributed, cross-functional teams across India, Australia, UK, and US time zones, with 3+ years onsite in the United States.

Open to Director / Head of Engineering, VP AI Solutions, and Principal / Enterprise Solution Architect roles.