Felix Zimmer

Independent Researcher

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PROFILE

A researcher passionate about developing innovative deep learning techniques. Building on a strong foundation in psychological methods, I am transitioning to pure machine learning research around sparse neural networks. I thrive in collaborative, interdisciplinary environments and seek opportunities to contribute to cutting-edge advancements in ML.

WORK EXPERIENCE

01/2025 – 06/2026

King's College London
Co-Investigator

I contributed to a successful grant application to develop methods for sample size planning in prediction modeling (NIHR206858). My role is to advise our interdisciplinary team on software development and algorithm implementation, leveraging my R package, mlpwr.

08/2022 – 02/2023

King's College London
Visiting PhD Student

I joined Daniel Stahl's research group to investigate sample size planning in prediction modelling and initiate an ongoing collaboration focused on developing new methodologies.

04/2020 – 03/2023

University of Zurich
PhD Student

My doctoral research focused on advancing psychological research with novel methods for sample size planning. I developed an analytical approach for Item Response Theory models and a simulation-based method tailored to complex study designs. These approaches, implemented as R packages, led to three top-tier journal publications.

EDUCATION

04/2020 – 04/2023	**Doctor of Philosophy** – Psychology *University of Zurich, Switzerland* Thesis: "New Methods for Power Analysis and Sample Size Planning"
04/2018 – PRESENT	**Bachelor of Science** – Mathematics *FernUniversität in Hagen, Germany*
10/2014 – 02/2020	**Master of Science** – Psychology *Johannes Gutenberg University Mainz, Germany* Thesis: "Applications of machine learning in psychology – a review"

AWARDS

2022	Mobility grant for research stay with Prof. Daniel Stahl, King's College London (CHF 14,243, Swiss National Science Foundation)
2021	Best poster award, 'MaDoKo' – Master and Doctoral Students Congress, University of Zurich
2020	Master thesis award for outstanding performance, Johannes Gutenberg University Mainz

SOFTWARE

relchanet	Neural network feature selection using relative change scores [Python, GitHub]
mlpwr	Cost-efficient sample size planning for complex study designs [R, CRAN]
irtpwr	Power analysis toolbox for Item Response Theory models [R, CRAN]

TEACHING

2022	Seminar on deep learning applications in psychology, University of Zurich [open materials]

SELECTED PUBLICATIONS

Zimmer, F. (2024, October 3). RelChaNet: Neural Network Feature Selection using Relative Change Scores. *arXiv preprint*. [DOI]

Zimmer, F., & Debelak, R. (2023). Simulation-based design optimization for statistical power: Utilizing machine learning. *Psychological Methods*. [DOI]

Zimmer, F., Draxler, C., & Debelak, R. (2023). Power Analysis for the Wald, LR, Score, and Gradient Tests in a Marginal Maximum Likelihood Framework: Applications in IRT. *Psychometrika*. [DOI]

ACTIVITIES AND INTERESTS

In my spare time I enjoy gravel cycling, bouldering, and eating lots of Korean ramen.