

# TRISSAAN A SHANMUGASUNDARAM

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<https://www.linkedin.com/in/trissaan> • <https://www.github.com/trissaan> • <https://www.datascienceportfol.io/trissaan> • Full Australian Work Rights (485 visa, valid to Feb 2028)

## AI / Data Scientist | LLM Systems | ML Pipelines | Python | AWS | Production AI

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AI/ML-focused Data Scientist with hands-on experience building production-grade data pipelines, LLM-powered automation agents, and automated validation frameworks. Proven ability to engineer data quality gates, anomaly detection systems, and observability checks across high-volume data workflows, directly transferable to AI assurance, eval pipeline engineering, and runtime guardrail development. Delivered end-to-end agentic systems using LLM APIs, FastAPI, and Playwright, and built Python ETL pipelines processing 15,000+ daily operational records with automated exception handling. AWS Certified Data Engineer with enterprise cloud-native experience and a Master of Science in Data Science (Deakin University). Excited to bring production AI thinking, startup energy, and customer-obsessed delivery to NAB's AI COE team.

### CORE TECHNICAL SKILLS

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<b>AI &amp; LLM Systems</b>	LLM APIs, MCP, Agentic Systems, FastAPI, Playwright, Microservices, Prompt Engineering, RAG, LLM Orchestration, Guardrails, Structured Output Parsing
<b>ML &amp; Data Science</b>	Python, Scikit-learn, ML Classification, PCA / Feature Engineering, Pandas / NumPy
<b>Pipelines &amp; Assurance</b>	Eval Pipelines, Data Validation Gates, Anomaly Detection, Observability, CI/CD
<b>Data Engineering &amp; Cloud</b>	SQL / PostgreSQL, ETL Pipelines, AWS / Cloud, Power BI
<b>Ways of Working</b>	Cross-functional Squads, Product & Engineering Partnership, Stakeholder Comms

### AI & ML PROJECTS

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#### AI Job Application Automation Agent | Python · FastAPI · Playwright · LLM APIs · Modular Architecture

- Designed and built an end-to-end agentic AI platform that autonomously scrapes job listings, parses unstructured job description data, and generates tailored output documents using large language model APIs, a real-world agentic pipeline with LLM orchestration at its core.
- Engineered a modular microservice architecture separating scraping (Playwright), LLM inference/document generation, and application automation services, demonstrating production-oriented design thinking with clear service boundaries and separation of concerns.
- Implemented structured logging and metadata tracking across the pipeline to capture application state, generated outputs, and job metadata, directly analogous to observability and telemetry instrumentation for agentic systems.
- Applied prompt engineering and structured output parsing to reliably extract and transform LLM outputs into typed document structures, an early-stage implementation of schema/constraint checks and deterministic output control.
- Designed the system with rollback and retry logic for failed scraping or LLM inference calls, reflecting production reliability thinking consistent with canary and rollback trigger patterns in enterprise AI pipelines.

#### Enterprise Operations Data Platform | PostgreSQL · Python · Pandas · ETL Pipelines

- Designed a normalised relational data platform modelling enterprise operational entity (customers, products, inventory, orders, shipments, returns), with Python-based ETL pipelines transforming transactional data into analytics-ready datasets.
- Implemented SQL analytics covering revenue trends, product demand, inventory risk, and fulfilment performance, demonstrating ability to define measurable KPIs and acceptance criteria for data pipeline outputs.

#### Parkinson's Disease Prediction Model | Python · Scikit-learn · Random Forest · SVM · PCA

- Applied Random Forest and SVM classification models to biomedical gait sensor data for Parkinson's disease progression prediction, demonstrating applied ML model development, feature engineering, and performance evaluation.
- Used PCA and feature selection to reduce dimensionality and identify the most predictive health indicators, improving model accuracy and interpretability, relevant to efficient model optimisation and evaluation design.

## PROFESSIONAL EXPERIENCE

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### Data Scientist & Analytics Engineer

Apr 2024 – Mar 2026

Packcentre Marketing Services | Melbourne, VIC

End-to-end ownership of data pipelines, automated reporting systems, and analytical frameworks across a 5-state enterprise operation servicing Mondelez, Nestlé, L'Oréal, and Asahi.

- **Pipeline Engineering & Quality Gates:** Engineered SQL and Python (Pandas) data pipelines processing 15,000+ daily operational records, integrating production, logistics, and finance data, with automated validation checks acting as quality gates before data reached downstream reporting systems.
- **Anomaly Detection & Observability:** Implemented systematic data validation and reconciliation workflows that detected anomalies, data drift, and quality exceptions early in the pipeline lifecycle, preventing errors from surfacing in fiscal year-end and board-level reporting.
- **Automated Testing & Workflow Automation:** Replaced manual, error-prone Excel-based reporting processes with automated Python and SQL workflows, increasing pipeline reliability, reducing human error, and establishing repeatable, auditable data delivery.
- **Dashboard & KPI Instrumentation:** Built Power BI dashboards with DAX-based KPI measures and trend monitoring across financial, logistics, and client performance data, providing business-wide observability into operational performance and behavioural drift.
- **Cross-functional Delivery:** Partnered with operations, finance, and C-suite stakeholders to translate complex business requirements into data products with clear acceptance criteria and measurable outcomes, directly aligned with NAB's product/engineering squad model.
- **Production System Ownership:** Owned the full lifecycle of production reporting systems, from schema design and ETL logic through to deployment, documentation, and ongoing maintenance, demonstrating production-grade engineering mindset.
- **Power Automate Integration:** Used Power Automate to build notification and distribution workflows, reducing manual handoffs and accelerating data delivery cycles, an early implementation of workflow orchestration and policy enforcement.

### Project Engineer – Data & Cloud Integration

May 2022 – Feb 2023

Wipro | Remote

Contributed to an enterprise legacy-to-AWS cloud migration, focused on data validation, extraction, and integration at scale within a global technology consulting environment.

- **Cloud-native Data Integration:** Supported SQL-based data extraction, transformation, and validation workflows for a large-scale legacy-to-AWS migration, hands-on exposure to cloud-native data architecture and enterprise-scale data movement.
- **Validation & Reconciliation Frameworks:** Developed structured reconciliation checks between source and AWS target environments, ensuring data integrity before production sign-off, analogous to pre-release validation gates in AI system deployment pipelines.
- **Enterprise Delivery Environment:** Collaborated with senior engineers and business stakeholders in a global consulting team to investigate data discrepancies and drive resolution within structured delivery timelines, experience in cross-functional, squad-based delivery.

## EDUCATION & CERTIFICATIONS

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### Master of Science in Data Science

Deakin University, Melbourne - Machine learning, statistical modelling, data engineering

2023 – 2024

### AWS Certified Data Engineer - Associate

Amazon Web Services - Cloud-native data services, S3, pipeline architecture

Active

### Bachelor of Engineering - Electronics & Communication

Anna University, India