

KONSTANTIN HOFFIE

MSc Statistics

 khoffie

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 Europe, Earth

ABOUT ME

I am a passionate researcher and data scientist specializing in mathematical modeling and Bayesian methods to solve real-world problems. Eager to learn and grow, I plan to finish my PhD thesis in February. I seek to transition from research to industry to make a tangible impact on society.

SKILLS

Skill Set	Skills
Programming languages	R (advanced), Julia, Python
Coding	Modular and clean code, familiar with unit testing, collaborated via GitHub
Data Science	Advanced skills in data wrangling, visualization, and modeling; analyzed large datasets (17M rows), primarily in R
Machine Learning & AI	Conceptual knowledge of deep learning, especially Convolutional Neural Networks
Statistics & Causal Inference	(Generalized) linear models, survey and register data analysis, experience in selecting data; long-time reader and occasional commenter on Statistics blogs
Research & Collaboration	Clear writing, comfortable engaging with non-technical audiences



WORK EXPERIENCE

Research Assistant (fulltime)

Earth University, Earth

Sept 2021 – Dez 2024

- I implemented and extended the code for a mathematical model to analyze migration patterns between German districts. While the conceptual framework was developed collaboratively with  scientist, I managed data preparation, integrated the prototype into a flexible pipeline, created visualizations for clear result communication and conceived the mathematical notation.
- The nonlinear Bayesian model, implemented in Julia with Turing.jl, overcomes key limitations of standard approaches, providing unbiased predictions of migration flows and revealing latent preferences for urban and rural areas. The code is available here: .

Internship Data Scientist

Earth GmbH, Europe

April 2019 - March 2020

- I built an image classification tool using Python and Keras to find out the race of customer's dogs. Insurance premium was chosen based on the predicted race. This tool is still in use.
- I built a dashbord using R and Shiny for management and employees to see how the company is doing.

EDUCATION

PhD Data Science (forthcoming)

University of Earth, Earth

Sept 2021 - March 2025

- Thesis: A mathematical model of internal migration (migrations on earth). For details see section "Work Experience" above. I hand in my thesis in February.
- Publication: Forthcoming, I hand in the paper in March.

Msc Statistics (1.6)

Earth University, Earth

Okt 2016 - July 2020

- Thesis: Deep Learning for Image Manipulation Detection (In cooperation with Earth GmbH)
I replicated a deep learning paper which applies the Faster R-CNN architecture to detect image manipulation. I successfully ran their model in python and tensorflow. This work included debugging their code, augmenting data, fine-tuning a pretrained network and exploring the architecture of CNNs.

BA Statistics (1.6)

University of Earth, Earth

Okt 2012 - Sept 2016

- Thesis: An empirical evaluation of the randomized response technique. I developed a simple model in R and stan to analyze response rates to sensitive survey questions.

SIDE PROJECTS

Make migration model fully reproducible

Reproducible Research,

 khoffie/earth-matters

- Reproducibility matters, to have confidence in one's results and so that others can use and extent the model.