

Omprakash Jena

Enterprise AI Architect | Generative & Agentic AI · RAG · LLMOps · Azure & Databricks

Derby, UK | Open to relocation

omprakash.jena@hotmail.com | linkedin.com/in/omprakash-jena | github.com/omprakashjena | omprakashjena.com

Summary

Enterprise AI Architect with 8+ years at TCS, designing and delivering production GenAI and agentic AI systems on Azure and Databricks. Delivering onsite in the UK for a global aerospace engine manufacturer, owning architecture and delivery from proof of concept and proposal to production across RAG, multimodal search and agentic automation. Grounded in data science, with pre-sales and delivery across manufacturing, utilities, supply chain, travel and ITSM.

Selected Impact

- Cut project charter preparation from **30–40 effort hours** to **under 2 minutes** of generation with a rule-driven GenAI platform, onboarding **300+ users**.
- Architected production RAG search over **1M+ emails**, cutting the time to find information from about **30 minutes** to **under 90 seconds** per query.
- Took a client engagement from proof of concept and proposal (2024) to **8 AI** and data science solutions, delivered offshore and onsite in the UK.

Core Skills

Generative & Agentic AI: RAG, Hybrid Retrieval (Vector + BM25), Multimodal / Vision LLMs, Agentic Workflows, LangGraph, LangChain, Azure OpenAI, LLM Guardrails, Prompt Engineering, LLMOps

Architecture & Platforms: Solution Architecture, Microservices, Databricks, Lakebase, MLflow, Azure (AKS, APIM, Entra ID), FastAPI, React

Machine Learning & Data Science: Causal Inference (DoWhy), Change-Point Detection (CUSUM, ruptures), Statistical Process Control, Clustering, Classification, Regression

Data Engineering & BI: PySpark, SQL, KNIME, Power BI, Tableau

Engineering & DevOps: Python, Docker, Kubernetes, Azure DevOps CI/CD, SonarQube, Git

Consulting: Pre-sales, RFP/RFQ Solutioning, Proof of Concept to Production, Stakeholder Management

Professional Experience

Tata Consultancy Services

Jan 2018 – Present

Derby, UK | Kolkata, India

Enterprise AI Architect

Jan 2025 – Present | Kolkata, India | Derby, UK

- Own architecture and delivery of production GenAI, RAG, multimodal and agentic systems for a global aerospace engine manufacturer, from proof of concept and proposal to release.

GenAI Email Search & Summarisation Platform | Global aerospace engine manufacturer (UK)

Databricks, Lakebase, Azure OpenAI, MLflow, FastAPI, React, AKS, Microservices

- Architected and led delivery, with a team of 5, of a production RAG platform over **1M+** historical emails across 5 shared mailboxes, with daily incremental ingestion.
- Replaced slow, inaccurate mailbox search, cutting the time to find information from about **30 minutes** per query to **under 90 seconds**, with AI-generated summaries alongside the source email metadata.
- Designed hybrid retrieval combining semantic vector search with BM25 keyword matching, and hardened the platform for enterprise release with LLM guardrails, a cleared SonarQube quality gate and observability.

AI Project Charter Generation Platform | Global aerospace engine manufacturer (UK)

LangChain, Azure OpenAI, Databricks, FastAPI, React, AKS, Microservices

- Architected and led delivery, with a team of 7, of a production platform that generates standards-compliant project charters from enterprise engineering guidelines, onboarding **300+ users**.
- Cut charter preparation from **30–40 effort hours** to a guided questionnaire and **under 2 minutes** of generation.
- Combined a rule-driven complexity score with LLM generation so each charter deterministically follows the right lifecycle and assurance guideline, keeping output auditable.
- Extended into a project workspace with versioning, sharing, email distribution and a dashboard.

Agentic Vulnerability Auto-Patching (Pilot) | Global aerospace engine manufacturer (UK)

LangGraph, Microsoft Defender, SonarQube, Azure DevOps, AKS

- Conceived and architected an agentic tool that turns Defender and SonarQube findings into triaged, tested dependency-upgrade pull requests, enabling continuous daily remediation after go-live.
- Proved the approach in a proof of concept, and secured a pilot across **5 applications** as the first step towards an enterprise-wide rollout.

Multimodal Slide Deck Search Assistant | Global aerospace engine manufacturer (UK)

Databricks, Azure OpenAI, Vision LLM, LibreOffice, FastAPI, React, AKS

- Architected and led delivery of a multimodal RAG assistant built to index **tens of thousands** of enterprise presentations, now past beta testing and moving to production.
- Built a Databricks pipeline that renders slides with headless LibreOffice and interprets each one, charts and diagrams included, with a vision LLM, making visual content searchable.

CFD Engineering Assistant | Global aerospace engine manufacturer (UK)

Databricks, Azure OpenAI, RAG, Python

- Architected and delivered, with a team of 2, a RAG assistant for CFD engineers that answers how-to questions and generates code for a proprietary solver, grounded in internal documentation.
- Adopted by **20+ engineers** while still at the proof-of-concept stage.

GenAI & Data Science Consultant

Jan 2023 – Dec 2024 | Kolkata, India

- Led GenAI and AI/ML solutioning across TCS's Intelligent Process Automation, Enterprise SIAM and Supply Chain practices, shaping technical architectures for RFPs and RFQs and presenting proof-of-concept results that opened new client engagements.

Specific Fuel Consumption Driver Analysis | Global aerospace engine manufacturer (UK)

Causal Inference, DoWhy, Causal Graphs, CUSUM, ruptures, Python

- Led and architected, with 2 data scientists, a causal analysis of engine fuel consumption drivers, using causal graphs and DoWhy to separate true drivers from correlated signals, and change-point detection to pinpoint trend shifts; findings were independently confirmed by the client's data science team.

Production Pass-Off Risk Monitoring | Global aerospace engine manufacturer (UK)

Statistical Process Control, CUSUM, Clustering, Python

- Architected and delivered, with a team of 2, an early-warning tool that flags engines at risk of failing production pass-off, combining SPC ($\pm 3\sigma$ / 6σ limits), CUSUM drift detection and clustering across **80+ test parameters**; in active use by the engine test team.

Travel Itinerary Extraction | International travel agency

Azure OpenAI, LangChain, Python, UiPath

- Architected a GenAI solution that extracts structured travel requests from unstructured emails, integrated with UiPath automation and human-in-the-loop validation to keep accuracy high in production.

Senior Data Analyst

Jan 2021 – Dec 2022 | Kolkata, India

- Built an ML model that flags customers likely to escalate complaints to the energy regulator (UK utility), contributing to a **45%** reduction in complaints, as agreed with the client after 12 months of observation.
KNIME, R, AWS EC2
- Delivered a real-time Power BI dashboard tracking billing work items for regulatory compliance (Canadian utility), reducing backlogs. *Power BI, SAP*

Data Analyst

Jan 2018 – Dec 2020 | Kolkata, India

- Built a supervised ML model forecasting customers likely to fall into debt (Australian utility), contributing to a **65%** reduction in debt-related issues, as agreed with the client. *KNIME, SQL, SAP HANA*

Projects

- **Regulated Engineering Document Authoring Assistant (PoC)** – GenAI drafting of regulated engineering documents from technical manuals.
- **Engineering Drawing Notes Extraction** – drawing annotations to structured data with vision LLMs.

Publications

- **Securing Retrieval-Augmented Generation in Business Process Services** – white paper, TCS, forthcoming on tcs.com (2026).

Certifications

Databricks Certified Generative AI Engineer Associate · Microsoft AZ-900 Azure Fundamentals · Lean Six Sigma Green Belt (TCS) · TCS Leadership ASCENT · Leadership Skills, IIM Ahmedabad (Coursera) · ServiceNow Performance Analytics

Awards

Special Achievement Award, TCS (2021, 2022) · Special Initiative Award, TCS (2021) · Individual Excellence Award, TCS (2020) · 2nd Place, A&I Kosh Winter Season, TCS (2021)

Education

Bachelor of Arts (BA), Utkal University

2017