

# DR. LION BEHRENS

Senior Data Scientist | Researcher | Author

\*15.07.1994    📍 Neu-Anspach (DE, Hesse)

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## PROFESSIONAL EXPERIENCE

Data Scientist Anti Financial Crime

**Sopra Steria SE | Division Banking**    📍 Frankfurt am Main

○ **Senior Data Scientist | Senior Consultant** 📅 January 2024 – today

○ **Data Scientist | Consultant** 📅 February 2023 – December 2023

*Internal Activities:*

- Development of Proof of Concept for AI-based Financial Crime Operations – Automated Alert Decision/Automated SAR-writing  
*xgboost · SHAP · explainable AI · synthetic data*
- Instructor for "AI in Anti Financial Crime" in Graduate Program Risk, Finance and Compliance

*Client Project:*

- Fulltime-deployment at large German bank (*Focus area: AML*)
- Team: Anti Financial Crime Modeling – Model Development
- Main responsibility: AI-based customer segmentation  
Minor responsibility: AI-based alert optimization
- Tools: Apache Spark, Pyspark, Python, SQL, Hive

Freelance Author

○ **Publisher: Chapman&Hall/CRC Press**

📅 March 2024 – today

- Book on Causal Analysis & Machine Learning with R (under contract)
- Causal AI: Combining statistical methods for causal estimation with modern machine learning approaches
- Co-Authors: Paul C. Bauer, Denis Cohen

Doctoral Researcher (Research and Teaching)

**University of Mannheim**    📍 Mannheim

○ **Chair for Social Data Science and Chair for Quantitative Methods**

📅 January 2022 – January 2023

- Development of Massive Open Online Courses on data analysis and statistical programming
- Instructor for courses „Data Analysis“ and „Quantitative Methods“

○ **Collaborative Research Center „The Political Economy of Reforms“**

📅 June 2018 – June 2022

- Project on analyzing patterns of legislative decision-making
- Natural Language Processing in R, statistical modelling, automated information extraction (regular expressions) 🐙

## SKILLS

• Predictive Models/Data Analytics

(Un)Supervised Machine Learning

Explainable AI    SHAP    LIME

Fairness in ML    Causal Inference

Clustering Algorithms    Neural Nets

Ensemble Methods    Synthetic Data

Generalized Linear Models

Bayesian Statistics    Experiments

Monte Carlo Simulation

Data Visualization

• Programming Languages

Python    PySpark    R    SQL

• Big Data Technologies

Apache Spark    Hive

• Compliance Software

Smaragd    Actimize AML

• AFC Expertise

AML    Transaction Monitoring

Segmentation    Alert Optimization

• Teaching Experience

AI in Anti Financial Crime

Introduction to R

Data Analysis

Quantitative Methods

Business Statistics

Applied Bayesian Statistics

• Additional Software

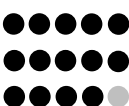
LaTeX    GitHub    Microsoft Office

• Languages

German

English

Spanish






## EDUCATION

Dr. rer. soc. Graduate School of Economic and Social Sciences

### University of Mannheim


📅 September 2018 – December 2023

- Thesis: "Statistical Detection of Systematic Election Irregularities – Three Essays on Supervised and Unsupervised Machine Learning Algorithms and the Attitudinal Consequences of Exposing Cheating"   
- Structured doctoral program "Political Science"
- Coursework on Data Analytics, Statistics, Programming, Machine Learning
- Final grade: 1.0

M.Sc. Methodology and Statistics

### University of Utrecht (NL)

📅 September 2016 - June 2018

- Thesis: „Evidence Synthesis via Bayesian Evaluation of Informative Hypotheses“ 
- Focus: Bayesian statistics, Monte Carlo Simulation
- Final grade: 7.9/10

B.A. Political Science

### University of Bremen

📅 September 2013 - August 2016

- Focus: Statistical Methods
- Final grade 1.09 (*with distinction*)

## HONORS & AWARDS

**Teaching Machines the Syntax of Political Text** 📅 04/2019

- Research Grant, 21,000,-€, from Collaborative Research Center 884 "The Political Economy of Reforms"
- Programming of Natural Language Processing pipelines for quantitative analysis of legislative proceedings

**Scholarship - Studienstiftung des Deutschen Volkes** 📅 05/2016

**Scholarship - Konrad-Adenauer-Stiftung** 📅 06/2014

## COURSEWORK

### Sopra Steria SE

Graduate Program Data & Analytics 📅 10/2023

- Five-week full-time program in business intelligence, data architectures, databank management systems

### Academic study

Machine Learning in Social Science Hot Topics in Machine Learning

Computational Social Science Bayesian Statistics

Mathematics for Social Scientists Computational Text Analysis

R Programming Advanced Topics in R

Introduction to Python Intermediate Python Introduction to SQL

## RELEVANT

## PUBLICATIONS

### Books


(In progress) Bauer, P.C., Cohen, D. & Behrens, L. **Causal Analysis & Machine Learning with R**. Chapman & Hall/CRC Press (under contract)

Behrens, L. (2023). **Statistical Detection of Systematic Election Irregularities**.

MADOC Mannheim University

### Peer-reviewed articles

(Under review) Behrens, L. & Rohlfing, I. **Bayesian Nested Analysis** 

(Under review) Behrens, L. & Semenova, V. **Election Fraud Information, Punishment, and Political Trust: Evidence from a Survey Experiment in Colombia, Mexico, and Russia**