

## 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## Publications, Talks and Unpublished Work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  
*This was reviewed by three experts and received three strong accepts, an unusually positive response.*
  - **Cubical Syntax for Reflection-Free Extensional Equality** 2019  
Jonathan Sterling, Carlo Angiuli, Daniel Gratzer. Best Junior Researcher Paper  
*Formal Structures in Computational and Deduction (FSCD)*
  - **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 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- **Unpublished Work**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)

## Previous Awards

- Computing Research Association's Outstanding Undergraduate Researcher, Honorable Mention (2018)
- International Jugglers' Association's Teams Competition, Bronze Medal (2013)