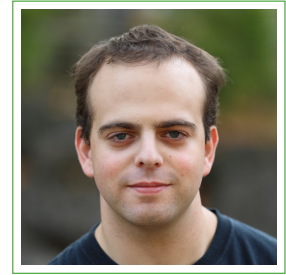


Manuel Eberl

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Personal Information

Full Name **Manuel EBERL**, IPA: [ˈmaːnu̯ɛl ˈʔeːbəl]

ORCID **0000-0002-4263-6571**

Languages **German** (native), **English** (near-native), **Esperanto** (fluent) **Swedish** (advanced), **Spanish** (basic), **French** (basic), **Dutch** (basic)

School Education

2001–2010 **Secondary School**, *Gymnasium Dingolfing*
Major subjects: Mathematics and Chemistry. Overall final mark: 1.0 (best possible)

1997–2001 **Primary School**, *Grundschule Altstadt, Dingolfing*

Academic Background

since 2021 **Postdoctoral Researcher in Computer Science**, *Universität Innsbruck*

2021 **Postdoctoral Researcher in Computer Science**, *TU München*

2014–2020 **PhD in Computer Science**, *TU München*
summa cum laude (passed with high distinction, best possible)

2013–2016 **Bachelor of Science in Mathematics**, *TU München*,
Minor subject: Computer Science
Passed with high distinction (1.2, best possible: 1.0; ≤ top 10 of 223 students)

2012–2014 **Master of Science in Computer Science**, *TU München*,
Minor subject: Mathematics
Passed with high distinction (1.0, best possible; ≤ top 9 of 396 students)

2010–2012 **Bachelor of Science in Computer Science**, *TU München*,
Minor subject: Physics
Passed with high distinction (1.0, best possible)

2010–2014 **Fellow of the *Studienstiftung des Deutschen Volkes***
German Academic Scholarship Foundation

2006–2009 ***Jungstudium* Bachelor of Science in Computer Science**, *Fernuniversität Hagen*
early enrolment in a regular Bachelor's course

2006 **Schülerstudium Computer Science**, *Universität Passau*
one-semester programme for high-schools students, including regular lectures and exams from the computer science curriculum

Technical Skills

Functional Programming Haskell, Standard ML
Theorem Proving Isabelle/HOL
Imperative Programming Java, C, C++, Python, JavaScript
Mathematical Software Mathematica, SageMath, MATLAB
Additional Experience Smartcard programming, Android development, Microcontrollers

Theses

PhD thesis (Computer Science)

Title *Asymptotic Reasoning in a Proof Assistant*
Advisor Prof Tobias Nipkow, PhD
Description Various tools and applications in the Isabelle proof assistant related to asymptotics.

Master's thesis (Computer Science)

Title *A Verified Compiler for Probability Density Functions*
Advisor Dr Johannes Hölzl
Description Verified compilation of probabilistic functional programs to density functions

Bachelor's thesis (Mathematics)

Title *A Formal Proof of the Incompatibility of SD-Efficiency and SD-Strategy-Proofness*
Advisor Dr Christian Geist
Description Formal impossibility proof of randomised voting schemes that are anonymous, neutral, SD-efficient, and SD-strategy-proof

Bachelor's thesis (Computer Science)

Title *Efficient and Verified Computation of Simulation Preorders on NFAs*
Advisor Dr Peter Lammich
Description Verification of an algorithm for computing the simulation relation of an automaton

Employment

since 2021 **Researcher**, *Universität Innsbruck, Computational Logic Group*
2014–2021 **Researcher**, *TU München, Chair for Logic and Verification*
2013–2014 **Student Research Assistant**, *TU München, Chair for Logic and Verification*
Verification of efficient 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

Other Activities

- since 2024 **Editor of the *Annals of Formalized Mathematics***
- 2022 **Creator and Maintainer of the *Debirdify* tool**
simplifies finding Twitter users on Mastodon and other places in the Fediverse
- since 2018 **Editor of the *Archive of Formal Proofs***
- October 2018 **Visiting Researcher, Computer Laboratory, University of Cambridge**
5 weeks
- 2016 **Co-organiser, PUMA, St. Martin in Passeier, Italy**
- 2015 **Co-organiser, PUMA/RiSE Workshop, Bad Griesbach, Germany**
- 2011 **Research Intern, Helmholtz-Zentrum Dresden–Rossendorf, Germany**
Four-week internship on the simulation of plasma physics
- 2010 **Software Development Intern, 1 week, Giesecke & Devrient, Munich, Germany**

Talks

- 2023 **Invited talk, *Formalisation of mathematics with ITPs*, Cambridge University (online)**
Title: 'Some practical problems in formalising mathematics and how to solve them'
- 2022 **Invited Talk, *Intercity Number Theory Seminar*, VU Amsterdam, The Netherlands**
Title: 'How to Avoid Bad Points in Contour Integration, Rigorously'
- 2022 **Invited Talk, *Machine-Checked Mathematics*, Leiden, The Netherlands (online)**
Title: 'The Mathematical Libraries of Isabelle/HOL'
- 2021 **Invited Talk, *Formal Mathematics for Mathematicians*, Timisoara, Romania (online)**
Title: 'Fighting the Curse of De Bruijn'
- 2020 **Invited Talk, *Formal Methods in Mathematics*, Pittsburgh, USA**
Title: 'Automating Asymptotics in a Theorem Prover'
- 2018 **Invited Talk, *FastRelax Meeting*, Sophia Antipolis, France**
Title: 'Semi-Automatic Real Asymptotics in Isabelle/HOL'
- 2017 **Invited Talk, *Linear Algebra in Isabelle/HOL Workshop*, Logroño, Spain**
Title: 'Automation of Asymptotic Analysis in Isabelle/HOL'
- 2017 **Talk, *Big Proof Workshop*, Automatic Asymptotics in Isabelle/HOL, Cambridge, UK**
Title: 'Automation of Asymptotic Analysis in Isabelle/HOL'
- 2016 **Informal Talk, *Curry Club*, Augsburg, Germany**
Title: 'What is the Square Root of a Tree?'

Awards

- 2022 ***Heinz Schwärtzel Dissertation Prize* for my PhD thesis, endowed with € 750**
- 2021 **Winner of the *Proof Ground* competition at ITP 2021**
- 2020 **Winner of the *Proof Ground* competition at ITP 2020**
- 2019 **Winner of the *Proof Ground* competition at ITP 2019**
as a member of the team *Sledgehammer Squad* together with Peter Lammich

- 2019 **Best Paper by a Junior Researcher at FroCoS 2019**, endowed with € 125
for *Verifying Randomised Social Choice*
- 2019 **Distinguished Student Author Award at ISSAC 2019**, endowed with \$ 500
for *Verified Real Asymptotics in Isabelle/HOL*
- 2012 **Award for an excellent Bachelor's thesis**, endowed with € 300
awarded by the *German Informatics Society*
- 2011–2014 **Member of *best.in.tum***
Programme for the best 2% of computer science students at TU Munich
- 2010 **Award for the school's best student in chemistry**
awarded by the *German Chemical Society*
- 2010 **Silver Medal at the *International Chemistry Olympiad***
- 2009 **Award at the *German Federal Computer Science Competition (BWINF)***
- 2008 **Silver Medal at the *European Union Science Olympiad***

Teaching

- Summer 2024 **Lecturer**, Introduction to Complexity Theory
- Winter 2023/24 **Lecturer**, Discrete Structures
- Summer 2023 **Lecturer**, Introduction to Complexity Theory
- Winter 2022/23 **Lecturer**, Discrete Structures
- Winter 2022/23 **Teaching Assistant**, Discrete Structures *and* Theoretical Computer Science
- Summer 2022 **Teaching Assistant**, Logic *and* Theoretical Computer Science
- Winter 2021/22 **Teaching Assistant**, Functional Programming *and* Discrete Structures
- Summer 2021 **Organiser**, Seminar: *Functional Pearls*
- Winter 2020/21 **Senior Teaching Assistant**, Functional Programming and Verification
- Winter 2019/20 **Senior Teaching Assistant**, Functional Programming and Verification
- Summer 2019 **Senior Teaching Assistant**, Theoretical Computer Science
- Winter 2017/18 **Co-organiser**, Practical Course: *Specification and Verification*
- Winter 2017/18 **Co-organiser**, Seminar: *Functional Data Structures*
- Summer 2016 **Co-organiser**, Seminar: *Decision Procedures*
- Winter 2014/15 **Senior Teaching Assistant**, Functional Programming and Verification

Supervision

- 2022 **David Föger**, *Bachelor's thesis*
A Web Application for Natural Deduction Proofs
- 2022 **Benedikt Schenk**, *Bachelor's thesis*
Finding Optimal Solutions to a Teacher Assignment Problem using MILP and SMT Solvers
- 2022 **Ujkan Sulejmani**, *Bachelor's thesis*
Formalisation of a Proof of the Hales–Jewett Theorem
- 2021 **Daniel Seidl**, *Bachelor's thesis*
Formalisation of Interval Methods for Nonlinear Root-Finding

- 2021 **Joseph Thommes**, *Bachelor's thesis*
Formalisation of Selected Results from Group Theory
- 2020 **Yecine Megdiche**, *Practical course*
Contributing to an Open Source Project: XMonad
- 2020 **Kristiyan Nachev**, *Bachelor's thesis*
Lazy Computation of Infinite Series
- 2020 **Shuwei Hu**, *Interdisciplinary project*
Verified Approximation of Integrals in Isabelle/HOL
- 2020 **Klaus Weidinger**, *Bachelor's thesis*
Specialized mathematical proof procedures in Isabelle/HOL
- 2019 **Rodrigo Raya**, *Guided research*
The Group Law for Edwards Curves
- 2019 **Rodrigo Raya**, *Practical course*
Specification and Verification: Gauss Sums and the Polyá–Vinogradov Inequality
- 2018 **Fabian Hellauer**, *Interdisciplinary project*
Field Extensions in Isabelle/HOL
- 2018 **Daniel Stüwe**, *Interdisciplinary project*
Formal Verification of Randomized Primality Tests
- 2018 **Max W. Haslbeck**, *Master's thesis*
Verification of Randomized Data Structures
- 2017 **Markus Groß**, *Bachelor's thesis*
Verification of Selected Efficient Algorithms in Discrete Mathematics
- 2017 **Jonas Keinholz**, *Practical course*
Specification and Verification: Matroids
- 2016 **Julian Biendarra**, *Practical course*
Specification and Verification: Bertrand's Postulate