

# Sandeep Malik

Principal / Staff AI Engineer — Agentic Systems, Harness Engineering & RAG

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## SUMMARY

AI Engineer and Data Architect with 13+ years across 11 companies and 2 continents, now leading agentic-AI platform and harness engineering. A hands-on builder who ships production-grade agentic systems end to end - agents, MCP tools, RAG, and the discovery/orchestration layers that govern them - on a decade of data-platform and big-data architecture (handled up to ~2 PB and ~200K events/sec). Currently Principal Software Engineer & Technical Lead (Trust AI Engineering) at Autodesk, where a proactive agent I built modernized 1,500+ internal apps to GraphQL at >85% success.

## CORE SKILLS

**Agentic AI:** Agent harness & runtime engineering, Agent & MCP design, BYO-agent/MCP platforms, orchestration, Multi-Agent, ReAct, Plan-and-Execute, Human-in-the-Loop

**GenAI & RAG:** LLMs, RAG (multi-query, step-back, reranking, hybrid search, LLM-as-judge, evals), Prompt Engineering, Semantic Search, SBERT

**AI Platforms / Frameworks:** Azure OpenAI, AWS Bedrock (Guardrails), LangChain, LangGraph, LlamaIndex, Google ADK, Langflow

**Data & Big Data:** Snowflake, Databricks, Apache Spark, Kafka, Airflow, Data Lakes/Warehouses, Delta Lake

**Databases:** Pinecone, Elasticsearch/OpenSearch, PostgreSQL, MongoDB

**Languages / DevOps:** Python, SQL, Java, Scala, Node.js; Docker, Kubernetes, Terraform, CI/CD

## EXPERIENCE

### Principal Software Engineer / Technical Lead, Autodesk

Jul 2025 - Present | Montreal, Canada

- Technical lead of a central team building an agentic platform (BYO-agent / BYO-MCP) - the agent & MCP catalog, discovery and orchestration layers, and the harness/standards for building workers (agents and MCPs).
- Built a proactive agent that migrates legacy, vulnerability-prone APIs to GraphQL across 1,500+ internal applications - direct and dependency-based usage in Python, Go, Java, Ruby on Rails, and Perl - at a >85% success rate (by code complexity), surfaced through a UI dashboard; significant ROI.
- Shipped 3 production agents (1 proactive, 2 reactive), 5 MCPs, and 2 IDE plugins adopted across Autodesk.
- Built MCP tools that surface secure-coding and cloud standards inside AI-assisted IDEs (Cursor, Claude Code) - shifting security left in the SDLC.
- Architected ingestion, indexing and retrieval and production observability (Opik, Splunk, CloudWatch, PagerDuty).

### Data Architect / Staff Engineer, Databook Labs (USA)

Dec 2022 - Jul 2025 | Montreal, Canada (Remote)

- Built the company data platform from scratch and its first semantic layer (early 2023) powering Databook AI.
- Spearheaded a GPT product for strategic sales with advanced RAG (multi-query, step-back, reranking, LLM-as-judge) to lift engagement and personalization.
- Designed agentic AI workflows with LangGraph, Google ADK, Conductor, and Langflow; semantic index over Pinecone and Elasticsearch on Snowflake/Databricks; led a team of data engineers.

### Principal Data Engineer, Sitecore

Mar 2022 - Dec 2022 | Montreal, Canada

- Led the core Search team handling ~200K events/sec, enhancing AI-backed search and personalization for e-commerce.
- Architected a Data Lake and Warehouse for a global retailer, reducing storage costs; built Snowflake marts and automated monitoring. Stack: Elasticsearch, Spark, Kafka, Snowflake, AWS, Airflow, Docker.

### Solutions Architect, Cloudera

May 2021 - Mar 2022 | Montreal, Canada

- Professional Services expert onboarding customers to Cloudera Data Platform (public/private/hybrid); designed on-prem to AWS migrations and reduced cloud cost.

### **Senior Data Engineer, Intact Insurance**

Apr 2020 - May 2021 | Montreal, Canada

- Led a team of data engineers; built on-prem to AWS historical-data migration, refactored pipelines onto Databricks, authored Snowflake/Databricks/AWS best-practice guides.

**Earlier:** Data Engineer, Ericsson (2019-20) · Data Engineer, CGI (2018-19) · Data Engineer, Synechron (2018, Pune) · Big Data Developer, Interglobe (2016-18, Dubai - ~2 PB pipelines) · Software Engineer, MotherSumi/MIND (2014-16) · Software Developer, NIIT (2012-14).

### **CERTIFICATIONS**

Snowflake SnowPro Core · AWS Solutions Architect - Associate · AWS Cloud Practitioner · Databricks Certified Developer (Spark 3.0) · CCA Spark and Hadoop Developer (CCA-175) · Microsoft Azure Fundamentals (AZ-900)

### **EDUCATION**

Master of Science (M.Sc.), Computer Science - Manav Bharti University (2010-2013)