Maresa **Schröder**

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Education

LMU Munich — *Munich, Germany*
PhD student, Computer Science - Causal Machine Learning — *05.2023 - present*
- Advisor: Prof. Dr. Stefan Feuerriegel (LMU Munich)
- Research on causal machine learning for optimal decision making
- Published multiple papers at major machine learning conferences (NeurIPS, ICML, ICLR)
- Thesis: Reliable Treatment Effect Estimation through Causal Machine Learning

Cornell Tech — *New York, USA*
Visiting PhD student — *03.2025 - 07.2025*
- Advisor: Prof. Dr. Nathan Kallus (Cornell Tech, Cornell University)
- Research on causal inference on networks

Technical University of Munich — *Munich, Germany*
Master of Science, Mathematics — *10.2019 - 06.2022*
- Focus on Mathematical Statistics, Machine Learning, and Game Theory
- Thesis: Explanations from the Latent Space: The Need for Latent Feature Saliency Detection in Deep Time Series Classification

Peking University — *Beijing, China*
Semester abroad — *08.2021 - 12.2021*

University of Mannheim — *Mannheim, Germany*
Bachelor of Science, Economics — *08.2017 - 02.2019*
- Focus on Econometrics and Game Theory
- Thesis: Double recognition of thesis from B.Sc. Business Mathematics

National University of Singapore — *Singapore, Singapore*
Semester abroad — *08.2017 - 12.2017*

University of Mannheim — *Mannheim, Germany*
Bachelor of Science, Business Mathematics — *08.2015 - 10.2018*
- Focus on Statistics and Applied Mathematics
- Thesis: Discrete and Continuous Time Markov Chains in Application to Credit Risk Estimation

Professional Experience

Fraunhofer Institute for Cognitive Systems (IKS) — *Munich, Germany*
Research Assistant — *12.2021 - 03.2023*
- Research on explainability methods for time series classification
- Consulting services for a global IT company about incentive mechanisms in federated learning systems

McKinsey & Company — *Munich, Germany*
Consulting Intern — *03.2021 - 04.2021*
- Transparency creation on pre-SOP projects
- Online platform development & website design in Figma

Intelligent Robotics Lab - Aberystwyth University — *Aberystwyth, UK*
Summer Research Fellow — *06.2019 - 08.2019*
- Low-memory machine learning for time series classification for development of a smart gait monitoring system for subjects with Parkinson's Disease or stroke
- DAAD scholarship holder

Talks

Invited Talks

2025	**IMS International Conference on Statistics and Data Science (ICSDS)**, Causal Machine Learning under Privacy Constraints	*Sevilla, Spain*
2025	**LATAM School of Artificial Intelligence**, Introduction to Causal Machine Learning	*Lima, Peru*
2024	**Google Technical Services**, Conformal Prediction for Treatment Effect Estimation	*Online*

Contributed Presentations

2025	**Workshop on Medicine and AI at Harvard Medical School**, Causal ML for Predicting Treatment Outcomes	*Boston, USA*
2025	**MIT/MCML Flashtalks: Current topics in AI**, Causal ML for Predicting Treatment Outcomes	*Cambridge, USA*
2025	**NYU/MCML Workshop on Machine Learning**, Causal ML for Predicting Treatment Outcomes	*New York, USA*
2024	**MCML Workshop on Causal Machine Learning**, Conformal Prediction for Causal Effects of Continuous Treatments	*Munich, Germany*
2023	**Workshop on Trustworthy Machine Learning for Healthcare**, Post-hoc Saliency Methods Fail to Capture Latent Feature Importance in Time Series Data	*Online*

Publications

My research focuses on causal machine learning for reliable decision-making, with an emphasis on developing flexible methods that estimate heterogeneous treatment effects under complex data structures. I design algorithms that incorporate uncertainty quantification, robustness to model misspecification, and ethical constraints, enabling trustworthy estimation even in sensitive or high-stakes settings. A central goal of my work is to ensure that these methods are both theoretically rigorous and practically applicable to real-world problems in business, economics, and healthcare.

Part of PhD dissertation

Schröder, M., Frauen, D., Schweisthal, J., Hess, K., Melnychuk, M., Feuerriegel, S. (2025). *Conformal Prediction for Causal Effects of Continuous Treatments*. Conference on Neural Information Processing Systems (NeurIPS). CORE: A*, VHB: A. (Link)

Schröder, M., Melnychuk, V., Feuerriegel, S. (2025). *Differentially Private Learners for Heterogeneous Treatment Effects*. International Conference on Learning Representations (ICLR). CORE: A* (Link)

Schröder, M., Frauen, D., Feuerriegel, S. (2024). *Causal Fairness under Unobserved Confounding: A Neural Sensitivity Framework*. International Conference on Learning Representations (ICLR). CORE: A* (Link)

Beyond PhD dissertation (peer-reviewed)

Frauen*, D., **Schröder*, M.**, Hess, K., Feuerriegel, S. 2025. *Orthogonal Survival Learners for Estimating Heterogeneous Treatment Effects from Time-to-Event Data*. Conference on Neural Information Processing Systems (NeurIPS).(* indicates equal contribution). CORE: A*, VHB: A. (Link)

Wang, Y., **Schröder, M.**, Frauen, D., Schweisthal, J., Hess, K., Feuerriegel, S. (2025). *Constructing Confidence Intervals for Average Treatment Effects from Multiple Observational Datasets*. International Conference on Learning Representations (ICLR). CORE: A*. (Link)

Schweisthal, J., Frauen, D., **Schröder, M.**, Hess, K., Kilbertus, N., Feuerriegel, S. (2024). *Learning Representations of Instruments for Partial Identification of Treatment Effects*. International Conference on Machine Learning (ICML). CORE: A*, VHB: A. (Link)

Schröder*, M., Zamanian*, A., Ahmidi, N. (2023). *Post-hoc Saliency Methods Fail to Capture Latent Feature Importance in Time Series Data*. ICLR Workshop on Trustworthy Machine Learning for Healthcare. (* indicates equal contribution) (Link)

Schröder*, M., Zamanian*, A., Ahmidi, N. (2023). *What about the Latent Space? The Need for Latent Feature Saliency Detection in Deep Time Series Classification*. Machine Learning and Knowledge Extraction 5 (2), 539-559. (* indicates equal contribution) (Link)

Under Review

Schröder, M., Hartenstein, J., Feuerriegel, S. (2025). *PrivATE: Differentially Private Confidence Intervals for Average Treatment Effects*.

Brockschmidt, M., **Schöder, M.**, Feuerriegel, S. (2025). *SurvDiff: A Diffusion Model for Generating Synthetic Data in Survival Analysis*.

Khot, A., Oprescu, M., **Schröder, M.**, Kagawa, A., Luo, X. (2025). *Spatial Deconfounder: Interference-Aware Deconfounding for Spatial Causal Inference*.

Wang, Y., Frauen, D., Schweisthal, J., **Schröder, M.**, Feuerriegel, S. (2025) *Assessing the Robustness of Heterogeneous Treatment Effects in Survival Analysis under Informative Censoring.*

Outreach & Professional Development

Service and Outreach

2024 **3rd MCML Workshop on Causal Machine Learning**, Organization *Munich, Germany*

Peer Review

International Conference on Artificial Intelligence and Statistics 2026 (AISTATS)
International Conference on Learning Representations 2026 (ICLR)
Annual AAAI Conference on Artificial Intelligence 2026 (AAAI)
International Conference on Information Management and Big Data 2025 (SIMBig)
Conference on Neural Information Processing Systems 2025 (NeurIPS)
International Conference on Machine Learning 2025 (ICML)
International Conference on Artificial Intelligence and Statistics 2025 (AISTATS)
International Conference on Learning Representations 2025 (ICLR)
Conference on Neural Information Processing Systems 2024 (NeurIPS)
International Conference on Information Systems 2024 (ICIS)

Skills

Languages

German	**Native**, C2
English	**Full working proficiency**, C2
Spanish	**Limited working proficiency**, B2
Chinese (Mandarin)	**Limited working proficiency**, B2