

Greaves Mofokeng | Data Scientist

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OBJECTIVE

To demonstrate my full skill set, current projects, qualifications and experience in data science and advanced analytics.

EDUCATION

University of Cape Town (Cape Town)

Master of Philosophy / Demography
February 2010 – December 2013

Technical and actuarial treatment of components of demographic change (mortality, fertility, migration); population projection and modeling methodologies.

University of South Africa (Pretoria, South Africa)

Bachelor of Science / Statistics, Operations Research
February 2000 – December 2009

Studied part-time while employed on a full-time basis. I studied classical mathematical theory of statistics and operations research.

EXPERIENCE

Advanced Analytics Specialist at Engen Petroleum

Cape Town, South Africa
August 2019 – Present

Job purpose:

Provide input to the development of the BI plans that focus on proactive and predictive analytics in order to deliver insights that drive revenue, improve customer satisfaction and reduce costs and risk.

Functions:

1. Write R or Python algorithms to run machine learning models (eg. regression models, random forests, decision trees, k-means clusters, time series forecasts, etc) to enable sound business and financial decision-making and mitigate against associated business risks.

2. Build and update user-friendly and easy-to-read Power BI dashboards to monitor key business performance indicators. The Retail Division Power BI dashboard I built helped Engen Petroleum improve 62% of Retail sites in terms of the site-level Net Promoter Score.

Current projects:

1. Building, training and deploying a multivariate ARIMAX time series forecasting model: The model is designed to incorporate exogenous variables in forecasting monthly Retail sales in fuel volumes to the public. The model is coded in R and visualized in Microsoft Power BI, and it incorporates, among other functionalities, the 'What-If' functionality. The 'What-If' functionality is applied on exogenous variables to measure the impact of these on predicted future sales in fuel volumes.
2. Built and trained a uni-variate Holt-Winters exponential smoothing model to forecast monthly Rand/Dollar exchange rates. The model was coded in R and visualized in Microsoft Power BI. The model is being optimized regularly. The purpose of the model is to help enhance the Engen Petroleum Finance Division's year-end impairment calculations.
4. Build, train and test the MICE imputation model to statistically enhance/enrich incomplete or deficient survey data sets. MICE is a predictive imputation algorithm and the acronym stands for Multivariate Imputation by Chained Equations.
5. Use classification models (Logistic, Random Forests, Boosted, etc) on retail transactions data to classify retail sites by magnitude of income under-reporting. These models are then deployed to the Enterprise Risk and Assurance Division for predictive auditing of all site-level transactions. These classification models are intended to help Engen Petroleum ERA Division eradicate value leakage within the Retail Division.

CX and Market Specialist at Engen Petroleum

Cape Town, South Africa

May 2018 – July 2019

Job purpose:

Assist in developing and managing the customer experience strategy to ensure consistent delivery of a differentiated customer experience that leads to increased loyalty, volume and convenience growth.

Functions:

1. Analyze consumer market trends to inform the development of strategies that enhance the customer experience and targeted marketing and communications. Manage research and data analysis of consumer and competitor behavior in order to enhance consumer value, increase loyalty and profitability.
2. Gather, classify and analyze customer merchandising data from a variety of sources to identify trends, competitive forces, segmentation strategies, potential market channel analysis and create value adding insights for use by the related marketing teams such as utilizing consumer insights to inform the refinement of the fuel strategy.
3. Develop and maintain a dynamic customer segmentation model that assists field staff in developing regional and site-specific business plans including but not limited to consumer buying occasion segmentation, customer insights (Mystery shop and Net Promoter Score).
4. Collect and use human behavioral data to create strategies to influence customer economic decision-making visiting Engen forecourts. Manage real-time issue

trending and tracking such as complaints and compliments to drive continuous improvement of the customer experience strategy.

Market Insights Specialist at Sanlam

Cape Town, South Africa

August 2017 – April 2018

1. Analyze legislative and demographic trends in client needs and market developments in South Africa. Perform population projections and produce demographic estimates to find business opportunities for Sanlam Personal Finance and the Sanlam Group, particularly with regards to retail market segments.
2. Integrate market insights to support the understanding of impact on Sanlam Personal Finance.
3. Develop key competitive landscape point of view for the Sanlam Group.
4. Compile competitors' client profile and analysis against which Sanlam's market penetration levels are compared.
5. Deliver key competitor profiles and deep-dive analysis on key competitor movements.
6. Identify opportunities for synergies across Sanlam Group's future orientation.
7. Provide further insights into our current client segments using existing primary research by performing the associated quantitative and statistical modeling that enhances the Group's client segmentation model.
8. Build PowerBI dashboard for use within Sanlam Personal Finance and Sanlam Group.
9. Model and assign probability values to retail market segments to enhance Sanlam's business opportunities. This means further enhancing Sanlam's client and market segmentation models by attaching scientific values to these so that they are used more confidently by business.
10. In addition to the above, use the Sanlam database to update client segmentation models, perform statistical models (eg. Markov Chains-driven multiple imputation techniques and regression models) in order to predict client attributes (where such are incomplete) for analysis, profiling and reporting.

Senior Quantitative Analyst at Sanlam Reality (Loyalty Program)

Cape Town, South Africa

September 2016 – August 2017

1. Support Sanlam Reality management with loyalty benefit usage reports as required.
2. Extract loyalty benefit usage data from multiple sources to gain insights and look for patterns and trends.
3. Give practical input to Sanlam Reality management to enable optimal decision-making at strategic and tactical levels.
4. Perform quantitative analysis on loyalty benefit usage data and Net Promoter Score data, then make recommendations.

5. Plan, build and maintain quantitative dashboard models to enable seamless business decision-making.
6. Liaise with internal providers and external benefit partners.
7. Assist business analysts on Sanlam Reality related tasks and projects.
8. Perform nonstandard, ad hoc deep-dives into the loyalty benefit usage data to unearth insights in order to enhance Sanlam Reality's view of both active and inactive client bases.

Actuarial Modeler at Computer Sciences Corporation (now DXC Technology)

Cape Town, South Africa

September 2013 – August 2015

Modelling of life insurance products on our modelling platform called “VP/MS”, based on product specifications and requirements documentation provided by clients. This involved the following main categories: Given our client illustration spreadsheet and rates, we modeled these actuarial calculations in VP/MS using/enhancing the existing common models (these existing common models such as premium management, expenses and commission, account build up, withdrawal calculations etc., provided us a framework/structure, hence maximized re-use for modelling new products in future, also, quicken the process for modelling), such that combine with our modeled quotation User Interface (available online and offline), we are able to produce Quotation of the premium/benefit amount for clients. If the client decides to take up the policy, the client would be able to proceed to the online (our modeled) application form and fill in all the required personal information for underwriting and data capturing; create automated test tool for our calculations in the model using Excel, for unit and regression testing; provide estimations for modeling new products or completing change request. Fixing and managing defects as well as implementing change request. We also provided production support for our clients; designing pricing models for US, UK and Asia Life Insurers. Products included are Annuities, Whole of Life, Term Life and Unit Linked Life insurance. The pricing models are designed for both administrative and quoting systems. Products are designed to follow the funding guidelines (DEFRA, TEFRA, and TAMRA) of US and UK Taxation Laws. Modified Endowment Contracts are also modeled on VPMS.

Actuarial Specialist at Momentum Employee Benefits

Cape Town, South Africa

February 2013 – September 2013

1. Actuarial valuation of the Permanent Health Insurance scheme/fund
2. Actuarial reserving
3. Ad-hoc statistical analysis
4. Statistical experience investigations

SKILLS

Scientific skills:

Predictive analytics

Mathematical modeling
Population projections and modeling
Indirect demographic estimation
Modeling software skills:
R
Python
STATA
Alteryx
MS PowerBI
MS Excel
Oracle

AWARDS

Focused Recognition

June 2019

Award received in response to an operational Microsoft PowerBI dashboard created for, and deployed to the Engen Retail Sales Team within the Retail Division. The dashboard enabled and facilitated seamless conversations between Area Sales Managers and Site/Forecourt/Convenience dealers and managers on a regular basis.

Focused Recognition

August 2019

Award received in response to a site performance tracking dashboard created using PowerBI for the Engen Retail Command Center. The dashboard calculates, among other performance tracking metrics, the baseline against which the rolling average would be compared for a site or collection of sites.

PUBLICATIONS

A multiregional adaptation of the ASSA2008 AIDS and Demographic Model for population projections

The purpose of this academic publication, completed for the degree of Master of Philosophy in Demography at the University of Cape Town, was to demonstrate the value of treating internal migration transparently, while performing technical population projection exercises that yield plausible results. These projections would then be used to better inform provincial and national government planning and fiscal decision-making. The beauty of the multiregional population project methodology, mathematically, is that one is able to draw insights from the age distribution function derived using this approach.

REFERENCES

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