

KARANDEEP BHARDWAJ

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SUMMARY

Lead Software Engineer with 7+ years building **production AI systems** and cloud-native distributed platforms across financial services and supply chain. Specializes in **LLM-based agentic workflows (LangGraph, Amazon Bedrock, MCP) and serverless AWS architecture**, with production microservices in Go, Python, and TypeScript. Owns technical roadmaps, leads teams of 5+ engineers, and presents AI strategy to senior leadership.

EXPERIENCE

Lead Software Engineer

Nov 2021 – Present

Sun Life Financial

- Designed and shipped an **LLM-powered call routing and authentication system** for the retirement contact center – a LangGraph state machine on Amazon Bedrock with DynamoDB-backed session persistence – routing 15+ plan categories and lifting self-service containment from **61% to 96%**.
- Built **Go** microservices to onboard **Interac** as a payments vendor for the firm's financial products, integrating with core record-keeping systems with full audit logging and processing **25,000+ transactions/month**.
- Designed and productionized an **MCP integration** enabling dynamic tool orchestration across multi-agent systems, with a custom middleware layer enforcing 3-tier authentication (identity, single-factor, multi-factor) for enterprise-grade security.
- Spearheading on-premises to cloud migration onto **Amazon Bedrock AgentCore**, deploying agents via AgentCore Gateway and Runtime to achieve fully managed, scalable agentic infrastructure with centralized observability.
- Led migration from legacy systems to **serverless architecture** (Lambda, API Gateway, DynamoDB, SQS) processing 200k+ monthly requests, with zero customer-impacting incidents since cutover and **~30% lower p95 latency**.
- Automated caller verification in **Amazon Connect** through multi-Lambda orchestration – Lex intent capture, ANI lookup, and OTP step-up via **AWS End User Messaging** – reducing authentication resolution time by **65%**.
- Led and mentored a team of 5+ engineers on **LLM-based system design**, agentic architecture patterns, and serverless best practices – owning the technical roadmap and presenting quarterly AI strategy to senior leadership.

Full Stack Engineer

Jan 2021 – Nov 2021

Tecsys Inc.

- Led a full monolith-to-microservices re-architecture using **event-driven architecture** SQS built on **Node.js/Next.js with TypeScript**, enabling independent scaling and deployment of supply-chain services.
- Led front-end modernization with **Vue 3 + TypeScript**, building a **Storybook**-documented atomic-design component library adopted across 3+ product teams.
- Engineered an end-to-end customs compliance microservice using **AWS SAM, Lambda, SQS, and S3** with SFTP integration; ran parallel validation against the incumbent vendor before cutover, eliminating the dependency and **\$300K in validated annual cost savings**.
- Established the team's testing strategy using **TDD (Jest)** and k6 load testing, achieving zero P0 incidents during peak traffic windows.
- Hardened integration security by implementing **OAuth 2.0** across 10+ carrier integrations, managing token lifecycle (issuance, refresh, revocation) across distributed microservices.

Full Stack Engineer

Jan 2020 – Jan 2021

BIDGALA (concurrent with Master of Computer Science, 2018–2020)

- Architected and shipped a full-stack e-commerce social platform using **Python (Django)** and React, with RESTful APIs deployed on **AWS (EC2, RDS, S3)**, supporting early-stage product growth.
- Defined technical architecture and mentored 3 junior developers, establishing code review standards and Git workflows adopted by the team.

Software Developer

Jan 2017 – Aug 2018

Unisys Pvt. Ltd.

- Developed enterprise **Java** applications for Fortune 500 clients in cross-functional Agile squads, contributing across the full SDLC from requirements to deployment and establishing coding standards adopted team-wide.

TECHNICAL SKILLS

Languages: Go, Python, TypeScript, JavaScript, Java, SQL

Frameworks: Vue, React, Next.js, Node.js, Django, Kafka, Tailwind, Storybook

AI/ML: LangGraph, LangChain, Amazon Bedrock, AgentCore, RAG Pipelines, Vector Databases (pgvector), MCP, Prompt Engineering, AI Observability

Cloud & DevOps: AWS (Lambda, Bedrock, Lex, Connect, DynamoDB, S3, SNS, SQS), Docker, Kubernetes, Terraform, Jenkins, CI/CD, GitOps, OpenShift

Architecture: Microservices, Serverless, Event-Driven, Multi-Agent Systems, Agentic Workflows, System Design

Testing: Jest, k6, TDD, Test Automation

EDUCATION & CERTIFICATIONS

Master of Computer Science, 2018 – 2020

Concordia University, Montreal, Canada

Bachelor of Computer Science, 2013 – 2017

Chandigarh Engineering College, Chandigarh, India

AWS Solutions Architect – Associate (2022)