Beyers Louw

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EDUCATION

Candidate: August 2023

PhD Candidate in Strategy, Maastricht University, The Netherlands

Major: Strategy, Causal Inference and Behavioral Economics

Projects and Working Papers:

- On the Nuisance of Control Variables (with **Paul Hünermund**) **(arXiv Link)**
- Measures and Predictors of Knowledge Diffusion
- Interpretable Machine Learning Models and Data-Driven Decision-Making

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June 2018

Master of Science in Economics, University of Gothenburg, Sweden

- Advanced Microeconomic Theory 1 & 2 **(PhD Level)**
- Graduate Mathematics **(Distinction)**
- Advanced Industrial Organization **(Distinction)**

Thesis: The strategic Communication of Psychological Similarity **(Distinction)**

December 2017

Erasmus Exchange Semester, Norwegian School of Economics, Norway

- Behavioral Economics
- Behavioral Business Strategy
- Applied Programming and Data Analytics
- Big Data Applications in Finance

June 2016

Bachelor of Science in Agricultural Economics, Stellenbosch University, South Africa

Major: Economics, Econometrics and Statistics

SKILLS

- **Data Analysis in R:**
  - Numerical and Textual Analysis, Machine Learning, Web Scraping, Shiny Web Applications
  - Preferred Packages <- c("tidyverse", "h20", "glmnet", "rvest", "quanteda", "lime", "shiny")
- **Econometric Analysis in Stata**
- **Database Management: SQL (PostgreSQL)**
- **Full Microsoft Office Suite**
- **Web Development in React, NodeJS and Hugo**

HONORS AND SCHOLARSHIPS

- **Swedish Institute Study Scholarship**
- **The Adlerbert Scholarship**
- **Erasmus Exchange Scholarship**

Application for the PhD Workshop in Economics of AI 2020:

My interest in the Economics of AI is extended on two fronts:

First, in assessing how AI can help business leaders improve their decision-making. I have an academic background in behavioral economics, however, instead of focusing on the biases of human decision-making, I want to conduct experiments to investigate how interpretable machine learning models can help business leaders make better decisions. It is not enough to have accurate prediction models; business leaders need to be able to explain why they decided on a certain strategy. For example, there are packages in the R programming language such as Lime (in combination with the H20 AI package) that provide information on both the type of machine learning models are best suited for certain specifications and the main indicator features that were used to determine certain outcomes. I want to investigate how the conceptual understanding and use of machine learning models can improve data-driven decision-making in the business and economic policy landscape.

Second, I am interested in extending causal inferencing methods in machine learning models. In the second project of my PhD, we are investigating measures and indicators on the diffusion of novel technologies. We identified the diffusion likelihood and trajectories of novel technologies, for each data point we have patent-, firm-, industry- and citational network-level variables. This rich set of covariates enable us to employ multivariate regression models to investigate the likelihood and speed of diffusion, more specifically, we use recent advances in machine learning techniques such as regularized regressions and double/debiased machine learning methods.

As a final note, I am both interested in investigating the effects of AI within decision-making and extending applications of AI in econometric research methodology. I believe that attending this workshop and conference will further enable me to contribute towards research on the Economics of AI.