Ashail Maharaj

Data Scientist | Industrial Engineer

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Profile

Ashail's skills lie within helping businesses find value using data, analytics to inform strategy. Ashail believes in spending the extra time to solve the root causes as opposed to just solving the symptoms.

Ashail found his passion in machine learning and data analysis during his Operation research course at campus. This kick-started his career and encouraged him to join Deloitte in the data analytics.

After his time at Deloitte, he then moved to Discovery Bank. He has since been solving real business problems using analytics and starting up the analytics capability within Discovery Bank.

Languages

English - Native

Education

Lenasia South Secondary

University of Witwatersrand
BSc Industrial Engineering

Stellenbosch University
MEng Industrial Engineering (Data Science)
Estimated Graduation : December 2021

Skills

Visualization

Software

PowerBI – Proficient
Qlikview – Proficient
Plotly and ggplot – Proficient
Neo4J – Capable

Advanced Analytics

Software

Python – Proficient
TensorFlow – Capable
R – Proficient
SAS – Capable

Techniques

Predictive Modeling
Hypothesis Testing
Clustering & Segmentation
Natural Language Processing
Deep learning
Optimisation

Data Engineering

Software

SQL – Proficient
Docker – Capable
Spark – Capable
Beam - Capable

Techniques

Data Pipelines
Relational Modeling
Model Deployment
Dimensional Modeling

Employment History

Discovery Bank – Data Scientist **(Research & Development, Vitality Money)**

(Aug 2018 - Current)

Ashail is the most senior data scientist at Discovery Bank. Discovery bank is a behavioural startup bank backed by the idea that has driven the success of Vitality throughout the world (making it's clients healthier). His key responsibilities are the management and execution of data science solutions specifically within the scope of vitality money and customer engagement.

Key projects:

Vitality Money-Understanding and rebuilding the Vitality Money for simulating the effect of changes on underlying parameters on the budget and the effect of rewards earn. Owning and maintaining relationships with specific Vitality Money partners. Developing ideas for the next version of the program. Developing re[ports to track errors and inconsistencies. Driving the uptake using data driven strategies, CHAID models and A/B testing.

Set up of the analytics capability- Requirement gathering, data retrieval from the correct systems, understanding the underlying data, developing useful views, KPI's and reports for the Bank executives. Finding automation alternatives for the reports to be sent out through different channels. Writing the base scripts for all analytics teams to use. Standardisation of definitions across the different teams as well as maintaining the tables we create for regular analysis.

Migration cohort analysis- Developed Cohorts for the migration of clients from the Discovery card base to the bank. Monitored uptake across and suggested actions at different points.

Propensity to save model- Using the discovery card data, a model to determine which clients should be targeted first based on propensity to save.

Built an OCR tool for scraping bank statements

Transaction classification model – a model for classifying spend transactions from the posting text

Dormancy risk propensity model based on spend- a model to track spend per cohort and find client who are declining or spending too much (dormancy and fraud risks)

Lapse propensity models – Classification model for the probability a client will close their accounts, huge class imbalance – SMOTE and TOMEK-links used

Sentiment tracking tool for customer emails – Built using ELMO for the word encoding and a classification model.

Topic modelling for client emails and queries – Tried to use BERT and ELMO in conjunction with different clustering algorithms to group similar mails together

Onboarding journey tracing and issues – Bank had issues within their onboarding journey that lowered conversion rates, I was involved in tracing and visualizing these to find the problem areas as they occurred.

Deloitte South Africa – Data Analyst

(Dec 2016 - July 2018)

Ashail was a data analyst and consultant at Deloitte, he spent most of his time within the banking and financial crime areas. He used this time to brush up on his advanced analytics skills and learn more about the principles in credit and credit risk.

Key projects:

Basel Pillar 3 reporting-The objective of this project was to assist the client in reaching compliance to Basel Pillar 3 requirements and automate the report creation using Qlikview and SQL. The focus was on transforming business rules into queries, which restructure the data into the required reporting format.

Financial Crime, Enhanced due diligence tool - The objective of the engagement was to create a form in excel to improve the tracking of the EDD process per customer and to summarise the all the customers captured in the form already. The main skill used on this engagement was VBA to transform the functionality of excel to create a data capturing and visualisation tool in excel.

Financial services, fuzzy payment matching tool – The objective of this engagement was to match invoices and payments per customer based on the amounts and dates within all accounts.This tool was a heuristic matching tool developed in R and then rewritten in python to be distributed.

Financial Crime, cash threshold reporting – The objective of this engagement was to capture, transform and analyse data to ensure that the CTR process carried out is sufficient. Due to the number, structure and naming convention of the files given the quickest way to read all data was to build an automation process in Python to read the files from within sub folders, scrape the data from the PDFs.

Financial crime, NLP use case- The objective of this project was to build a graph database of relations between entities which was gathered from many sources. The focus was on scraping websites, xml and pdf data and extracting knowledge out of it. After this process I worked on entity and relationship extraction as well as article summarisation.

Supply chain, Connected retail- The objective of this engagement was to create a proof of concept for the use of IoT in the supply chain space using live forecasts and demand planning. My role in this was to create multiple demand forecasting models and display this in a dashboard to show the advantages of using advanced analytics in this space.

Honours projects (interests that kicked off my career into analytics)

Research: Factor selection and EDA for share price prediction

There are a vast number of factors that a company's financial performance is dependent upon and each of these factors could be related to each other, in such a case it would be redundant to include all the factors. This project required an understanding of feature selection and engineering, as well as model selection.

Design: Agent based simulation of share trading

A FFBP neural network was trained in Matlab, and implemented in java. This was done by capturing the weights and recreating the neural network in java from first principles. The neural network used the selected relevant factors as inputs and then predicted a future price. This acted as the price assessing mechanism for the agents in the simulation. The price was dependant on the volume demanded, and used the laws of supply and demand to find the equilibrium price as each time t.