Marcel Wienöbst

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Education

2024-today **PostDoc**, *Institute for Theoretical Computer Science, University of Lübeck*

2019-2024 **Ph.D. Computer Science**, *Institute for Theoretical Computer Science, University of Lübeck*, Final Grade 1.0, summa cum laude (4.0 GPA)
Title: Algorithms for Markov Equivalence. Advisor: Maciej Liśkiewicz.

2016-2019 **M.Sc. Computer Science**, *University of Lübeck*, Final Grade 1.0 (4.0 GPA)
Thesis: Constraint-based causal structure learning exploiting low-order conditional independencies. Advisor: Maciej Liśkiewicz.

2013-2016 **B.Sc. Computer Science**, *University of Lübeck*, Final Grade 1.4 (3.6 GPA)
Thesis: Experimental Evaluation of Algorithms for the Bisection Problem in Graphs. Advisors: Martin Schuster und Maciej Liśkiewicz.

2013 **Abitur (General Higher Qualification for University Entrance)**, *KGS Salzhemmendorf*, Final Grade 1.0 (4.0 GPA)

Employment

2019-today **Research Associate**, *Institute for Theoretical Computer Science, University of Lübeck*

between 2015 & 2019 **Tutor and Research Assistent**, *University of Lübeck*
Among other occupations working in the DFG project *Causality: an algorithmic framework and a computational complexity perspective* led by Maciej Liśkiewicz.

Awards

Science Award STEM 2024 of the University of Lübeck for the paper *Linear-Time Algorithms for Front-Door Adjustment in Causal Graphs*.

AI Newcomer 2023 (awarded by the German Informatics Society).

Best Student Paper Award (UAI 2022) for the paper *A New Constructive Criterion for Markov Equivalence of MAGs*.

Best Student Paper Award (UAI 2021) for the paper *Extendability of Causal Graphical Models: Algorithms and Computational Complexity*.

Distinguished Paper Award (AAAI 2021) for the paper *Polynomial-Time Algorithms for Counting and Sampling Markov Equivalent DAGs*.

Top Reviewer Award (UAI 2022)

Best Master Award 2018/2019 awarded to the students with the best Master grade in Computer Science between 07/2018 and 12/2019 at University of Lübeck.

Extracurricular Activities

2019- **Coach and organizer of the ICPC programming contests in Lübeck**, *University of Lübeck*
In addition, jury member at the Wintercontest 2020, 2022 and 2023 as well as the GCPC 2022 and 2023.

2015-2019 **Participant in the ICPC programming contests**, *University of Lübeck*
Among other results a 9th place (bronze medal) at GCPC 2018 and 28th place at NWERC 2017.

Bibliography

Max Bannach, Florian Chudigiewitsch, Kim-Manuel Klein, Marcel Wienöbst (2024). **PACE Solver Description: UzL Exact Solver for One-Sided Crossing Minimization**, *Proceedings of the Nineteenth International Symposium on Parameterized and Exact Computation (IPEC 2024)*.

Moritz Schauer, Marcel Wienöbst (2024). **Causal Structure Learning With Momentum: Sampling Distributions Over Markov Equivalence Classes**, *Proceedings of the Twelfth International Conference on Probabilistic Graphical Models (PGM 2024)*.

Marcel Wienöbst, Benito van der Zander, Maciej Liśkiewicz (2024). **Linear-Time Algorithms for Front-Door Adjustment in Causal Graphs**, *Proceedings of the Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI 2024)*.

Marcel Wienöbst, Max Bannach, Maciej Liskiewicz (2023). **Polynomial-Time Algorithms for Counting and Sampling Markov Equivalent DAGs with Applications**, *Journal of Machine Learning Research (JMLR), Volume 24*.

Malte Luttermann, Marcel Wienöbst, Maciej Liśkiewicz (2023). **Practical Algorithms for Orientations of Partially Directed Graphical Models**, to appear in *Proceedings of the Second Conference on Causal Learning and Reasoning (CLeaR 2023)*.

Marcel Wienöbst, Malte Luttermann, Max Bannach, Maciej Liśkiewicz (2023). **Efficient Enumeration of Markov Equivalent DAGs**, to appear in *Proceedings of the Thirty-Seventh AAI Conference on Artificial Intelligence (AAAI 2023)*.

Marcel Wienöbst, Max Bannach, Maciej Liskiewicz (2022). **A New Constructive Criterion for Markov Equivalence of MAGs**, *Proceedings of the Thirthy-Eighth Conference on Uncertainty in Artificial Intelligence (UAI 2022)*. **Best Student Paper**.

Benito van der Zander, Marcel Wienöbst, Markus Bläser, Maciej Liśkiewicz (2022). **Identification in Tree-Shaped Linear Structural Causal Models**, *Proceedings of the Twenty-Fifth Conference on Artificial Intelligence and Statistics (AISTATS 2022)*.

Marcel Wienöbst, Maciej Liśkiewicz (2021). **An Approach to Reduce the Number of Conditional Independence Tests in the PC Algorithm**, *Proceedings of the Forty-Fourth German Conference on AI (KI 2021)*.

Marcel Wienöbst, Max Bannach, Maciej Liśkiewicz (2021). **Extendability of Causal Graphical Models: Algorithms and Computational Complexity**, *Proceedings of the Thirty-Seventh Conference on Uncertainty in Artificial Intelligence (UAI 2021)*. **Best Student Paper**.

Marcel Wienöbst, Max Bannach, Maciej Liśkiewicz (2021). **Polynomial-Time Algorithms for Counting and Sampling Markov Equivalent DAGs**, *Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021)*. **Distinguished Paper**.

Max Bannach, Sebastian Berndt, Martin Schuster, Marcel Wienöbst (2020). **PACE Solver Description: PID***, *Proceedings of the Fifteenth International Symposium on Parameterized and Exact Computation (IPEC 2020)*.

Max Bannach, Sebastian Berndt, Martin Schuster, Marcel Wienöbst (2020). **PACE Solver Description: Fluid**, *Proceedings of the Fifteenth International Symposium on Parameterized and Exact Computation (IPEC 2020)*.

Marcel Wienöbst, Maciej Liskiewicz (2020). **Recovering Causal Structures from Low-Order Conditional Independencies**, *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020)*.