BALAJI RANGANATHAN

Principal Data & AI Engineer | Enterprise Lakehouse & Cloud Platforms Lead

Security Cleared | Sydney & Canberra, Australia | M.Eng (ANU) | Portfolio: gatewaybi.com.au

EXECUTIVE SUMMARY

Principal Azure Data & Platform Engineer with over a decade of experience architecting, delivering, and governing enterprise cloud data platforms and intelligent AI systems across Australian Federal Government and enterprise environments. Proven leader in designing secure-by-design Modern Data Platforms, automating metadata-driven ingestion pipelines, and deploying zero-trust Azure infrastructure using ARM templates, Azure DevOps CI/CD, and Bicep. Deep expertise across Microsoft Fabric, Azure Databricks, Azure Synapse Analytics, Azure Data Factory (ADF), dbt, and Model Context Protocol (MCP) agentic AI across 7+ Commonwealth departments, Go8 research institutions, and enterprise estates. Trusted advisor experienced in translating executive strategy into robust architectural blueprints.

FOUR ARCHITECTURAL PILLARS

01. Enterprise Data & Cloud Lakehouse:	Microsoft Fabric, Databricks, dbt Core, OneLake, Kimball & Data Vault 2.0
02. Agentic AI & Systems Engineering:	Azure AI Foundry, MCP Servers, Enterprise RAG, LangGraph, Go Token Proxies
03. Cyber Threat Intel & OSINT:	SentrySurface.io, DuckDB Analytical Graphs, Cloud Run, Takedown Pipelines
04. Enterprise Workflow & Modernization:	Azure Logic Apps, APIM, Event Grid, SAP/Dynamics Integration, SDD/ISM

Track Record: 10+ Years Enterprise Delivery | Cleared & ISM/PSPF Aligned | 7+ Federal Agencies & Go8

CORE TECHNICAL EXPERTISE & CAPABILITIES

Modern Fabric & Azure Stack:	Microsoft Fabric (OneLake, Lakehouse, Warehouse, DirectLake), Azure Databricks (Unity Catalog, Delta Live Tables, PySpark), Azure Synapse, ADF (SHIR, Data Flows), ADLS Gen2, Purview.
Data Architecture & Modeling:	Medallion (Bronze/Silver/Gold), dbt Core/Cloud, Kimball Star Schema (SCD Types 1/2/3/6), Data Vault 2.0 (Hubs, Links, Satellites), Delta Lake, Structured Streaming, 3NF ODS, CA Erwin.
SQL, Power BI & Analytics:	SQL Server Tuning, Advanced T-SQL, Azure SQL/MI, Cosmos DB for PostgreSQL, Power BI Premium/Fabric Capacity, Advanced DAX, DirectLake Semantic Models, RLS, Tabular Editor, Cognos.
Agentic AI & Automation:	Azure AI Foundry, Azure OpenAI, Azure ML, Model Context Protocol (MCP), Hybrid RAG, LangGraph, Document AI & Azure Content Safety, Copilot Studio, Go Token Proxies, UiPath.
Integration, SAP & DevOps:	SAP BW/BAPI/ABAP Lakehouse Pipelines, Dynamics 365 Synapse Link, Azure APIM, Logic Apps, Event Grid, Azure Functions, Azure DevOps YAML CI/CD, Bicep/ARM, Docker, Entra ID, PSPF.
Languages & Legacy Migration:	Python (PySpark, FastAPI, Pandas, PyTorch), T-SQL, PL/SQL, PostgreSQL, Go, TypeScript, PowerShell, C#; Oracle, Teradata, IBM InfoSphere DataStage/QualityStage & DB2 Migrations.

FLAGSHIP PLATFORMS & ARCHITECTURAL IP (VERTEX CORE GROUP)

LexiCanvas.com (Creator & Systems Architect):	Mermaid-to-Terraform/Pulumi IaC compiler & STRIDE security studio.
McpCognito.app & SurfaceProxy (Lead AI Architect):	MCP agent control plane & Go DOM proxy for token-cost control.
SentrySurface.io (Lead Data & Security Architect):	DuckDB graph & Cloud Run OSINT takedown pipeline.

EDUCATION & INDUSTRY CERTIFICATIONS

Master of Engineering (Mechatronics, Data Analytics, AI) | The Australian National University (ANU) | 2018

Bachelor of Engineering (Electronics and Instrumentation) | Anna University | 2015

Microsoft & Cloud Certifications:

- Microsoft Certified: Fabric Analytics Engineer Associate | Microsoft Certified: Azure Data Engineer Associate
- Microsoft Certified: Power BI Data Analyst Associate | Microsoft Certified: Azure Data & AI Fundamentals
- Data Engineering with Databricks V2 | Fundamentals of the Databricks Lakehouse Platform | dbt Fundamentals
- Snowflake Hands-on Essentials (Data Warehousing) | Dimensional Modelling: Kimball Method | UiPath RPA Advanced

CAREER HISTORY & ANONYMIZED AGENCY DELIVERY TRACK RECORD

10+ Years Architecting Cloud Data Platforms & Intelligent Systems Across Australian Federal Government & Enterprise

Principal Data & AI Architect | Vertex Core Group | 2026 - Present

- Lead Architect for enterprise engagements directing modern lakehouse roadmaps, feasibility audits, and reference builds.
- Engineered enterprise RAG & retrieval pipelines across lakehouse estates integrating hybrid search, semantic chunking, and Go token-routing proxies that reduced LLM inference costs while enforcing strict data lineage and RBAC.
- Architected autonomous multi-agent workflows powered by Model Context Protocol (MCP) & LangGraph with deterministic guards.

Senior Data Engineer | Federal Regulatory & Anti-Scam Agency | Jun 2024 - Oct 2026

- Designed and deployed scalable Medallion (Bronze/Silver/Gold) Lakehouse pipelines across Microsoft Fabric (OneLake, Lakehouse, Warehouse, PySpark, Delta Lake) and ADLS Gen2 processing high-volume multi-structured scam & threat feeds.
- Architected production AI agents, RAG solutions, and an automated Document AI/ML ingestion engine in Azure AI Foundry, Azure OpenAI & Content Safety processing 1,500+ sensitive attachments daily with zero manual file handling.
- Built metadata-driven ADF & Fabric ingestion frameworks via Self-Hosted Integration Runtimes (SHIR), Azure APIM inter-agency data sharing, dynamic Fabric Row-Level Security (RLS), Logic Apps/Event Grid alerting, and Azure DevOps YAML CI/CD.

Azure Platforms & Geospatial Data Engineer | National Aviation Safety Regulator | Jan 2024 - Jun 2024

- Engineered resilient Azure platform infrastructure and automated spatial ETL integrating ArcGIS pipelines for safety ops.
- Designed Azure Cosmos DB for PostgreSQL distributed geospatial clusters and migrated 5+ TB of live geospatial/KML data with zero service loss; built serverless Azure Functions & containerized Python/PySpark GeoJSON/REST ETL pipelines.

Senior Data Engineer | Commonwealth Trade & Investment Agency | Mar 2023 - Jan 2024

- Delivered Enterprise Data Platform (EDP) lakehouse and data mart solutions across Azure Synapse, ADF, and Microsoft Fabric, earning formal Technical Advisory Group (TAG) governance endorsement in accelerated timeframes.
- Engineered hybrid SAP-to-Azure lakehouse migration, automated SAP cost-recovery executive dashboards, real-time Dynamics 365 to Synapse Link / Delta Lake replication, and production Azure ML predictive client-scoring models.
- Tuned multi-TB SQL Server engines (set-based T-SQL, partitioning, Clustered Columnstore Indexes) & governed Power BI Fabric.

Data Warehouse Developer | Federal Employment & Workplace Department | Jul 2022 - Mar 2023

- Designed conceptual, logical, and physical Kimball Star Schemas (accumulating snapshot facts, SCD Type 2 dimensions) and Operational Data Stores (ODS) across cloud/on-prem SQL Server and data lake layers with Azure DevOps DataOps.

Data Science & Data Developer | Federal Health & Therapeutic Regulator | Feb 2022 - Jul 2022

- Implemented automated ADF & SQL Server ELT migration patterns into Azure SQL, Blob Storage, and Cosmos DB; harmonized semi-structured JSON & relational datasets and built cross-platform regulatory analytics in Power BI and QlikView.

ETL / BI Developer | National Air Navigation & Aviation Agency | Jul 2021 - Feb 2022

- Executed full EDW migration from SQL Server to Oracle 12c, designed SAP HR/Finance data warehouse architectures, automated Kerberos SharePoint API ingestion, and delivered multi-platform BI across Power BI, Cognos, and Tableau.

Data Warehouse Architect | Group of Eight (Go8) National Research University | Jan 2019 - Jul 2021

- Led CRM data analytics and engineered enterprise conceptual/logical/physical data models, logistic regression student conversion models, entity-resolution algorithms, IBM Cognos/Power BI reporting, and UiPath + SmartIQ e-Form workflows.

Earlier Career: Power BI Developer (Accounting Firm, 2018-2019) | Infrastructure Developer (Global IT Consultancy, 2015-2016)

- Built scalable Python REST integrations between Power BI and Xero; engineered PowerShell/SQL automation & Microsoft Intune MDM.

ENGAGEMENT VEHICLES & DIRECT CONTACT

01. Permanent / Platform Leadership:	Principal Data & AI Architect / Head of Data & Platforms (Sydney, Canberra, Hybrid).
02. Fixed-Scope Advisory SOW:	10-Day Lakehouse/AI TCO Audits & Milestone SOWs delivered via Vertex Core Group.
03. Contract / Labour Hire:	Immediate availability for 3-12 month Day-Rate, PAYG, Pty Ltd ABN, or BuyICT Panel.

Direct Email & Phone:	balaji@vertexcoregroup.com.au
Portfolio & Profiles:	https://gatewaybi.com.au | linkedin.com/in/balajirangan
GitHub & Live IP:	github.com/Balaji-Ranganathan | lexicanvas.com | mcpcognito.app | sentrysurface.io
Security & Location:	Security Cleared | ISM / PSPF Governed Delivery | Sydney & Canberra (On-Site / Hybrid)

Unedited executive endorsements & interactive architecture topologies available at https://gatewaybi.com.au