

RELEVANT EXPERIENCE

Galvanize – San Francisco, USA (Senior data scientist)

2020 - Current

Data science / Analytics

- Managed assessment team to improve student and instructor tracking
- Built test evaluation metrics to identify poor performing assessment items, improving item discrimination and reliability.

Teaching and curriculum development

- Taught machine learning, statistics and programming, incl. neural networks, time series modeling, random forest and boosting, transfer learning, Bayesian statistics.
- Developed data analytics curriculum.

Languages / Technologies used: Python, Tensorflow, PostgreSQL, Docker, AWS, Linux, MongoDB, Tableau

Ingane Health (Co-founder)

2019 - Current

Machine learning and experimental design for wearables startup

- Built signal processing and feature extraction pipeline
- Implemented and evaluated machine learning models (random forest, XGBoost, PCA) to predict hydration with 87% accuracy, F1-score 0.80 (30% greater accuracy than existing measures)

Designed Android app for detecting developmental disorders and disabilities

- Research / Business development: Ideation, grant-writing, partnership formation
- Data science: Designed data architecture and detection algorithm, analyzed census data

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

2018 - 2020

Data science / Analytics

- Designed and implemented psychological testing of internal applicants, created ETL pipeline, and obtained actionable insights from data. Decreased screening time by 80%
- Surveyed and conducted focus groups for Uber to create a training course for drivers
- Consulted on data ETL pipeline, analysis, and monitoring and evaluation strategy for Allan Gill Gray Philanthropy

Management

- Responsible for supervising management team of 7 web developers, data scientists and data engineers
- Served as interim CTO, overseeing managers and initiating company partnerships

Teaching and curriculum development

- Created data science curriculum, going from 0 to 17 students in a span of 8 months
- Taught Python, Database Management, Machine Learning, and Statistical Analysis

Languages/ Technologies used: Python, R, MySQL, Linux, Docker, Airflow

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)

Data science / Analytics

- Researched psychological test validity and reliability across language and cultural groups and created standardized language versions
- Used general additive and hierarchical linear models to predict risk factors for poor fetal and infant growth outcomes
- Genome wide association studies

Management and community engagement

- Conducted focus groups with community stakeholders
- Supervised 6 students to completion
- Chair, Student Training Committee, African Regional Int. Meeting for Autism Research 2018

Languages/ Technologies used: R, Linux, MATLAB, BrainVision Analyzer, E-Prime

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

2011 - 2018

Lecturing

- Taught multivariate statistics & machine learning (regression, classification, boosting, multilevel models, cross-validation), psychometrics, cognition and neuroscience
- Created textbooks and education materials for Statistics for Evaluation & Research Methods, School of Management Studies, Faculty of Commerce

Languages/ Technologies used: R, SPSS

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

AWARDS

Winner: SCALE San Diego Urban Innovation Challenge, 2020

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

Stevens-Shapiro Award, International Association for the Scientific Study of Intellectual and Developmental Disabilities, 2016

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

BSocSc (Hons) Psychology *Cum Laude*, University of Cape Town, 2008

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

RESEARCH

Characterizing genetic influences on neuro-developmental disorders in African populations

Psychobiological correlates of empathy in autism

- Longitudinal and time series data, multilevel modelling, data reduction, structural equation modelling, reproducible research, measurement of physiological signals

Prediction of risk factors for poor fetal and infant growth outcomes

- Longitudinal and time series data, multiple imputation of multilevel data, additive modelling

LANGUAGES

English (Native), Afrikaans (Native), German (Elementary), Dutch (Reading Proficiency)

SELECTED PUBLICATIONS AND CONFERENCE ACTIVITY**Publications (out of 16, with 160 citations)**

- **Hoogenhout, M.***, de Menil, V.*, Kipkemoi, 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
- Tredoux, C. & **Hoogenhout, M.** (2018). Repeated measures analysis of variance. In C. Tredoux & K. Durrheim (Eds.), *Numbers, Hypotheses and Conclusions: A Course in Statistics for the Social Sciences (3rd ed.)*. Cape Town: UCT Press.
- Donald, K. A., **Hoogenhout, M.**, Du Plooy, C.P., Wedderburn, C.J., Nhapi, R.T., Barnett, W., Hoffman, N., Malcolm-Smith, S., Zar, H.J., & Stein, D.J. (2018). Cohort profile: The Drakenstein Child Health Study (DCHS). *BMJ Paediatrics Open*, 2, e000282. doi:10.1136/bmjpo-2018-000282
- **Hoogenhout, M.**, & Malcolm-Smith, S. (2014). Theory of mind predicts severity level in autism. *Autism*, 21, 242-252, doi: 10.1177/1362361316636758

Symposia Organized

- Kaku, S. M., & **Hoogenhout, M.*** (Chairs). *Strategies for management of children with mental health disorders in low and middle-income countries*. International Association of Child and Adolescent Psychiatry and Allied Professions (Aug 2018), Prague, Czech Republic.
- **Hoogenhout, M.*** & K. Donald. (Chairs). *The presentation and management of ASD in South Africa: Implications for multicultural and low-income settings*. African Regional International Meeting for Autism Research (Aug 2017), Stellenbosch, South Africa.

Conferences & Invited Talks (out of 31)

- **Hoogenhout, M.***. *Wearable technology for public safety: Promise, principles and practicality*. Africa Tech (November 2020), Virtual.
- **Hoogenhout, M.***. *Growing young talent: Selecting and training the next generation of data scientists*. Deep Learning IndabaX (April 2019), Durban, South Africa.
- **Hoogenhout, M.***. *Services for the poor need not be poor services: Child mental health interventions in low and middle-income countries*. International Association of Child and Adolescent Psychiatry and Allied Professions (Aug 2018), Prague, Czech Republic.
- Donald, K. A., **Hoogenhout, M.***, Du Plooy, C.P., Wedderburn, C.J., Nhapi, R.T., Barnett, W., Hoffman, N., Malcolm-Smith, S., Zar, H.J., & Stein, D.J. *Investigating determinants of early child development and cognition*

in the Drakenstein Child Health Study. International Association of Child and Adolescent Psychiatry and Allied Professions (Aug 2018), Prague, Czech Republic.

- **Hoogenhout, M.** *The physiology of empathy in autism*. Yale Child Study Center (July 2017), New Haven, USA.