Anton Lorenzen

antonlorenzen.de | github.com/anfelor | linkedin.com/in/anton-lorenzen-70ab54136

WORK EXPERIENCE

Summer 2023	**Research Intern, Microsoft Research** *Advised by Daan Leijen, I proved the equivalence of binary search tree insertion algorithms in Iris*
Summer 2022	**Software Engineering Intern, Jane Street** *Advised by Leo White, I implemented a modal type system for in-place reuse for OCaml*
Fall 2020	**Student Research Assistant, University of Bonn** *Advised by Peter Koepke, I extended the Naproche proof assistant with Kelley-Morse set theory*

SELECTED PUBLICATIONS
<div align="right">^A indicates alphabetical order</div>

^{A} *indicates alphabetical order*

ICFP 2023	**FP^2: Fully in-Place Functional Programming** **Anton Lorenzen**, Daan Leijen, Wouter Swierstra
POPL 2023	**Tail Recursion Modulo Context – An Equational Approach** Daan Leijen, **Anton Lorenzen**
ICFP 2022	**Reference Counting with Frame Limited Reuse** **Anton Lorenzen**, Daan Leijen
CADE 2021	**The Isabelle/Naproche Natural Language Proof Assistant** Adrian De Lon, Peter Koepke, **Anton Lorenzen**[A], Adrian Marti, Marcel Schütz, Makarius Wenzel
ITP 2021	**A Natural Formalization of the Mutilated Checkerboard Problem in Naproche** Adrian De Lon, Peter Koepke, **Anton Lorenzen**[A]

EDUCATION

2022-present	**PhD student, Informatics, University of Edinburgh** *Proposal: efficient compilation of functional programming languages*
2020-2022	**MSc Computer Science, University of Bonn** *Focus area: Combinatorial Optimization, GPA: 1.1, awarded with the top grade "Excellent"*
2017-2020	**BSc Mathematics, University of Bonn** *Focus area: Algebra and Logic, GPA: 1.6 (where 1.0 is best, 4.0 is worst)*

AWARDS AND HONORS

2022	**Edinburgh Doctoral College Scholarship** *Awarded to one incoming PhD student in Informatics every academic year*
2022	**Deutschlandstipendium** *Awarded to 182 out of 38000 students in Bonn in 2021/22, primarily on the basis of academic merit*

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TEACHING & SERVICE

2023-present **Expert Reviewer**
ICFP 2023

Fall 2018 **Teaching Assistant, University of Bonn**
For the course "Introduction to Algorithmic Mathematics" by Stefan Hougardy

TALKS

2023 **A Functional Correspondence between Top-down and Bottom-up Tree Algorithms**
End of Internship Talk at the RiSE group of Microsoft Research

2022 **Balanced Search Tree Insertion: Recursive is Top-down is Bottom-up**
at the Scottish Programming Languages Seminar

2022 **Stackless Traversals with Zippers**
at Universiteit Utrecht

EXTRACURRICULARS

2018-2022 **Debating**
Break as Judge at the German Championship 2020, Teambreak at the Westgerman Championship 2021

2019-2021 **Chairperson of Bonn Debating Society**
Organized debates and improved marketing with a new website and an Instagram channel

2019 **Activist for Fridays For Future Bonn**
wrote press releases, participated at the United Nations Bonn Climate Change Conference (SB 50)

2019 **One Percenter Award on Project Euler**
Reached Level 4

2018 & 2019 **Speaker at Telekom Digital X**
Invited during a public speaking workshop by Deutsche Telekom

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FULL LIST OF PUBLICATIONS

In my field, novel research is usually presented at conferences rather than submitted to a journal. Conference publications are fully peer-reviewed with acceptance rates as low as 25%. The CORE Ranking can give an indication of the selectivity of different conferences, with A and A* marking the flagship conferences of a field:

Name	Full Name	CORE Ranking 2021
POPL	ACM SIGPLAN Symposium on Principles of Programming Languages	A*
ICFP	ACM SIGPLAN International Conference on Functional Programming	A
CADE	International Conference on Automatic Deduction	A
ITP	International Conference on Interactive Theorem Proving	A
CICM	Conference on Intelligent Computer Mathematics	C
AITP	Artificial Intelligence in Theorem Proving	-

Draft **A Functional Correspondence between Top-down and Bottom-up Tree Algorithms**
Anton Lorenzen, *Daan Leijen, Wouter Swierstra, Sam Lindley*

ICFP 2023 **FP^2: Fully in-Place Functional Programming**
Anton Lorenzen, *Daan Leijen, Wouter Swierstra*

POPL 2023 **Tail Recursion Modulo Context – An Equational Approach**
Daan Leijen, ***Anton Lorenzen***

ICFP 2022 **Reference Counting with Frame Limited Reuse**
Anton Lorenzen, *Daan Leijen*

CICM 2022 **Web-Naproche**
Anton Lorenzen, *Peter Koepke*

CICM 2021 **Beautiful Formalizations in Isabelle/Naproche**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]*, Adrian Marti, Marcel Schütz, Erik Sturzenhecker*

CADE 2021 **The Isabelle/Naproche Natural Language Proof Assistant**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]*, Adrian Marti, Marcel Schütz, Makarius Wenzel*

ITP 2021 **A Natural Formalization of the Mutilated Checkerboard Problem in Naproche**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]

AITP 2021 **Dealing with Soft Types in Naproche's Logical Backend**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]

CICM 2020 **Interpreting Mathematical Texts in Naproche-SAD**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]

AITP 2020 **ForTheL for Type Theory**
Adrian De Lon, Peter Koepke, ***Anton Lorenzen***[A]