

Etienne Koen - Curriculum Vitae

DATE AND PLACE OF BIRTH

7th March 1985, South Africa

CONTACT

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SKILLS

Machine/Statistical Learning, Supervised/Unsupervised Learning, Client Segmentation, Cloud Computing, High Performance Computing, Data Wrangling, Web Scraping, Unit Testing, Feature Engineering, Data Visualization, Story Telling, GUI Development of Machine Learning Products, Model Deployment/Integration, Version Control, Report Generation/Automation, Research and Publishing.

TECHNOLOGY STACK

R, Python, SQL, MySQL, SAS, Spark, PySparkling, RSparkling, GIT, Bitbucket, H2O, Sparkling Water, Hadoop, RShiny, ggplot2, Plotly, C, C++, HTML, Azure, Linux (Slackware, Centos and Ubuntu) and Unix.

EDUCATION

Doctorate of Philosophy: Royal Institute of Technology (KTH), Stockholm, Sweden 2010 – 2014

- Studied plasma waves having Kappa- velocity distributions in Saturn's magnetosphere as an alternative to normal distributions
- Developed simulation software to scale on a high-performance platform based at the Centre For High Computing in Cape Town. This code was developed in C++ using the openMP and OpenMPI libraries to scale the software.
- The thesis was entitled: "Plasma Simulations of broad frequency waves"
- Supervisor for Masters students in Space Physics research

Licentiate: Royal Institute of Technology (KTH), Stockholm, Sweden 2010 – 2012

- This was an intermediate degree and formed part of the PhD program.
- The thesis was entitled: "A simulation approach to high-frequency plasma waves"
- Coursework: Advanced plasma waves, Magnetohydrodynamics

MSc: University of Kwazulu-Natal. **Cum Laude** 2008 – 2010

- Studied the effect of solar flare events on the Earth's D-region Ionosphere. Very-low-frequency (3 – 30 kHz) waves propagating within the sub-ionospheric region was used as a diagnostic tool to analyze and model the effect.
- The data processing and analyses tasks was performed in R while simulations were performed in C++.
- Coursework: Space Technology and Aeronomy

BSc (Honours): University of Cape Town 2007

- Developed an autoguiding capability and software for an astronomical telescope based at the South African Observatory in Sutherland to enable the telescope to operate unmanned.
- Coursework: Space Physics, Astronomy, Cosmology, Plasma Physics

BSc: Stellenbosch University 2004 – 2006

- All Computer Science modules
- All Physics modules
- Mathematics and statistics
- Final Year Project: Quantum Cryptography methods for secure communication operations.
- Mentor and student assistant for 1st year physics and computer science students

Belville Technical High School 1998 – 2003

- Mathematics, Science, Technical Drawings, Mechanical Engineering, English, Afrikaans

RECENT COMPLETED ONLINE COURSES

Udemy

- R Shiny Flex Dashboard Interactive Visualization - September 2019
- Spark and Python for Big Data with PySpark – August 2019
- Cleaning Data in R with Tidyverse and Data.table – June 2019

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Coursera

- Machine Learning – December 2015

EMPLOYMENT

Capitec Bank, Stellenbosch, South Africa

2017 - Present

Senior Data Scientist

- The lead data scientist at the department **Client Engagement**.
- Income and Salary predictions using transaction data.
- Identifying recurring payments and committed payment obligations from transactional data.
- Clustering/segmenting of transaction descriptions.
- Client segmentation based on demographical and transactional data.
- Detecting fraudulent transactions and merchants.
- Developing autonomous machine learning scoring models to score incoming transactions in near-realtime.

Barclays Africa Group Limited, Cape Town, South Africa

2016 - 2017

Data Scientist

- Data Scientist at the department of **Data Products and Platforms**.
- Developing product propensity take-up models.
- Client Segmentation used for marketing and risk profiling.
- Developing Big Data Processing and Visualization tools for data exploration.

Derivco, Durban, South Africa

2015 - 2016

Data Scientist

- Data Scientist at **Business Intelligence**.
- Predicting customer retention and customer churn.
- Client segmentation with objectives of:
 - Identifying potential VIP clients based on registration profile data and behaviour
 - Identifying potential secondary products/games clients might be interested in.
 - Identifying optimal playing periods for client segments
 - Identifying anomalies within client deposit and withdrawal behaviour to potentially identify fraudulent behaviour or objectives

South Africa National Space Agency

2008 – 2014

Researcher

- **Antarctica:** Installed scientific instrumentation as part of the South African Antarctic Exhibition Program and maintained existing instrumentation.
- **Marion Island:** Team leader during both 2009 and 2010 to collect data from scientific instrumentation and collecting the previous year's recorded data. Marion Island is part of the Prince Edward island constellation half-way between Cape Town and Antarctica.

AOSIS, Cape Town

2005

Web Developer

- Holiday work as a web developer for an online journal hosting company.

ADDITIONAL HIGHLIGHTS

Fortuinsoekers, South Africa

2012

Reality Television Series Contestant

- Contestant in Afrikaans version of Amazing Race reality TV series with my wife

South Africa Radio Licence

Radio Call Sign: ZS1EJK

- Completed the South Africa Radio Licence Exam obtain licence.
- Operating experience in the high frequency radio band.

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AWARDS

- National Astrophysics and Space Science (NASSP) scholarships received for both the BSc (Honours) and Masters degrees.
- A combined scholarship agreement received from the Royal Institute of Technology (Sweden) and the South African National Space Agency
- Awarded best PhD paper at the 2011 South African Institute of Physics conference
- Awarded best PhD Poster Presentation at the 2012 South African Institute of Physics conference
- Awarded best PhD Poster Presentation at the 2012 South African Institute of Physics conference
- Awarded best PhD Presentation at the at the 2014 South African Institute of Physics conference
- Completed 50 Parkruns in 2016. Currently completed 83 by 2020.

REFERENCES

Available upon request