

Education

since 2014 **PhD Candidate in Computer Science, TU München.**

2013–2016 **Bachelor of Science in Mathematics, TU München.**

Passed with high distinction

2012–2014 **Master of Science in Computer Science, TU München.**

Passed with high distinction

2010–2012 **Bachelor of Science in Computer Science, TU München.**

Passed with high distinction

2010–2014 **Fellowship of the *Studienstiftung des Deutschen Volkes*.**

Master's thesis

Title *A Verified Compiler for Probability Density Functions*

Supervisor Dr. Johannes Hölzl

Description Fully verified inductive compiler from a probabilistic functional language to probability density functions

Bachelor's thesis

Title *A Formal Proof of the Incompatibility of SD-Efficiency and SD-Strategy-Proofness*

Supervisor Dr. Christian Geist

Description Formal impossibility proof of randomised voting schemes that are anonymous, neutral, SD-efficient, and SD-strategy-proof

Bachelor's thesis

Title *Efficient and Verified Computation of Simulation Preorders on NFAs*

Supervisor Dr. Peter Lammich

Description Verification of an algorithm for computing the simulation relation of an automaton, which can be used to reduce its size

Award *Gesellschaft für Informatik* prize for an excellent Bachelor's thesis

Experience

- since 2018 **Editor of the *Archive of Formal Proofs*.**
- since 2014 **Researcher, TU München, Chair for Logic and Verification.**
Various topics in the formalisation of mathematics,
most notably semi-automatic real asymptotics
- 2013–2014 **Student Research Assistant, TU München, Chair for Logic and Verification.**
Verification of Data Structures
- 2012–2014 **Student Teaching Assistant, TU München.**
Tutorials for *Discrete Structures, Functional Programming, Theoretical Computer Science*
- 2010–2012 **Working Student, Giesecke & Devrient.**
Android/Smartcard Research & Development

Languages

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|-----------|--------------------|---|
| German | Native | |
| English | Near-native | <i>11 years in school</i> |
| Esperanto | Fluent | <i>self-taught</i> |
| Swedish | Basic | <i>self-taught and various courses</i> |
| Spanish | Basic | <i>1 year in school and self-taught</i> |
| French | Basic | <i>self-taught</i> |

IT skills

| | |
|------------------------|--|
| Functional Programming | Haskell, Standard ML |
| Theorem Proving | Isabelle/HOL |
| Imperative Programming | Java, C, C++, Python, Delphi |
| Additional Experience | Smartcard programming, Android development |

Journal Publications

Florian Brandl, Felix Brandt, Manuel Eberl and Christian Geist. 'Proving the Incompatibility of Efficiency and Strategyproofness via SMT Solving'. In: *Journal of the ACM* 65.2 (Jan. 2018), 6:1–6:28. ISSN: 0004-5411. DOI: 10.1145/3125642.

Manuel Eberl. 'Proving Divide and Conquer Complexities in Isabelle/HOL'. In: *Journal of Automated Reasoning* 58.4 (2017), pp. 483–508. ISSN: 1573-0670. DOI: 10.1007/s10817-016-9378-0.

Conference Publications

Manuel Eberl. 'Verified Real Asymptotics in Isabelle/HOL'. In: *Proceedings of the International Symposium on Symbolic and Algebraic Computation*. ISSAC '19. Beijing, China: ACM, 2019. ISBN: 978-1-4503-6084-5/19/07. DOI: 10.1145/3326229.3326240.

Manuel Eberl. 'Verified Solving and Asymptotics of Linear Recurrences'. In: *Proceedings of the 8th ACM SIGPLAN International Conference on Certified Programs and Proofs*. CPP 2019. Cascais, Portugal: ACM, 2019, pp. 27–37. ISBN: 978-1-4503-6222-1. DOI: 10.1145/3293880.3294090.

Manuel Eberl, Max W. Haslbeck and Tobias Nipkow. 'Verified Analysis of Random Binary Tree Structures'. In: *Interactive Theorem Proving*. Ed. by Jeremy Avigad and Assia Mahboubi. Lecture Notes in Computer Science. Cham: Springer International Publishing (ITP 2018), 2018, pp. 196–214. ISBN: 978-3-319-94821-8. DOI: 10.1007/978-3-319-94821-8_12.

Manuel Eberl. 'A Decision Procedure for Univariate Real Polynomials in Isabelle/HOL'. In: *Proceedings of the 2015 Conference on Certified Programs and Proofs*. CPP '15. Mumbai, India: ACM, 2015, pp. 75–83. ISBN: 978-1-4503-3296-5. DOI: 10.1145/2676724.2693166.

Manuel Eberl, Johannes Hölzl and Tobias Nipkow. 'A Verified Compiler for Probability Density Functions'. In: *Programming Languages and Systems (ESOP 2015)*. Ed. by Jan Vitek. Vol. 9032. Lecture Notes in Computer Science. Berlin, Heidelberg: Springer, 2015, pp. 80–104. ISBN: 978-3-662-46669-8. DOI: 10.1007/978-3-662-46669-8_4.