

ASHISH VERMA

Senior AI & Data Platform Engineer

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PROFESSIONAL SUMMARY

Senior AI & Data Platform Engineer with 15+ years of experience architecting large-scale AI, machine learning, and distributed data platforms across fintech and enterprise environments. Specialized in Agentic AI, LLMs, RAG, anomaly detection, real-time inferencing, MLOps, and cloud-native AI infrastructure on GCP and AWS. Proven track record delivering scalable AI platforms, modernizing enterprise data ecosystems, mentoring engineers, and driving AI adoption through production-grade systems.

CORE COMPETENCIES

AI/LLM Systems	LangGraph, LangChain, CrewAI, MCP, LlamaIndex, Multi-Agent Systems, Agentic AI, RAG, Prompt Engineering, LoRA/QLoRA, Embeddings, Vector Databases, Semantic Search, AI Observability
Machine Learning	PyTorch, TensorFlow, Deep Learning, CNNs, LSTMs, BiLSTMs, VAEs, Autoencoders, Anomaly Detection, NLP, Forecasting, Feature Engineering
Distributed Systems	Spark, Kafka, Airflow, Databricks, Hadoop, Streaming Architectures, Event-Driven Systems
Cloud & Platform	GCP, AWS, Kubernetes, Docker, CI/CD, Monitoring, Observability, Production AI Infrastructure
Data Platforms	BigQuery, Dataflow, Pub/Sub, ETL/ELT, Schema Evolution, Governance, Lineage, Metadata Management
Leadership	Architecture Ownership, Technical Strategy, Mentorship, Stakeholder Alignment, Cross-Functional Collaboration

PROFESSIONAL EXPERIENCE

Senior Data & AI Engineer | PayPal Inc. (Full-time) Feb 2022 – Present • San Jose, CA

- Architected enterprise-scale AI and machine learning platforms supporting fraud detection, anomaly detection, intelligent automation, and enterprise knowledge retrieval.
- Designed and implemented Agentic AI workflows using LangGraph, LangChain, and MCP-based architectures to automate engineering operations and enterprise support processes.
- Built production-grade RAG platforms integrating enterprise documentation, metadata repositories, and knowledge systems through vector search and semantic retrieval.
- Owned design and implementation of anomaly detection platforms leveraging VAE-BiLSTM and CNN-BiLSTM models on Kafka, Spark, and cloud-native infrastructure.
- Fine-tuned Large Language Models using LoRA and QLoRA techniques for domain-specific retrieval, summarization, and workflow automation applications.
- Designed scalable embedding generation and vector indexing pipelines supporting semantic search and contextual knowledge retrieval.
- Established cloud-native ingestion, schema evolution, governance, and observability frameworks supporting large-scale financial datasets.
- Mentored engineers and influenced best practices around AI systems, LLMOps, machine learning workflows, and distributed architectures.

Data Engineer | Kforce Inc. Feb 2020 – Feb 2022 • San Francisco, CA (Client: US Bank)

- Designed and optimized distributed Spark and SQL pipelines supporting machine learning, fraud analytics, risk scoring, and operational intelligence workloads.
- Built feature engineering pipelines and ML-ready datasets for model training, experimentation, and production inferencing.
- Developed event-driven architectures enabling near real-time analytics and anomaly detection capabilities.
- Implemented data quality, lineage, and validation frameworks improving reliability of downstream machine learning workflows.
- Collaborated with Data Scientists and ML Engineers to optimize feature availability, schema evolution, and model-serving architectures.

Data Engineer | Cognizant Technology Solutions

Mar 2014 – Feb 2020 • San Francisco, CA (Clients: US Bank, Barclays)

- Built enterprise-scale ETL and analytics platforms using Spark, Hadoop, Python, and SQL supporting predictive analytics and business intelligence systems.
- Designed reusable ingestion frameworks enabling scalable data preparation and transformation for machine learning workloads.
- Developed dimensional and analytical data models supporting classification, segmentation, forecasting, fraud detection, and scoring.
- Implemented governance, lineage, auditing, and compliance solutions improving regulatory adherence and enterprise reporting reliability.

Software Engineer | Wipro Technologies

Nov 2010 – Mar 2014 • India (Clients: Western Power, Hanes)

- Developed enterprise data warehouse and reporting automation solutions using PL/SQL and Python, significantly reducing manual operational effort.
- Designed data integration and transformation workflows supporting reporting, analytics, and operational decision-making.
- Supported early predictive analytics initiatives through scalable data preparation and reporting infrastructure.

RESEARCH & PUBLICATIONS

Active Research Initiatives

- CortexOps — AI Agent Reliability Platform (AI observability & evaluation; supports 12 agent frameworks)
- Tidevec — The world's first temporally-aware, causally-indexed vector database
- MASEV — Multi-Agent System Evaluation Framework
- Finance Multi-Agent Advisory Platform
- Spallation Neutron Anomaly Detection

Selected Publications

- Beyond Task Completion: A Unified Metrics Framework for Evaluating Coordination Dynamics in LLM-Based Multi-Agent Systems — Under Review (NeurIPS 2026)
- Energy-Aware Prompt Optimization for Large Language Models: Balancing Accuracy, Cost, and Sustainability — TechRxiv/IEEE
- Variational Autoencoder and BiLSTM-Based Anomaly Detection for Beam Stability in Spallation Neutron Sources — TechRxiv/IEEE
- TideVec: A Production Vector Database Engine with Native Temporal Decay, Causal Graph Storage, and Zero-Downtime Model Migration-SSRN

EDUCATION

PhD in Computer Science (Cybersecurity and AI)

Dakota State University • Cybersecurity & AI Specialization

M.S. in Data Science & Analytics

Old Dominion University • GPA: 3.85

B.Tech. in Computer Science & Engineering

Kanpur University

Starting Fall 2026

CERTIFICATIONS

✓ Google Cloud Professional Data Engineer	✓ Google Cloud Professional Machine Learning Engineer
✓ Microsoft Azure Data Scientist Associate	✓ Databricks Spark Professional