

# Andy Oertel

M. Sc.

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## Personal Information

Date of Birth Oktober 31, 1996

## Work Experience

- 2021-11 – today **PhD student**, *Lund University*.  
Topic: Efficient and Certifiable Combinatorial Optimization Methods
- 2020-10 – 2021-11 **Research Assistant**, *Chemnitz University of Technology*.  
CRC Hybrid Societies  
Processing and Analysis of Time Series Data through Graph Methods
- 2019-11 – 2021-03 **Tutor**, *Chemnitz University of Technology*.  
Courses: Theoretical Computer Science 1, Introduction to Quantum Computing, Distributed Algorithms
- 2018-10 – 2019-06 **Research Assistant**, *Chemnitz University of Technology*.  
Young Researchers Group SyNErgIt - Synergetische Nutzung von Energie- und Informationstechnik  
Development of own Methods to round Solutions of Optimization Programs
- 2018-07 – 2018-09 **Undergraduate Assistant**, *Chemnitz University of Technology*.  
Young Researchers Group SyNErgIt - Synergetische Nutzung von Energie- und Informationstechnik  
Implementation of known Methods to round Solutions of Optimization Programs

## Education

- 2021-11 – today **PhD student in Computer Science**, Lund University.
- 2018-10 – 2021-05 **Master of Science in Computer Science**, Chemnitz University of Technology.  
Grade: 1.3 (very good)
- 2015-10 – 2018-07 **Bachelor of Science in Computer Science**, Chemnitz University of Technology.  
Grade: 1.2 (very good)
- 2007 – 2015 **Abitur**, Gymnasium Zschopau.

## Awards

- 2025 Distinguished Reviewer Award at TACAS 2025 for artifact reviewing
- 2025 Best Poster Award at the WASP Winter Conference 2025 for the poster **End-to-End Verification for Subgraph Solving**

- 2024 2nd Place *Main Track SAT* at the SAT competition 2024 for the solver **BreakID-kissat**
- 2023 Special Prize at the SAT competition 2023 for the solver **BreakID-kissat**
- 2022 Best Paper Award at SAT 2022 for the paper **Certified CNF Translations for Pseudo-Boolean Solving**
- 2021 TU Chemnitz University Award of the Department for Computer Science for my Master's thesis as best Master/PhD thesis of the year

## Publications

- To appear Wietze Koops, Daniel Le Berre, Magnus O. Myreen, Jakob Nordström, *Andy Oertel*, Yong Kiam Tan, and Marc Vinyals. **Practically Feasible Proof Logging for Pseudo-Boolean Optimization**. 31st International Conference on Principles and Practice of Constraint Programming (CP 2025).
- 2024 Emir Demirović, Ciaran McCreesh, Matthew J. Mcllree, Jakob Nordström, *Andy Oertel*, and Konstantin Sidorov. **Pseudo-Boolean Reasoning About States and Transitions to Certify Dynamic Programming and Decision Diagram Algorithms**. 30th International Conference on Principles and Practice of Constraint Programming (CP 2024).
- 2024 Jeremias Berg, Bart Bogaerts, Jakob Nordström, *Andy Oertel*, Tobias Paxian, and Dieter Vandesande. **Certifying Without Loss of Generality Reasoning in Solution-Improving Maximum Satisfiability**. 30th International Conference on Principles and Practice of Constraint Programming (CP 2024).
- 2024 Hannes Ihalainen, *Andy Oertel*, Yong Kiam Tan, Jeremias Berg, Matti Järvisalo, Magnus O. Myreen, and Jakob Nordström. **Certified MaxSAT Preprocessing**. International Joint Conference on Automated Reasoning 2024 (IJCAR 2024).
- 2024 Alexander Hoen, *Andy Oertel*, Ambros Gleixner, and Jakob Nordström. **Certifying MIP-based Presolve Reductions for 0-1 Integer Linear Programs**. 21st International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR 2024).
- 2024 Stephan Gocht, Ciaran McCreesh, Magnus O. Myreen, Jakob Nordström, *Andy Oertel*, and Yong Kiam Tan. **End-to-End Verification for Subgraph Solving**. 38th Annual AAAI Conference on Artificial Intelligence (AAAI-24).
- 2023 Jeremias Berg, Bart Bogaerts, Jakob Nordström, *Andy Oertel*, and Dieter Vandesande. **Certified Core-Guided MaxSAT Solving**. 29th Conference on Automated Deduction (CADE-29).
- 2023 Josefran de O. Bastos, Hanno Lefmann, Carlos Hoppen, *Andy Oertel*, and Dionatan R. Schmidt. **Graphs With Many Edge-Colorings Such That Complete Graphs Are Rainbow**. Discrete Applied Mathematics.

- 2022 Stephan Gocht, Ruben Martins, Jakob Nordström, and *Andy Oertel*. **Certified CNF Translations for Pseudo-Boolean Solving**. 25th International Conference on Theory and Applications of Satisfiability Testing (SAT 2022).
- 2021 Josefran de O. Bastos, Hanno Lefmann, Carlos Hoppen, *Andy Oertel*, and Dionatan R. Schmidt. **Maximum Number of  $r$ -Edge-Colorings Such That All Copies of  $K_k$  Are Rainbow**. XI Latin and American Algorithms, Graphs and Optimization Symposium (LAGOS 2021).
- Preprint Tobias Hofmann, and *Andy Oertel*. **Fast Ultrametric Matrix-Vector Multiplication**.

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### Visits

- 2025-03 Markus Anders and Bart Bogaerts at KU Leuven, Belgium
- 2023-11 Ambros Gleixner and Alexander Hoen at Zuse Institute Berlin, Germany
- 2023-10 Armin Biere and Tobias Paxian at University of Freiburg, Germany
- 2023-03 – 2023-05 2 month research program “Extended Reunion: Satisfiability” at Simons Institute for the Theory of Computing, UC Berkeley
- 2022-09 Bart Bogaerts and Dieter Vandesande at Vrije Universiteit Brussel (VUB), Belgium
- 2022-05 Bart Bogaerts at Vrije Universiteit Brussel (VUB), Belgium
- 2019-11 UFRGS Porto Alegre, Brazil, funded by German Academic Exchange Service (DAAD)

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### Language Skills

- German Native language
- English Fluent in spoken and written

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### Further Information

- 2017 – 2021 Organizer of *Chemnitzer Spielenacht* (tabletop game event)