

Upul Senanayake

Data & AI Executive · Enterprise Platforms · Applied ML & Generative AI

Sydney, Australia

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Executive Profile

Data & AI executive with 10+ years building enterprise data platforms and applied ML across banking, fintech, transport and health technology. At Macquarie and Westpac, led organisation-wide data transformations spanning self-service platforms serving 150+ practitioners and engineering standards adopted by 90%+ of new data products. Now leads fraud analytics powering multi-million-dollar enterprise engagements, combining C-suite stakeholder management with hands-on depth in real-time ML, MLOps, generative AI and model governance.

Core Expertise

Leadership	Data & AI strategy, operating models, portfolio governance, executive engagement, product leadership, team development
Platforms & Delivery	AWS, Dataiku, Presto, Iceberg, SQL, Python, feature stores, MLOps, CI/CD, real-time inference
Applied AI	Predictive ML, generative AI/LLMs, responsible AI, model monitoring, fraud analytics, behavioural biometrics

Professional Experience

Mozn

Riyadh / Remote

Head of Fraud Analytics

Jul 2025 – Present

- Own the fraud analytics strategy and delivery roadmap across behavioural biometrics, device intelligence, adaptive authentication and fraud decisioning for enterprise financial-services clients across 3 markets and 15 clients.
- Closed 2 enterprise deals worth US\$12m by leading post-qualification technical discovery and solution architecture, translating platform capabilities into commercial propositions.
- Took user-profile similarity and behavioural-entropy models from design to production, now scoring 5m+ transactions per month in real time for authentication and transaction-risk decisions.
- Delivered streaming ML capability spanning mobile telemetry, Kafka ingestion, real-time feature engineering, feature stores and inference services, with p99 inference latency below 20 ms.
- Established standards for model validation, explainability, drift detection and controlled releases, adopted across all client deployments and the fraud engine.
- Grew the fraud analytics capability from 6 to 12 people, aligning product, engineering and fraud specialists around reusable delivery frameworks and operational risk controls.

Macquarie Group

Sydney, Australia

Head of Data and Analytics | Infrastructure and Personal Technology

Nov 2022 – Jul 2025

- Led data engineering and applied machine learning across the horizontal technology platform supporting Macquarie's four operating groups.
- Defined and enforced enterprise data architecture and engineering standards across dimensional and Iceberg lakehouse modelling, lineage SLAs and automated data-quality testing; adopted by more than 90% of new data products.
- Built a self-service analytics and ML layer on AWS, Dataiku and Presto/Iceberg, enabling 150+ analysts and data scientists and reducing data-to-model lead time from weeks to under one day.
- Delivered LLM-enabled service-desk automation using GPT/BERT and approximately 100k tickets per year, increasing first-touch resolution by 22% and eliminating five FTE of manual triage.
- Productionised incident-risk scoring, capacity forecasting and CMDB anomaly detection through feature-store and gRPC services with p99 latency below 200 ms.
- Built and led a 12-person cross-functional squad across data, ML and analytics engineering; established review and on-call practices, maintained attrition below 5%, and mentored 40+ practitioners through communities of practice.
- Authored a model lifecycle playbook covering feature engineering, validation and drift/bias monitoring, improving average model AUC by approximately 0.04; chaired architecture and engineering working groups with 50+ stakeholders.

Transport for New South Wales

Sydney, Australia

Lead Data Science Strategist (Short-Term Contract)

Aug 2022 – Nov 2022

- Developed the enterprise data science strategy and target operating model, covering data platforms, ETL, analytical workbenches, MLOps and delivery governance.
- Managed an A\$7.5m annual budget and developed a predictive demand-planning business case with potential annual savings of approximately A\$20m.

Omniscient Neurotechnology

Sydney, Australia

Operational Machine Learning Lead

Feb 2022 – Aug 2022

- Built and led a team of four senior data scientists and ML engineers, partnering with the founder and C-suite to establish operational ML capability for a late-stage neurotechnology company.
- Defined and implemented the MLOps roadmap and model CI/CD capability, reducing data-science-to-engineering handover overhead by 80% and time to production by 60%.

Westpac

Sydney, Australia

Lead Data Scientist

Feb 2017 – Feb 2022

- Led a portfolio of 15 AI/ML initiatives and partnered with C-suite and GM stakeholders to establish teams, governance and production pathways for machine learning.
- Drove the shift from project-centric delivery to reusable data products, addressing technology and change-management constraints and forecasting annual savings above A\$10m.
- Developed a predictive foreclosure model that supported earlier customer intervention and reduced manual reviews by 90%.
- Delivered ML across price elasticity, acquisition, attrition, credit risk and multimodal customer analytics while shaping data pipelines and the operational ML infrastructure blueprint.

Savant Analytics

Sydney, Australia

Founder (Part-Time Venture)

Dec 2018 – Jan 2021

- Designed an open-banking personal-finance platform using Consumer Data Right data to aggregate accounts, enrich transactions and generate actionable customer insights.
- Developed commercial banking and insurance use cases based on machine-learning models trained on transaction-level data.

Additional Leadership

University of Sydney

Sydney, Australia

Senior Lecturer

Feb 2014 – Dec 2025

Taught Business Statistics, Business Analytics, AI in Business, Project Planning, Project Scheduling and Project Analytics.

Education

University of New South Wales

Sydney, Australia

PhD in Artificial Intelligence

2014 – 2019

Deep learning for longitudinal multimodal brain MRI, with emphasis on interpretability, missing-data robustness and real-world performance.

University of Sydney

Sydney, Australia

MPhil in Complex Systems

2013 – 2014

Developed the p-index using citation and author networks with PageRank to improve the robustness of research-productivity measurement.

University of Peradeniya

Kandy, Sri Lanka

BSc in Computer Engineering

2008 – 2012

First Class Honours; applied machine learning to drug discovery, improving efficiency by 60% and integrating the work into the AutoDock Vina pipeline.

Professional Development

Harvard Business School

Online

Certificate in Design Thinking and Innovation

Aug 2024 – Sep 2024

Recognition

2018 **Australian Young Finance Professional of the Year**, Technology & Innovation

FINSIA