Benjamin Kiesl
benjamin.kiesl@gmail.com
Website: https://benjaminkiesl.github.io
Programming Languages: C++, Python, Java, C#

EDUCATION

TU Wien, PhD in Computer Science, GPA 1.0 (in Austria, 1 is best and 5 is worst) 03/15 to 03/19
Title of Thesis: *Structural Reasoning Methods for Satisfiability Solving and Beyond*

TU Wien, MSc in Computer Science, GPA 1.2 10/11 to 01/15

University of Applied Sciences Hagenberg, BSc in Media Technology, GPA 1.2 10/08 to 07/11

EXPERIENCE

Software Developer, **SAP Labs**, Munich From 08/20
Contribution to the design and implementation of a prototype system for data analytics, based on statistical methods and cloud-native technologies.

Postdoc, **CISPA Helmholtz Center for Information Security**, Saarbrücken 03/19 to 07/20
Performed research on the formal analysis of security protocols (WPA2 and Signal). Co-authored five scientific papers and a handbook article. Supervised two students.

Research Assistant, **TU Wien**, Institute of Logic and Computation, Vienna 03/15 to 02/19
Co-authored nine conference papers and two journal papers in the areas of automated reasoning and mathematical logic, leading to four best paper awards (see below).

Software Developer (C++), **sofasession (startup)**, Vienna 02/14 to 02/15
Contributed to the development of an audio-streaming tool: Implemented, for instance, a digital audio mixer and an interface between the tool and a web app.

Internships in Software Development (Java), **IBM**, Vienna 04/11 to 07/11 and 07/12 to 09/12

AWARDS

- Overall **four best paper awards** for research papers published at the scientific conferences IJCAR 2018, CADE 2017 (two awards), and HVC 2017.
- **Best paper nomination** at TACAS 2019.
- **Excellence scholarships** of both TU Wien and the University of Applied Sciences Hagenberg.
- **Marshall Plan scholarship** of the Austrian Marshall Plan Foundation.

SCIENTIFIC ACTIVITIES

- **Program committee member** for the following scientific conferences: AAAI 2021, IJCAI 2020, AAAI 2020, ECAI 2020, TACAS 2020, SAT 2020, CADE 2019, SYNASC 2019;
- **Two research visits at the University of Texas at Austin**,
  Collaboration with Marijn J.H. Heule (now Associate Professor at Carnegie Mellon University), 01/2017 to 05/2017 and 02/2018 to 04/2018

PUBLICATIONS

Armin Biere, Matti Järvisalo, and Benjamin Kiesl (2021):
Preprocessing in SAT Solving
In: Handbook of Satisfiability, Second Edition, IOS Press.

Cas Cremers, Jaiden Fairoze, Benjamin Kiesl, and Aurora Naska (2020):
Clone Detection in Secure Messaging: Improving Post-Compromise Security in Practice
In: Proceedings of the 27th ACM Conference on Computer and Communications Security (CCS 2020).

Cas Cremers, Benjamin Kiesl, and Niklas Medinger (2020):
A Formal Analysis of IEEE 802.11's WPA2: Countering the Kracks Caused by Cracking the Counters
In: Proceedings of the 29th USENIX Security Symposium (USENIX Security 2020).

Benjamin Kiesl, Adrián Rebola-Pardo, Marijn J. H. Heule, and Armin Biere (2020):
Simulating Strong Practical Proof Systems with Extended Resolution
In: Journal of Automated Reasoning.

Benjamin Kiesl, Marijn J.H. Heule, and Armin Biere (2019):
Truth Assignments as Conditional Autarkies
In: Proceedings of the 17th Symposium on Automated Technology for Verification and Analysis (ATVA 2019).

Benjamin Kiesl and Martina Seidl (2019):
QRAT Polynomially Simulates ∀-Exp+Res
In: Proceedings of the 22nd International Conference on Theory and Applications of Satisfiability Testing (SAT 2019).

Marijn J.H. Heule, Benjamin Kiesl, and Armin Biere (2019):
Encoding Redundancy for Satisfaction-Driven Clause Learning
In: Proceedings of the 25th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2019). *Best Paper Nomination.*

Marijn J.H. Heule, Benjamin Kiesl, and Armin Biere (2019):
Clausal Proofs of Mutilated Chessboards
In: Proceedings of the 11th NASA Formal Methods Symposium (NFM 2019).

Marijn J.H. Heule, Benjamin Kiesl, and Armin Biere (2019):
Strong Extension-Free Proof Systems
In: Journal of Automated Reasoning.

Benjamin Kiesl, Martina Seidl, Hans Tompits, and Armin Biere (2018):
Local Redundancy in SAT: Generalizations of Blocked Clauses
In: Logical Methods in Computer Science (LMCS), vol. 14(4:3).

Benjamin Kiesl, Adrian Rebola-Pardo, and Marijn J.H. Heule (2018):
Extended Resolution Simulates DRAT
In: Proceedings of the 9th International Joint Conference on Automated Reasoning (IJCAR 2018).
Best Paper Award.

Marijn J.H. Heule, Benjamin Kiesl, Martina Seidl, and Armin Biere (2017):
PRuning Through Satisfaction
In: Proceedings of the 13th Haifa Verification Conference (HVC 2017). *Best Paper Award.*

Benjamin Kiesl, Marijn J.H. Heule, and Martina Seidl (2017):
A Little Blocked Literal Goes a Long Way
In: Proceedings of the 20th International Conference on Theory and Applications of Satisfiability Testing (SAT 2017).

Benjamin Kiesl, Martina Seidl, Hans Tompits, and Armin Biere (2017):
Blockedness in Propositional Logic: Are You Satisfied With Your Neighborhood?
In: Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI 2017).

Benjamin Kiesl and Martin Suda (2017):
A Unifying Principle for Clause Elimination in First-Order Logic
In: Proceedings of the 26th International Conference on Automated Deduction (CADE-26).
Best Paper Award.

Marijn J.H. Heule, Benjamin Kiesl, and Armin Biere (2017):
Short Proofs Without New Variables
In: Proceedings of the 26th International Conference on Automated Deduction (CADE-26).
Best Paper Award.

Marijn J.H. Heule and Benjamin Kiesl (2017):
The Potential of Interference-Based Proof Systems
In: Proceedings of the 1st ARCADE Workshop (ARCADE 2017).

Benjamin Kiesl, Martin Suda, Martina Seidl, Hans Tompits, and Armin Biere (2017):
Blocked Clauses in First-Order Logic
In: Proceedings of the 21st International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR-21).

Benjamin Kiesl, Martina Seidl, Hans Tompits, and Armin Biere (2016):
Super-Blocked Clauses
In: Proceedings of the 8th International Joint Conference on Automated Reasoning (IJCAR 2016).