# Unai Fischer Abaigar

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CONTACT
INFORMATION

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www.unaifischerabaigar.com

EDUCATION

**University of Munich (LMU)**, Munich, Germany
Ph.D. in Statistics                                                                                     October 2022 -

- Advisors: Frauke Kreuter, Christoph Kern
- Affiliated researcher at the Munich Center for Machine Learning

**Ruprecht Karl University of Heidelberg**, Heidelberg, Germany
M.Sc. in Physics, German Grade: 1.0 (US GPA: 4.00)                                        March 2022

- Thesis: *Modeling Ordinal Mobile Data with Sequential Variational Autoencoders*
- Selected coursework: *Algorithms and Data*, *Advanced Machine Learning*, *Computational Statistics and Data Analysis*, *Chaotic, Complex and Evolving Environmental Systems*, *Machine Learning meets Graph Theory*, *Time Series Analysis and Recurrent Neural Networks*, *Theoretical Quantum Statistics*

**Ruprecht Karl University of Heidelberg**, Heidelberg, Germany
B.Sc. in Physics                                                                                     February 2020

- Thesis: *Modeling the Evolution of Cooperation through Indirect Reciprocity*

**Leibniz Kolleg, University of Tübingen**, Tübingen, Germany
One year liberal arts program                                                                         July 2016

RESEARCH
EXPERIENCE

**SEAS, Harvard University**, Cambridge, MA, USA
*Fellow*                                                                                     Sep 2024 - Dec 2024

- Hosted by Cynthia Dwork and Juan Carlos Perdomo at the *Harvard Center for Research on Computation and Society*
- Worked on algorithmic targeting of interventions, focusing on tradeoffs and considerations in applying machine learning to public sector resource allocations

**Data Science Lab, Hertie School**, Berlin, Germany
*Research Associate*                                                                         May 2022 - July 2022

- Hosted by Slava Jankin and Lynn Kaack
- Identified future avenues for applying machine learning methods in government and public policy

**Central Institute of Mental Health**, Mannheim, Germany
*Research Assistant at Living Lab AI4U*                                                       Mar 2022 - Oct 2022

- Developed generative RNN models to predict emotional trajectories from mobile phone time series data in order to recommend personalized mental health interventions
- Managed technical work, coordinating with public mental health specialists, school psychologists and software developers

*Research Intern*                                                                             Apr 2020 - Dec 2020

- Hosted by Daniel Durstewitz at the Dept. of Theoretical Neuroscience
- Worked on sequential VAEs to uncover underlying dynamical systems of neural time series data

**Data Lab/AI, sovanta AG**, Heidelberg, Germany

*Student Trainee*                                                                 May 2019 - May 2020

- Worked on the development of a machine learning application used for financial resource allocation for the clinical research projects of a top pharmaceutical company

**Institute of Environmental Physics, Heidelberg University**, Heidelberg, Germany

*Research Intern*                                                                 Feb 2019 - Apr 2020

- Contributed to Utopia, a modeling framework for complex adaptive systems with a focus on network models and celluar automatons

HONORS AND AWARDS

**LMU-NYU Research Cooperation Program**                                          August 2025

- Funding awarded for the project *Foundations of Statistical Prediction in the Public Sphere*, supporting a research stay at NYU (~€10,000)

**ICML 2025 Outstanding Paper Award**                                            Jul 2025

- Received ICML 2025 Outstanding Paper Award for the paper *The Value of Prediction in Identifying the Worst-Off*; only six main track papers at this year's conference were chosen for this recognition

**Konrad Zuse School for Excellence in Reliable AI**                             May 2023 -

- Selected for advanced training and funding program with the aim of training AI experts with a dual focus on technical brilliance and AI's implications for society

**German Academic Scholarship Foundation** (*Studienstiftung*)                   Oct 2016 - Mar 2020

- Awarded to fewer than 0.5% of German students for exceptional academic abilities and societal contributions; Germany's oldest and most prestigious scholarship program

SELECTED PUBLICATIONS

**Fischer-Abaigar**, **U.**, C. Kern, and J. C. Perdomo (2025). "The Value of Prediction in Identifying the Worst-Off". In: *Proceedings of the 42nd International Conference on Machine Learning (ICML)*. **Oral Presentation @ ICML 2025**, **Highlight Track @ FORC 2025**.

Kern, C., **U. Fischer-Abaigar**, J. Schweisthal, D. Frauen, R. Ghani, S. Feuerriegel, M. van der Schaar, and F. Kreuter (2025). "Algorithms for reliable decision-making need causal reasoning". In: *Nature Computational Science*. ISSN: 2662-8457. DOI: 10.1038/s43588-025-00814-9.

**Fischer-Abaigar**, **U.**, C. Kern, N. Barda, and F. Kreuter (2024). "Bridging the gap: Towards an expanded toolkit for AI-driven decision-making in the public sector". In: *Government Information Quarterly* 41.4, p. 101976. ISSN: 0740-624X. DOI: https://doi.org/10.1016/j.giq.2024.101976.

**Fischer-Abaigar**, **U.**, C. Kern, and F. Kreuter (2024). "The Missing Link: Allocation Performance in Causal Machine Learning". In: *Workshop on Humans, Algorithmic Decision-Making and Society, ICML 2024*.

TALKS

*The Value of Prediction in Identifying the Worst-Off*, ICML 2025 (Oral), Vancouver         July 2025
*Universal Adaptability*, ITACOSM 2025, Bologna University, US                               July 2025
*The Value of Prediction in Identifying the Worst-Off*, FORC 2025, Stanford University, US   June 2025
*The Value of Prediction in Identifying the Worst-Off*, Social Foundations of Computation, Max Planck Institute for Intelligent Systems, Tübingen, Germany   May 2025
*Algorithmic Decision-Making in the Public Sector*, Theory of Computation Graduate Student Seminar, Harvard, Cambridge, MA   Oct 2024
*Introduction to Automated Decision-Making*, Coleridge Initiative, UMD, Virtual             Oct 2024
*Machine Learning for Reliable Decision-Making*, Zuse Industry Workshop on Algorithmic Decision-Making, Virtual   Apr 2024
*Challenges for ML-Supported Decision-Making*, Dept. of Statistics, LMU, Munich, Germany   Jan 2024

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| TEACHING EXPERIENCE | **University of Munich (LMU)**, Munich, Germany | |
| | *Co-Instructor* | |
| | *Advanced Methods in Social Statistics and Social Data Science*, Graduate Course | Summer 2024, 2025 |
| | *Machine Learning meets Causality*, Graduate Seminar | Winter 2023 |
| | *Graduate Assistant* | |
| | *Computational Social Science*, Graduate Course | Winter 2022, 2023 |
| | **Ruprecht Karl University of Heidelberg**, Heidelberg, Germany | |
| | *Graduate Assistant* | |
| | *Machine Learning for Real-World Challenges*, Graduate Seminar | Summer 2022 |
| | *Dynamical Systems Theory in Machine Learning*, Graduate Course | Winter 2021 |

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| PROFESSIONAL ACTIVITIES | Data Science for Social Good Munich | November 2022 - |
| | *Project Management* | |

- Co-organizer of a yearly two month paid fellowship program where aspiring data scientist work on real-world machine learning problems for the social good

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| | DataFest Germany 2023 | April 2023 |
| | *Organizational Team Member* | |

- Co-organized the sixth edition of DataFest, a data analysis hackathon

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| | Network Particle World (*Netzwerk Teilchenwelt*) | March 2017 - July 2018 |
| | *Fellow Coordinator for Heidelberg* | |

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| SELECTED WORKSHOPS AND TRAINING | *3rd MCML Workshop on Causal Machine Learning*, Munich, Germany | Aug 2024 |
| | *AI School for CS and OR Education*, College Park, MD | May 2024 |
| | *Multigroup Fairness and the Validity of Statistical Judgment*, Simons Institute, Berkeley | April 2023 |
| | *Bit from It - Information Geometry and Causality*, Weimar, Germany | Sep 2019, Oct 2021 |
| | *Legal and Technical Aspects of Digital Privacy*, Leysin, Switzerland | August 2017 |