REORAPETSE MOLEFE

Data Scientist | Senior Quantitative Analyst

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Data scientist and quantitative analyst with nearly five years of experience in banking, credit risk, collections analytics and data science. Skilled at combining machine learning, feature engineering and business strategy to solve credit collections problems, with a track record of strategies that measurably improve recoveries and roll rates. Currently completing a Master's in Financial Engineering, with research that applies machine learning and neural networks to ESG and climate policy uncertainty in sustainable portfolio construction. Since October 2026, also working on a 6-month contract to build an end-to-end e-commerce website and clickstream analytics platform for a craft cocktail company, using AI coding agents (Claude Code) and Databricks.

TECHNICAL SKILLS

Programming and platforms	Python, SQL, SAS, R, PySpark, Databricks, Delta Lake, AWS, cloud data lake storage, Claude Code
Data engineering	Medallion architecture, incremental ingestion (Auto Loader), clickstream analytics, data migration and validation
Machine learning	Supervised and unsupervised learning, predictive and statistical modelling, time series, neural networks, MLOps, MLflow
Analytics and reporting	Power BI, Excel, Power Query, BI dashboards, data extraction, campaign analytics
Domain expertise	Credit risk, collections strategy, customer segmentation, portfolio optimisation

PROFESSIONAL EXPERIENCE

Data Science & AI Engineer (Contract)

Oct 2026 – Present

In Good Company | 6-month data science contract

- Developing the company's e-commerce website with Claude Code agents, translating the founder's brand, product and pricing information into a site with integrated checkout, age verification and consent management.
- Designing a clickstream event taxonomy and tracking layer to capture each visitor's journey through a six-stage purchase funnel, from first page view to completed purchase.
- Engineering a Medallion-architecture data pipeline (Bronze, Silver, Gold) in Databricks on a cloud data lake, using Auto Loader and Delta Lake for incremental ingestion, data cleaning, sessionisation and customer identity stitching.
- Building Gold-layer analytics tables to measure funnel drop-off, session behaviour and customer engagement, giving the founder visibility into where potential customers abandon the site.
- Developing an automated offer engine to issue targeted, single-use discounts based on how far customers progress before abandoning, with frequency caps, margin floors and a holdout group to measure true discount impact.
- Incorporating data privacy requirements (consent-gated tracking) and responsible alcohol marketing standards into the platform design.

Manager and Senior Quantitative Analyst

Apr 2026 – Present

Old Mutual Bank | Collections and ECM Strategy

- Designed and implemented the CD0–CD1 intra-cycle inflow strategy, prioritising the pre-delinquent loan book in the dialler queue and introducing new call guides for agents. Promise-to-pay (PTP) arrangements rose by 45% in the first month with kept rates holding steady, and deterioration of the pre-delinquent unsecured loan portfolio has slowed by 6% since implementation in June 2026.
- Automated the Active Collections PTP target-setting framework, replacing a manual process and increasing arrangement volumes by 17% in its first month. Monthly targets now account for agent headcount and capacity, keeping them achievable for Old Mutual Finance (OMF) dialler teams while still set to materially improve collections performance.
- Developed a risk-based CD1 dialler prioritisation strategy targeting newly delinquent accounts, which make up 30% of CD1 loans but drive approximately 70% of forward rolls. New OMF CD1 inflows holding an Old Mutual Bank account are routed to Amazon Connect, with remaining accounts following the CD0–CD1 prioritisation queues, to limit progression into deeper arrears.
- Built an integrated collections KRI and performance dashboard tracking debit order strikes, collections productivity and PTP arrangements, enabling tactical changes to operations, including flagging high-risk accounts without a DebiCheck mandate so the DebiCheck team can reinstate mandates and contain forward roll rates.

- Supporting the migration of collections data from IBM AS/400 to AWS through code optimisation, staging-table testing and validation. Over 50% of collections tables have been migrated and validated, with the remaining staging tables due by November 2026 and report automation by mid-December 2026.
- Developed an early external debt collector (EDC) handover strategy for CD2 accounts, projected to lift activations by 5–10% and improve the CD2 forward roll rate by 0.98–1.96 percentage points. Since implementation in October 2026, activation rates on escalated accounts have doubled to over 10.75% (versus 5.21% for the holdout sample) and forward roll rates have improved by 2 percentage points, in line with pre-implementation estimates; full performance results are due in November 2026.
- Built automated Money Account incentive tracking and daily collections risk dashboards covering DebiCheck conversions, commission payables, debit order outcomes and channel performance, identifying underperforming branch agents and forecasting commission payments before the end of each collections cycle.

Manager: Collections Strategy
Aug 2025 – Apr 2026

African Bank | Collections and Payments

- Analysed the portfolio, identifying high-risk bureau ratings across over 50% of the book and 47% monthly instalment compliance; findings informed provisioning and segmentation strategy.
- Developed cross-credit-obligation analysis to identify customers meeting commitments elsewhere, supporting targeted messaging and collections interventions.
- Benchmarked restructure offerings across major South African retail banks and presented product gaps and strategy recommendations.

Data Scientist II
Nov 2024 – Jul 2025

FNB | Dynamic Decisioning Collections Analytics

- Led development of the Settlement Offer ML V2 Model for residual and debt review customers across Card and Loans, generating R2.3 million in collections on its first implementation.
- Engineered a longitudinal arrears movement feature for senior stakeholder dashboards to track delinquency migration and book stabilisation cycles.
- Managed campaign analytics end to end, from design and deployment to customer interaction tracking and payment conversion measurement.

Data Scientist I
Jan 2023 – Oct 2024

FNB | Dynamic Decisioning Collections Analytics

- Built the V1 Settlement Offer Model to estimate expected settlement values for late-stage and debt review accounts; the trial campaign generated approximately R700,000 in collections.
- Developed a minimum payment feature calculating the payment required to improve an account's arrears cycle, supporting collections communications.
- Automated call centre dialler lead provisioning and analysed the relationship between prime rates and default rates across the FNB Retail credit portfolio.

Quantitative Analyst Graduate Programme
Jan 2022 – Dec 2022

FNB | Dynamic Decisioning Collections Analytics

- Completed collections analytics rotations, building experience across the data-to-strategy pipeline that supports production decisioning systems.

EDUCATION AND RESEARCH

BCom Master Financial Engineering
2025 – Present

University of Johannesburg

Dissertation: augmenting mean-variance and mean-CVaR portfolio frameworks with ESG uncertainty and climate policy uncertainty regimes, using machine learning (random forests, gradient boosting and LSTM networks) to estimate model parameters.

BSc Honours Actuarial Science
2021

University of the Witwatersrand

BSc Actuarial Science and Mathematical Statistics
2018 – 2020

University of the Witwatersrand

PROFESSIONAL AFFILIATION

Actuarial Society of South Africa (ASSA)