Daniel Gratzer
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Education

— **Aarhus University** PhD   (*Fall 2018 – Present*)
— **Carnegie Mellon University** Bachelors of Science   (*Fall 2014 – Spring 2018*)
  (GPA: 3.73. Dean's List for 5 semesters. University Honors)
  Honors Thesis (*supervised by Karl Crary*): **The Next 700 Failed Step-Index-Free Logical Relations**

Current Research

My research focuses on programming languages and their interaction with mathematics. Both of these disciplines have grown into complex and intricate fields of study, and my interests lie in using one to simplify the other. Put explicitly, my focus is on how the existing tools of mathematics simplify the study and design of programming languages and, conversely, how programming can impact our understanding of mathematics. The end goal is better tools for both programmers and mathematicians.

Publications, Talks and Unpublished Work

In my field, conferences are the typical venue, not journals. A conference publication is full research paper and, generally, they are as or more important as journal publications. Two of the conferences below are rated at A* by the Australian CORE rankings. This signifies that they are in the top 4% of computer science conferences.

— **Publications**

- **Implementing a Modal Dependent Type Theory**   *2019*
  Daniel Gratzer, Jonathan Sterling, Lars Birkedal.
  International Conference on Functional Programming (ICFP)   *A* flagship conference*
  Distinguished paper.

- **Cubical Syntax for Reflection-Free Extensional Equality**   *2019*
  Jonathan Sterling, Carlo Angiuli, Daniel Gratzer.
  Formal Structures in Computational and Deduction (FSCD)
  Best Junior Researcher Paper

- **Managing Obligations in Higher-Order Concurrent Separation Logic**   *2019*
  Aleš Bizjak, Daniel Gratzer, Robbert Krebbers, Lars Birkedal.
  Principles of Programming Languages (POPL)   *A* flagship conference*

— **Talks**

- **Implementing a Modal Dependent Type Theory**   *2019*
  International Conference on Functional Programming

- **Implementing Type Theory**   *2019*
  Computer Science Day in Aarhus

- **Managing Obligations in Higher-Order Concurrent Separation Logic**   *2019*
  Principles of Programming Languages

- **A Topos-Theoretic Proof of The Independence of the Continuum Hypothesis**   *2017*
  Lecture for the Graduate Course on Categorical Logic at Carnegie Mellon University

— **Unpublished Work**

- **A Case Study in Iris: Concurrent Stacks with Helping**   *2017*
  Daniel Gratzer, Mathias Høier, Aleš Bizjak, Lars Birkedal.

- **Positive Function Spaces in Focalized Propositional Logic**   *2015*
  Daniel Gratzer, Karl Crary

Teaching Assistant Positions

- Aarhus University, Program Analysis and Verification   (*Fall 2018*)
- Carnegie Mellon University, Constructive Logic   (*Fall 2017*)
- Carnegie Mellon University, Practical Foundations of Programming Languages   (*Spring 2016*)
- Carnegie Mellon University, Introduction to Functional Programming   (*Spring 2015 – Fall 2015*)