

SANDHYA TRIPATHI

AI Engineer | Agentic AI, RAG, Data Engineering, Enterprise AI Solutions

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PROFESSIONAL SUMMARY

AI Engineer with 14+ years of experience across enterprise, regulated, and mission-critical environments, including 4+ years in machine learning, advanced analytics, and Generative AI.. Experienced in designing and validating enterprise AI solutions using Python, Retrieval-Augmented Generation (RAG), agent-based systems, data engineering, and evaluation-driven development. Strong background in building end-to-end prototypes that combine structured analytics, semantic retrieval, and conversational AI, with focus on scalability, observability, compliance, and downstream product readiness. Proven leader with experience mentoring engineering teams and delivering reliable systems in high-accountability environments.

CORE EXPERTISE

AI / GenAI: Agentic AI, RAG, LLM application design, multi-agent systems, prompt design, grounding, guardrails, model benchmarking

Programming / Frameworks: Python, Flask, PyTorch, TensorFlow, OpenAI, LLaMA, Mistral, Gemini, LangGraph, SentenceTransformers

Data / ML Engineering: ETL pipelines, data cleaning, schema normalization, dimensional modeling, SQL, SQLite, BigQuery, Databricks, embeddings, semantic retrieval, FAISS

Cloud / Deployment: Azure, AWS, Docker, CI/CD, enterprise Git workflows, logging, observability, model evaluation, deployment-ready prototyping

Ways of Working: Agile collaboration, stakeholder management, mentoring, cross-functional delivery, governance, compliance, architectural trade-off analysis

PROFESSIONAL EXPERIENCE

Applied AI Engineer

Körber Digital – Berlin, Germany | Mar 2025 – Present

- Lead investigation, prototyping, and validation of AI solutions for enterprise and industrial use cases, with focus on feasibility, scalability, traceability, and downstream product readiness.
 - Designed and implemented LLM-, RAG-, and agent-based architectures for supplier intelligence and procurement decision support in collaboration with business and engineering stakeholders.
 - Built AI prototypes integrating structured analytics, semantic retrieval, and conversational interfaces to support supplier profiling, negotiation preparation, and evidence-grounded querying.
 - Developed data preparation and transformation workflows for heterogeneous enterprise datasets, including validation, standardization, and supplier-centric analytical modeling.
 - Implemented semantic retrieval pipelines using embeddings, FAISS, and source-attributed retrieval to improve response grounding and reduce hallucination risk.
 - Contributed to model benchmarking and system evaluation, comparing response quality, latency, and output efficiency to support architecture decisions.
 - Worked in an enterprise Git-based development environment supporting collaborative iteration, traceability, and transition from prototype to deployment-oriented engineering workflows.
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Senior Data Analyst – Advanced Analytics

Bank of America | Mar 2021 – Dec 2023

- Applied advanced analytics and statistical methods to large-scale enterprise datasets in a highly regulated environment.
 - Designed and maintained Python- and SQL-based data pipelines processing approximately 50,000 records per month.
 - Built decision-support analytics and executive dashboards, translating complex analysis into actionable business insights.
 - Ensured robustness, auditability, and reliability of analytical systems; recognized with Zero KPI Misses Gold Award.
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Information Technology Manager (Commissioned Officer)

Indian Air Force | Jan 2007 – Jan 2021

- Led mission-critical IT and data systems across multiple operational bases under strict security, reliability, and uptime requirements.
 - Managed and mentored 25+ engineers, providing technical leadership, operational oversight, and structured problem-solving in high-pressure environments.
 - Built strong foundations in risk management, governance, compliance, and resilient system operations relevant to enterprise AI deployment.
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SELECTED AI PROJECTS

Master Thesis (Körber Digital / SRH Heidelberg)

AI-Driven Supplier Intelligence: Leveraging Large Language Models and Data Engineering for Next-Generation Procurement | Completed Mar 2026

- Designed and delivered Aquila Smart Procurement, an AI-driven supplier intelligence prototype combining deterministic analytics with an evidence-grounded conversational AI interface for procurement use cases.
- Built a dual-path architecture combining structured KPI computation with RAG-based retrieval over unstructured sources such as ESG reports, public profile data, and news signals.
- Developed a data engineering pipeline to clean, standardize, validate, and model procurement data into a supplier-centric analytical layer for dashboarding and query workflows.
- Implemented semantic indexing using SentenceTransformers + FAISS, preserving chunk-level metadata and citation traceability to support evidence-backed responses.
- Built multi-agent orchestration with graph-based routing and specialist reasoning paths for complex supplier questions involving ESG, profile, and procurement context.
- Created a user-facing application with Supplier Intelligence, Negotiation Preparation, and Chatbot workflows to support supplier review and decision preparation.
- Evaluated model and system performance through routing tests, grounding checks, observability metrics, and controlled benchmarking of production-feasible LLM options.

AI-Assisted Tool for Child Language Learning

- Designed and implemented an LLM-based learning assistant using LLaMA 2 to support English language development for children aged 4–12.
 - Developed adaptive learning workflows for vocabulary building, sentence construction, and conversational practice.
 - Implemented personalization logic based on learner progress and interaction patterns.
 - Built a Python-Flask web application with SQLite backend, demonstrating end-to-end delivery from model design to usable application.
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EDUCATION

M.Sc. Applied Data Science & Analytics

SRH University Heidelberg, Germany | 2026 | Grade: 1.8

CERTIFICATIONS

- Project Management Professional (PMP)
 - Certified ScrumMaster (CSM)
 - NVIDIA – Building LLM Applications with Prompt Engineering
 - NVIDIA – Fundamentals of Deep Learning
 - AWS Academy – Cloud Foundations
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LANGUAGES

English (C2) | German (B1)