

ROSS MCINTOSH, PHD.

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EXPERIENCE

Data Scientist

Isazi Consulting

 Oct 2016 – Present  Johannesburg, SA

- Development, testing and deployment of machine learning algorithms to improve business efficiency.
- Data integrity analysis, EDAs, ETL pipelines.
- Data strategies to identify opportunities.
- Client facing consulting.
- Internal research projects.
- Development and maintenance of production dashboards.

Part Time Lecturing, Labs and Tutorials

University of the Witwatersrand

 2010-2016  Johannesburg, SA

- Lecturing spintronics (component of physics honours experimental course 2014 and 2015).
- Physics major labs, TA for physics majors and many other courses.

PROJECT HIGHLIGHTS

Financial Crimes

Suspicious Transaction Detection

 Jan 2017- May 2018  Johannesburg, SA

- With state of the art financial crime software showing low sensitivity, we were required to develop models which account for the behavior of individual customers in an effort to increase true positives. Apart from implementing and optimising probabilistic graphical models, I eventually achieved a dramatic increase in sensitivity and specificity by developing a novel ensembling method to combine the output from unsupervised probabilistic graphical models, random forests and multinomial regression.
- Generated dashboards to facilitate the study of customer behavior and presented insights to financial crimes experts.
- Presented findings and analysis to the business.

Machine Learning in Supply Chain Management

Demand Forecasting

 Aug 2018 - June 2020  Johannesburg, SA

- Contracted by a global consumer goods company contingent on demonstrating 10% improvement in their demand forecast.
- Contributed to organization-wide data strategy towards unlocking business potential.
- Implemented a variety of machine learning models supplemented with time series analysis.
- Thorough analysis of the influence of promotions, created promotion planning tool and used promotions and point of sales forecasts to improve sales-in forecast accuracy.
- Created production dashboards for hundreds of users, delivering actionable insights to supply chain team.

MOTIVATION

In a tireless quest to further my field of research, I pursued theoretical and computational studies towards interpreting the data generated in my experiments. Data science allows me to use the same skill set while engaging with new techniques to understand and solve business problems.

DEVELOPMENT

R
Shiny
MATLAB
Mathematica
Python
SQL
Git



SEL. PUBLICATIONS

R. McIntosh et al., Scientific Reports
<https://doi.org/10.1038/srep35526>.
R McIntosh et al. AIP Advances
<https://doi.org/10.1063/1.5017095>.
All Publications:
https://scholar.google.com/citations?user=8MxM_2gAAAAJ&hl=en&oi=ao

EDUCATION

PhD Physics, MSc Physics

University of the Witwatersrand,
Johannesburg

 2013-2017

Theoretical studies in support of experimental work on quantum transport in carbon nanomaterials with a strong computational component. Dealing with vast amounts of data, developing and fitting models and automating processes.

INTERESTS

- Education and mentoring.
- Machine learning in condensed matter.
- Fundamental insights into deep learning using variational renormalization.
- Quantum information.