MICHELLE (ROBBERTS) HOOGENHOUT, PhD

RELEVANT EXPERIENCE

Ingane Health – Co-founder　　　　　　　　　　　　　　　　　　　　　　2019 -
- Designed Android app for detecting developmental disorders and disabilities
- Roles: Ideation, grant-writing, partnership formation, data architecture and analysis, content

OpenUp – Cape Town, South Africa (Freelance data scientist)　　　　　　　2019 -
- Developed deep learning networks and clustering algorithms to predict racial transformation in entrepreneurship in South Africa from text data
- Languages/ Technologies used: Keras, TensorFlow, NLTK, Python, AWS

Umuzi Academy– Johannesburg, South Africa (Data science manager, head of tech department)　　2018 -
- 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
- Teaching and curriculum development
  - Created data science curriculum, going from 0 to 17 students in a span of 8 months
  - Taught students Python, Machine Learning, and Statistical Analysis via lecture, one-on-one training, and self-published assignments
  - Held workshops on negotiation, public speaking and technical interviews, increasing student placement by 20%
- 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
- Languages/ Technologies used: Python, R, MySQL, Linux, Docker, Airflow, Google Data Studio

Univ. of Cape Town – Cape Town, South Africa (Postdoctoral fellow)　　　2017 – 2018
- Researched genetic risk for developmental disorders in collaboration with Harvard, the Univ. of Cape Town and the Kenya Medical Research Institute (KEMRI)
- 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
  - Conducted genomic quality control and 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

Univ. 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

Cape Town, South Africa (Statistical consultant)　　　　　　　　　　　　2010 - 2018
- Conducted statistical analysis and consulting for research groups incl. the Institute for Mindfulness South Africa

AWARDS

- Winner: Most Implementable Solution, SCALE San Diego Innovation Weekend   2020
- Emerging Researcher Award, South African Association of Child and Adolescent Psychiatry and   2017
  Allied Professions and International Meeting for Autism Research
- Stevens-Shapiro Award, International Association for the Scientific Study of Intellectual and   2016
  Developmental Disabilities

EDUCATION

Fellow, Harvard T.H. Chan School of Public Health & Broad Inst. of Harvard and MIT   2017 - 2019
PhD Psychology, Univ. of Cape Town   2017
MA Psychological Research (Neuropsychology) *Cum Laude,* Univ. of Cape Town   2011
BSocSc (Hons) Psychology *Cum Laude,* Univ. of Cape Town   2008
BSc Human Life Sciences *Cum Laude,* Stellenbosch Univ.   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

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 Organised

- 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 29)

- **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.

LANGUAGES

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

SERVICE

Africa Regional Meeting, International Society for Autism Research	Chair, Student Committee	2017
Special Interest Group: *Moving Past the Categories: Creating Novel Re-conceptualizations of the ASD Diagnosis and Phenotype*, INSAR	Student Co-Leader	2015
Tai Chi Sport Club, Univ. of Cape Town	Secretary	2013
Psychology Society, Univ. of Cape Town	Vice-Chair, Co-Founder	2011
Early behavioral intervention for autism	Volunteer Therapist	