

Experienced data scientist with a PhD in Psychology and expertise in machine learning, data analytics, experiment design, and complex datasets. In my past positions I have strategically built out data science departments to create business value and refine products.

RELEVANT EXPERIENCE

Hydrostasis, Inc. – San Diego, USA (Lead data scientist)

2021 – Current

Led team of two, applying machine learning to predict human hydration using a wrist-worn optical sensor.

Implemented signal processing, feature extraction and data labeling techniques to time-series data to improve signal-to-noise ratio. Designed and directed consumer and device research and communicated results to stakeholders.

- Developed 70% of code base and put 2 models into production for B2C launch
- Increased available data by 1000X (20k to 20M observations) and produced 4 white papers
- Identified bottlenecks and optimized data I/O and processing to handle increased data, reducing hourly spend from \$0.9 to \$0.2
- Created algorithms for user behavior recommendations
- Created customer surveys to evaluate product-market fit

Galvanize – San Francisco, USA (Technical manager / Senior data science instructor)

2020 - 2021

Led data analytics curriculum team and taught machine learning, data analytics, statistics and programming.

Management

- Led 5-person team to develop new data analytics curriculum on schedule, increasing work efficiency by 10%
- Managed assessment team and implemented item analysis to improve instruction materials

Teaching and curriculum development

- Topics incl: NLP, recommenders, deep learning, time series and topic modeling, Bayesian statistics, AB testing, dashboarding, databases

Umuzi Academy– Johannesburg, South Africa (Data science manager, head of tech)

2018 - 2020

Responsible for supervising management team of 7 web developers, data scientists and engineers. Created data science curriculum and consulted on data strategy for external partners.

- Served as interim CTO, initiating 2 new company partnerships

Data science / Analytics

- [Designed and implemented psychological testing of internal applicants, created ETL pipeline, and obtained actionable insights from data.](#) Reduced screening time by 80% (from 60 to 10 minutes per candidate)
- Consulted on data storage, analysis, and monitoring and evaluation strategy for Allan Gill Gray Philanthropy's entrepreneur mentoring program

University of Cape Town – Cape Town, South Africa (Postdoctoral fellow)

2017 - 2018

Researched genetic risk for developmental disorders in collaboration with Harvard, Univ. of Cape Town and Kenya Medical Research Institute (KEMRI)

- Used general additive and hierarchical linear models to predict risk factors for poor fetal and infant growth
- Researched test validity and reliability across language and cultural groups and created standardized translations to reduce bias in developmental assessments

Management and community engagement

- Conducted community focus groups to introduce genetic testing in a culturally-acceptable way
- Supervised 6 postgraduate students to completion
- Chair, Student Training Committee, African Regional Int. Meeting for Autism Research 2018

University of Cape Town – Cape Town, South Africa (Contract lecturer)

2011 - 2018

Teaching and curriculum development

- Taught multivariate statistics & machine learning (regression, classification, boosting, multilevel models, cross-validation), psychometrics, cognition and neuroscience

Cape Town, South Africa (Statistical consultant)

2010 - 2018

Conducted statistical analysis and consulting for research groups incl. Institute for Mindfulness South Africa

EDUCATION

[GINGER Fellow](#), Harvard TH Chan School of Public Health & Broad Institute of Harvard and MIT, 2020

PhD Psychology, University of Cape Town, 2017

MA Psychological Research (Neuropsychology) *Cum Laude*, University of Cape Town, 2011

BSc Human Life Sciences *Cum Laude*, Stellenbosch University, 2007

AWARDS

[Winner: SCALE San Diego Urban Innovation Challenge, 2020](#)

Emerging Researcher Award, South African Assoc. of Child and Adolescent Psychiatry and Allied Professions and International Meeting for Autism Research, 2017

Stevens-Shapiro Award, Int. Assoc. for the Scientific Study of Intellectual and Developmental Disabilities, 2016

RESEARCH / PROJECTS

- [Ideated and designed arts and culture app for San Diego. Used web scraping, natural language processing and clustering to collate and recommend events.](#)
- Prediction of emotions and developmental disorders from physiological signals
- Prediction of risk factors for infant growth outcomes

LANGUAGES/ TECHNOLOGIES USED

Python, R, SQL, AWS, Linux, Docker, Tableau, Elasticsearch, MongoDB, PySpark

SELECTED PUBLICATIONS AND PRESENTATIONS (OUT OF 20 PUBLICATIONS & 36 PRESENTATIONS)

- Hoogenhout, M* & Ciliberto, M*. [Separating the Signal from the Noise: Signal Processing and Feature Extraction Techniques for Biological Data. Open Data Science Conference \(ODSC\) West](#) (Nov 2022), San Francisco, USA.
- Hoogenhout, M*. [Personalized and reliable hydration detection using a wrist-based photoplethysmography \(PPG\) sensor.](#) Stanford eWEAR seminar (Apr 2022), Palo Alto, USA.
- Hoogenhout, M.*, de Menil, V.*, Kipkemai, P.*, ... Newton, C.R., Donald, K.A., & Robinson, E. (2019). [The NeuroDev study: Phenotypic and genetic characterization of neurodevelopmental disorders in Kenya and South Africa.](#) *Neuron*, 101, 15 – 19.
- Hoogenhout, M. (2018). Displaying data. In C. Tredoux & K. Durrheim (Eds.), [Numbers, Hypotheses and Conclusions: A Course in Statistics for the Social Sciences \(3rd ed.\).](#) Cape Town: UCT Press
- [Full publication list \(over 440 citations\)](#)