

# Stefan Muller

---

<http://cs.iit.edu/~smuller/>  
[smuller2@iit.edu](mailto:smuller2@iit.edu)

## Current Position

Gladwin Development Chair Assistant Professor 2020 - Present  
Illinois Institute of Technology

## Previous Position

Postdoctoral Fellow 2018 - 2020  
Carnegie Mellon University  
Supervisor: Jan Hoffmann

## Education

PhD Computer Science - Carnegie Mellon University 2018  
Thesis title: *Responsive Parallel Computation*  
Advisor: Umut A. Acar

MS Computer Science - Carnegie Mellon University 2015

AB Computer Science, *summa cum laude* - Harvard University 2012  
Thesis title: *SX10: A Language for Parallel Programming with Information Security*  
Advisor: Stephen Chong

## Publications

### Conference Papers

“Modeling and Analyzing Evaluation Cost of CUDA kernels” POPL 2021  
Stefan K. Muller and Jan Hoffmann

“Priority Scheduling for Interactive Applications” SPAA 2020  
Kyle Singer, Noah Goldstein, Stefan K. Muller, Kunal Agrawal,  
I-Ting Lee and Umut A. Acar

“Responsive Parallelism with Futures and State” PLDI 2020  
Stefan K. Muller\*, Kyle Singer\*, Noah Goldstein, Umut A. Acar,  
Kunal Agrawal and I-Ting Angelina Lee

“Fairness in Responsive Parallelism” ICFP 2019  
Stefan K. Muller, Sam Westrick and Umut A. Acar

## Publications (cont'd)

- “Competitive Parallelism: Getting Your Priorities Right”  
Stefan K. Muller, Umut A. Acar and Robert Harper ICFP 2018
- “Responsive Parallel Computation: Bridging Competitive and Cooperative Threading”  
Stefan K. Muller, Umut A. Acar and Robert Harper PLDI 2017
- “Hierarchical Memory Management for Parallel Programs”  
Ram Raghunathan, Stefan K. Muller, Umut A. Acar and Guy Blelloch ICFP 2016
- “Latency-Hiding Work Stealing”  
Stefan K. Muller and Umut A. Acar SPAA 2016
- “Coupling Memory and Computation for Locality Management”  
Umut A. Acar, Guy Blelloch, Matthew Fluet, Stefan K. Muller and Ram Raghunathan SNAPL 2015
- “Towards a Practical Secure Concurrent Language”  
Stefan Muller and Stephen Chong OOPSLA 2012

## Technical Reports

*Practical and Safe Abstractions for Interactive Computation via Linearity*

Stefan K. Muller, William A. Duff and Umut A. Acar  
Technical Report CMU-CS-15-130

*Practical Abstractions for Concurrent Interactive Programs*

Stefan K. Muller, William A. Duff and Umut A. Acar  
Technical Report CMU-CS-15-131

*Atomic Read-Modify-Write Operations are Unnecessary for Shared-Memory Work Stealing*

Umut Acar, Arthur Charguéraud, Stefan Muller and Mike Rainey  
Inria Technical Report hal-00910130

## Workshop Papers and Short Presentations

- “A Rhetorical Framework for Programming Language Evaluation”  
Stefan K. Muller and Hannah Ringler  
Onward! Essays, SPLASH 2020 Onward! 2020
- “Bridging Theory and Practice in Interaction”  
Stefan K. Muller and Umut A. Acar  
Short Presentation SNAPL 2015

## Working Drafts

- “Combining Source and Target Level Cost Analyses for OCaml Programs”  
Stefan K. Muller and Jan Hoffmann

## Talks

### “Making Parallelism Abstractions More Practical”

New Jersey Institute of Technology	Feb. 2020
Northwestern University	Feb. 2020
Illinois Institute of Technology	Feb. 2020
Worcester Polytechnic Institute	Feb. 2020
University of Rhode Island	Feb. 2020
Simon Fraser University	Feb. 2020

### “Cost Models for Parallel Programs”

Junior PL Day / Northwestern University	Nov. 2019
CS Department Colloquium / Washington University in St. Louis	Sep. 2018
PL Seminar / Harvard University	Mar. 2018
PL Group Lunch / Carnegie Mellon University	Feb. 2018

### Various

NSF Parlay Project Meeting / Massachusetts Institute of Technology	Sep. 2017
Principles of Programming Retreat / Carnegie Mellon University	Oct. 2015
Principles of Programming Seminar / Carnegie Mellon University	Apr. 2014

## Teaching

### Illinois Institute of Technology

CS 440 Programming Languages and Translators	Spring 2021
--	-------------

### Carnegie Mellon (as lead instructor)

15-150 Principles of Functional Programming	Summer 2018
---	-------------

### Carnegie Mellon (as Teaching Assistant)

15-897 Parallel Computing: Theory and Practice Prof. Umut Acar	Spring 2016
---	-------------

15-814 Types and Programming Languages Prof. Robert Harper	Fall 2014
---	-----------

15-210 Parallel and Sequential Algorithms and Data Structures Profs. Umut Acar and Danny Sleator	Fall 2013
---	-----------

### Harvard (as Teaching Fellow)

CS61 Systems Programming and Machine Organization Prof. Stephen Chong	Fall 2010 Fall 2011
--	------------------------

CS51 Introduction to Computer Science II Prof. Greg Morrisett	Spring 2010 Spring 2011
--	----------------------------

Spring 2012

## Awards

NSF Graduate Research Fellowship / Honorable Mention	2014
NSF Graduate Research Fellowship / Honorable Mention	2013
CRA Outstanding Undergraduate Researcher Award / Honorable Mention	2012
Harvard University Certificate of Distinction in Teaching	Spring 2011
Intel (now Regeneron) Science Talent Search / Finalist (Top 40)	2008

## Department Service

Illinois Tech - Undergraduate Studies Committee	2020 - Present
Illinois Tech - College of Computing Strategic Working Group	2021
CMU - PhD Admissions Committee	2015 - 2017
CMU - Speakers Club (evaluate talks for PhD speaking requirement)	2015 - 2020
CMU - PhD Open House Organizing Committee	2014, 2018

## Professional Service

### Program Committee

- PPoPP 2022 (Principles and Practice of Parallel Programming)
- ICFP 2021 (International Conference on Functional Programming)

### External Reviewing Committee

- ICFP 2020
- OOPSLA 2021 (Object-Oriented Systems, Languages and Applications)

### Artifact Evaluation Committee

- POPL 2020 (Principles of Programming Languages)

### External Reviewing

- Transactions on Pattern Analysis and Machine Intelligence
- ICFP 2019
- Transactions on Parallel Computing
- Theory and Practice of Logic Programming
- SPAA 2018 (Symposium on Parallelism in Algorithms and Architectures)