

# ANDREA HEAD

ML Platform Architect & Technical Lead

Somerset West, South Africa · Open to relocation (UK / EU / Remote)

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## PROFESSIONAL SUMMARY

ML Platform Architect and Technical Lead with over a decade of experience defining AI infrastructure strategy and delivering production ML systems across FinTech, banking, and retail. Pioneer in designing full internal ML platforms from first principles, leading GenAI deployments under strict governance constraints, and enabling cross-functional teams to deliver AI that generated over £40M in measurable commercial impact. Combines deep engineering capability (Python, Kubernetes, GCP, AWS, Azure) with a focus on model governance, responsible AI, and operational discipline.

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## CORE COMPETENCIES

ML Platform Architecture · MLOps · GenAI / RAG Systems · Cloud Architecture (GCP, AWS, Azure) · Kubernetes · Python  
ML Frameworks (PyTorch, Keras, Scikit-learn) · Apache Airflow · MLflow · FastAPI · Great Expectations · Datadog  
Snowflake · Dataiku · Docker · CI/CD · BERT / Transformer Models · Model Governance · Responsible AI  
Technical Leadership · Stakeholder Engagement · Mentorship · Agile Delivery

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## PROFESSIONAL EXPERIENCE

### ML Platform Architect & Technical Lead — Equal Experts

Mar 2024 – Present

Consultant embedded with John Lewis Partnership AI Platform team — London, UK

- **90% first-week adoption:** led architecture and 3-week delivery of a production RAG chatbot on Google Chat, designing a novel PII-redaction pattern on GCP Cloud Run that secured CISO approval without a full procurement cycle.
- **£40M+ ROI unlocked:** established MLOps governance standards for a legacy Dataiku platform, reducing P1/P2 incidents by ~90% through automated maintenance, Kubernetes optimisation, and a new QA staging gate for production deployments.
- **40 AI products deployed in 5 months:** defined architectural standards for a 'paved road' AI Platform on Google Cloud, setting the infrastructure strategy adopted organisation-wide.
- Optimised Kubernetes cluster utilisation under fixed IP-range constraints through pod scheduling redesign and Snowflake fast-write connections, maximising throughput without additional infrastructure spend.

### ML Engineer (Pro Bono) — Médecins Sans Frontières

Feb – Mar 2024

Via Equal Experts — epidemic modelling for remote humanitarian deployment

- Designed Physics-informed deep learning approaches for location-specific epidemiological time-series modelling in low-connectivity environments.
- Delivered MLOps best-practice documentation and knowledge transfer to enable MSF teams to maintain and scale AI solutions post-engagement.

### Technical Lead — ML Platform & Prediction Services — JUMO

Apr 2022 – Jan 2024

Technical Product Owner for Prediction Services — led MLOps strategy across Decision Science and Engineering

- **50+ models/day (from ~1/week):** defined and delivered a full ML platform from first principles — proprietary artefact registry (S3/DynamoDB), feature materialisation (EMR on EKS / FastAPI), scoring service, and config-driven Kubernetes orchestration with Airflow auto-scheduling.
- **Drift detection reduced from weeks to minutes:** established a real-time monitoring framework using Great Expectations (CSI/PSI), Datadog metrics, and PagerDuty alerting across all production models.

- **Private funding round:** Platform architecture cited as key technical differentiator during investor due diligence.
- **5-day emergency portfolio refresh:** led systematic model architecture selection, executed ~60 experiments, built champion ensemble, and deployed through a fully integrated pipeline with full Decision Science sign-off.
- Identified and escalated bias risks in automated feature selection and train/test optimisation for credit scoring models, advocating for ethical lending practices to underserved communities.

## Machine Learning Engineer — JUMO

Jun 2021 – Mar 2022

- Accelerated scorecard deployment pipelines for credit risk models, enabling rapid iteration in a cloud-native environment.
- Served as an engineering bridge for Decision Science, translating mathematical requirements into scalable production systems.

## Machine Learning Engineer — Praelexis

Oct 2016 – Jun 2021

*Embedded ML consulting — Investec (2019–2021) and Capitec Bank (2016–2019)*

- Decreased model error rate by 10% at Investec by architecting an intelligent transaction categorisation engine, using fine-tuned BERT on proprietary tokenised data.
- Founded Capitec Bank's first cloud platform on Azure during its 'Best Bank in the World' era, building infrastructure in the Netherlands for GDPR compliance before South African data centres were available.
- Led 2-week crisis security hardening: rebuilt the cloud platform from the ground up with ~15 engineers after a production security finding, establishing governance standards adopted as bank-wide best practice.
- Co-led data engineering for Client Profile system (Hadoop, Spark), enabling a nationwide monthly SMS initiative serving 10M+ customers.

## EARLIER CAREER

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**Lecturer, North-West University** (*Jan 2014 – Oct 2016*) — Mathematical Modelling, Linear Algebra, Differential Equations, Mathematical Optimisation.

**Junior Lecturer, CTI Education Group** (*May 2011 – Aug 2014*) — Statistics, Mathematics for Social Sciences.

## EDUCATION

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**BA, Philosophy** · UNISA · *2025 – present*

**MSc, Applied Mathematics (cum laude)** · North-West University, Potchefstroom · *2013 – 2015*

*Specialisation: Numerical Analysis, Control Theory, Optimisation, Mathematical Epidemiology*

**BSc Hons, Applied Mathematics (cum laude)** · North-West University, Potchefstroom · *2012*

*Awarded Best Student in Applied Mathematics 2012*

**BSc, Computer & Mathematical Sciences (cum laude)** · North-West University, Potchefstroom · *2007 – 2011*

## CERTIFICATIONS & OTHER

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Associate Member, Institute of Mathematics and its Applications · Dataiku Core Designer

**Languages:** English (native) · Afrikaans (native) · Dutch (working) · German, Mandarin, Spanish (elementary)

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References available on request · Portfolio & case studies: [andrea.heads.bio](https://andrea.heads.bio) · Also known professionally as Andrea Scholtz