

# Subhadip Mitra

*Engineering Leader & AI Systems Architect*

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*Last updated: December 25, 2025*

## Professional Summary

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Senior Engineering Leader with 15+ years of experience bridging fundamental AI research and enterprise-scale system delivery. Currently leading Google Cloud's Data & Analytics practice for Southeast Asia while driving internal innovations on LLM inference efficiency, multi-agent systems, and AI safety research (activation probing, sandbagging detection). Proven track record of operating as a "Player-Coach": managing regional engineering portfolios while simultaneously architecting and patenting novel frameworks (UPIR, ARTEMIS, FTCS, Speculative Decoding).

## Professional Experience

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**Google Cloud - Professional Services Organization: Head of Data & Analytics, Southeast Asia — Site Lead, PSO Southeast Asia** *January 2021 – Present*

Dual-track role combining technical innovation leadership with regional delivery management. Built Google Cloud's Data Analytics practice across Southeast Asia while serving as Site Lead overseeing cross-practice operations. Member of [delta](#) - Google Cloud's innovation and transformation team architecting enterprise AI solutions at scale.

### Strategic Leadership & Delivery:

- Built Data Analytics practice for Southeast Asia from 0 to 1, recruiting and developing engineering talent while establishing the region's premier capability serving strategic enterprise clients across 7 countries.
- Serve as Site Lead overseeing delivery governance across all 7 PSO practices (Data Analytics, AI/ML, Infrastructure, Security, Enterprise Architecture, Application Development, Delivery Management) in Southeast Asia, owning utilization and CSAT metrics (97%) while driving strategic pursuits and contributing to 100% annual revenue target attainment.
- Direct \$XXM+ Data Analytics delivery portfolio across JAPAC while simultaneously overseeing \$XXM+ cross-practice portfolio as regional Site Lead.
- Led critical engagements for JAPAC strategic accounts including major financial services institutions, telcos and consumer electronics manufacturers, ensuring delivery excellence and client success.
- Partner with Sales leadership on strategic pursuits and collaborate with Product Engineering to shape platform roadmap based on field insights and customer requirements.
- Spearheaded cross-practice rescue operations for at-risk enterprise accounts with multi-million dollar project values, recovering strategic customers and converting potential platform exits into long-term partnerships.
- Delivered first-of-kind solutions including GenAI-powered reconciliation framework for a major airline (now replicated across JAPAC), large-scale ML platform migrations (30K+ notebooks), and petabyte-scale data platform modernizations.
- Partner with C-level stakeholders (CTOs, CDOs) to define data modernization and AI transformation roadmaps, translating technical capabilities into business outcomes.
- Pioneered agentic AI adoption across all 7 PSO practices (Data Analytics, AI/ML, Infrastructure, Security, Enterprise Architecture, Application Development, Delivery Management) and 6 JAPAC sub-regions, building SDKs, agent catalog, and standardized templates while designing reusable governance frameworks that accelerated innovation and reduced delivery costs.
- Built agentic tool suites including architecture discovery (100M+ node graph modeling), automated data pipeline generation, and platform cleanup agents that recovered multi-million dollar at-risk

- engagements and secured significant long-term cloud commitments.
- Built Data Strategy competency from 0, delivering 8-figure pursuit value across 14 strategic pitches in Asia Pacific while establishing critical data assets and new GTM offerings.

#### **Technical Innovation & Research:**

- 5 Google Technical Disclosures on AI and distributed systems - UPIR (automated system synthesis, 274x speedup), FTCS (context architecture for AI agents), ARTEMIS (multi-agent debate framework), ETLC (data processing for GenAI), and LLM inference optimization (speculative decoding, custom Triton kernels).
- Industry-agnostic agentic AI for enterprise trust decisions. APLS self-learning + cascade routing achieving 86% cost reduction, sub-50ms latency. Won Google Cloud PSO Hackathon JAPAC, qualified for World Finals.

#### **Standard Chartered Bank: Principal Engineer - Data & Analytics Transformation** *January 2019 – January 2021*

Led enterprise-wide AI and data platform development serving 11 markets, delivering technical excellence while influencing C-suite data strategy.

- Delivered a Self-Service ML Platform that reduced model development time from months to weeks
- MarTech modernization - +30% customer acquisition

#### **Think Big Analytics (a Teradata company): Principal Data Engineer / Solution Architect** *January 2017 – January 2019*

Architected enterprise-scale data solutions for Fortune 500 clients across APAC.

- Data lakes processing 1.2 PB/hour for Fortune 500 clients across APAC
- Real-time fraud detection systems - 60% reduction in false positives

#### **Microsoft, Truckaurbus (Founder), UTU: Software Engineering & Technical Leadership** *January 2010 – January 2017*

Progressive advancement through software engineering, entrepreneurship, and technical leadership across systems development, marketplace platforms, and payments infrastructure.

- Microsoft (2010-2014): Windows Kernel development (Windows 7/8, Server 2012 R2), Azure ML implementations, CDN architecture optimization
- Truckaurbus (2014-2016): Founded B2B commercial vehicle marketplace - 15 cities, 25+ OEM/bank partnerships
- UTU Singapore (2016-2017): Led maiden Thailand technical development; bank integration; payment/rewards systems for merchants

## **Research & Open Source Engineering**

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### **Spark LLM Eval - Distributed Evaluation Framework**

Distributed LLM evaluation framework built on Apache Spark for enterprise-scale model assessment. Addresses the gap in evaluating LLMs at scale with statistical rigor, integrating seamlessly with Databricks infrastructure.

[GitHub](#) · [Blog](#)

### **LLM Inference Efficiency Research**

Research implementations addressing the fundamental bottleneck in LLM inference: memory-bandwidth constraints rather than compute limits. Explores acceleration through speculative decoding, custom GPU kernels, and quantization strategies.

[GitHub](#) · [GitHub](#)

*Google Technical Disclosure - Pending*

## AI Metacognition Toolkit

Activation-level detection of sandbagging, deception, and situational awareness in LLMs. Linear probes achieve 90-96% accuracy across Mistral, Gemma, and Qwen models. Includes steering vectors for runtime behavior control.

[PyPI](#) · [GitHub](#) · [Docs](#) · [Blog](#)

## Steering Vectors for Agent Behavior Control

Runtime control of LLM agent behaviors through activation steering vectors - modifying model outputs at inference time without retraining. Demonstrates more calibrated control than traditional prompting approaches with LangChain integration.

[GitHub](#) · [Blog](#)

## Publications & Technical Disclosures

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### UPIR: Automated Synthesis and Verification of Distributed Systems

*Google, Technical Disclosure Commons, November 2025*

### ETLC: A Context-First Approach to Data Processing in the Generative AI Era

*Google Cloud, May 2025*

### Field-Theoretic Context System (FTCS)

*Google, Technical Disclosure Commons, May 2025*

### ARTEMIS - Adaptive Multi-agent Debate Framework

*Google, Technical Disclosure Commons, January 2025*

### Data Monetization Strategy for Enterprises

*BITS Pilani, December 2023*

### OConsent: Open Consent Protocol for Privacy and Consent Management with Blockchain

*BITS Pilani, December 2021*

## Education

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MBA, Business Analytics  
MTech, Software Systems

Birla Institute of Technology and Science, Pilani  
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## Technical Skills

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**Technology Leadership & Strategy:** Enterprise Architecture, Digital Transformation, AI & Data Strategy, C-Suite Advisory, Innovation Leadership, Strategic Planning

**Data Engineering & Architecture:** Data Pipelines, Real-Time Processing, Data Mesh & Fabric, Data Governance, Apache Spark, Delta Lake, Apache Kafka, Apache Iceberg

**Generative AI & Machine Learning:** Multi-Agent Systems, Large Language Models, RAG Architecture, Vector Databases, PyTorch, LangChain, LangGraph, LlamaIndex, Google ADK, MCP, A2A Protocol, MLflow, LLMOps

**Cloud Platforms & Infrastructure:** Google Cloud Platform, BigQuery, Vertex AI, Dataproc, Cloud Composer, GKE, Terraform, Kubernetes

**Programming & Development:** Python, SQL, Scala, Triton, CUDA, Algorithm Design, Formal Verification, Program Synthesis, Distributed Systems