# Lindsey Kuper

Cumulative Biobibliography
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Assistant Professor, Computer Science and Engineering Department
Baskin School of Engineering
University of California, Santa Cruz

lkuper@ucsc.edu
https://engineering.ucsc.edu/~lkuper
https://decomposition.al

## Research interests

I work on programming-language-based approaches to building concurrent and distributed software systems that are correct and efficient. The unifying principle and goal of my work is to use high-level abstractions to express software systems in a way that not only does not compromise performance, but actually enables it.

## Employment history

**Baskin School of Engineering, University of California, Santa Cruz**
July 2018– *Assistant Professor*, Computer Science and Engineering

**Intel Labs**, **Intel Corporation**, Santa Clara, CA
Sept. 2014–May 2018 *Research Scientist*, Parallel Computing Lab (2016-18) and Programming Systems Lab (2014-16)

**School of Informatics and Computing, Indiana University**, Bloomington, IN
Jan. 2009–Aug. 2014 *Research Assistant* and *Associate Instructor*

**Mozilla Corporation**, Mountain View, CA
May–Aug. 2012 *Research Engineering Intern*, Rust programming language team
March–Aug. 2011 *Research Engineering Intern*, Rust programming language team

**GrammaTech, Inc.**, Ithaca, NY
May 2010–Aug. 2010 *Software Engineering Intern*

**Bedford, Freeman and Worth Publishing Group**, New York, NY and Portland, OR
July 2006–June 2008 *Associate Project Manager*

**IBCTV, LLC**, Chicago, IL and Portland, OR
Aug. 2004–June 2006 *Web Designer/Developer*

## Education

2015 Ph.D., Computer Science, Indiana University School of Informatics and Computing
Research committee: Ryan R. Newton (chair), Lawrence S. Moss, Amr Sabry, Chung-chieh Shan
Dissertation: *Lattice-based Data Structures for Deterministic Parallel and Distributed Programming*
2010 M.S., Computer Science, Indiana University School of Informatics and Computing
2004 B.A., Computer Science and Music (with honors), Grinnell College

## Honors and awards

2023 Distinguished Paper Award, ICFP 2023
2022 Keynote speaker, FLOPS 2022

2022 NSF CAREER Award
2020 Google Faculty Research Award
2013 PLMW 2013 travel award for POPL
2012 PLMW 2012 travel award for POPL
2010 CRA-W Grad Cohort Workshop invitation and travel award
2009 CRA-W Grad Cohort Workshop invitation and travel award
2009 Google Workshop for Women Engineers invitation and travel award
2008–09 Indiana University Graduate Women in Science Fellowship

## Funding

2022–27 PI: NSF grant CCF-2145367, "CAREER: Building Reliable Distributed Systems with Refinement Types" ($619,731)
2023 PI: Stellar Development Foundation Academic Research Grant, "Choreographic Consensus" ($50,000)
2020 PI: Gift from Amazon Web Services, Inc. to support research toward programming-language-level enforcement of distributed data consistency properties ($78,000)
2020 PI: Google Faculty Research Award, "Consistency-Aware Solvers for Trustworthy Distributed Systems" ($59,961)
2012–15 Collaborator: Co-wrote (with PI Ryan Newton) NSF grant CCF-1218375, "Generalizing Monotonic Data Structures for Expressive, Deterministic Parallel Programming" ($377,315), which funded my dissertation work

## Scholarly and creative work

Note: † denotes a student co-author who is one of my advisees.

### Journal articles

J2. Gan Shen†, Shun Kashiwa†, and **Lindsey Kuper**.
"HasChor: functional choreographic programming for all (functional pearl)."
*Proc. ACM Program. Lang.* 7, ICFP, Article 207 (August 2023).
**Distinguished Paper Award.**

J1. Yiyun Liu, James Parker, Patrick Redmond†, **Lindsey Kuper**, Michael Hicks, and Niki Vazou.
"Verifying replicated data types with typeclass refinements in Liquid Haskell."
*Proc. ACM Program. Lang.* 4, OOPSLA, Article 216 (November 2020).

### Papers in conference proceedings

C7. Patrick Redmond† and **Lindsey Kuper**.
"An exceptional actor system (functional pearl)."
*16th ACM SIGPLAN International Haskell Symposium (Haskell 2023)*, Seattle, WA, USA, September 2023.

C6. Nathan Liittschwager†, Stelios Tsampas, Jonathan Castello†, and **Lindsey Kuper**.
"CRDTs, coalgebraically."
*10th Conference on Algebra and Coalgebra in Computer Science (CALCO 2023)*, Bloomington, IN, USA, June 2023.

C5. Patrick Redmond†, Gan Shen†, Niki Vazou, and **Lindsey Kuper**.
"Verified causal broadcast with Liquid Haskell."
*34th Symposium on Implementation and Application of Functional Languages (IFL 2022)*, Copenhagen, Denmark, August 2022.

C4. **Lindsey Kuper** and Peter Alvaro.
"Toward domain-specific solvers for distributed consistency."
*3rd Summit on Advances in Programming Languages (SNAPL 2019)*, Providence, RI, USA, May 2019.

C3. Todd A. Anderson, Hai Liu, **Lindsey Kuper**, Ehsan Totoni, Jan Vitek, and Tatiana Shpeisman.
"Parallelizing Julia with a non-invasive DSL."
*31st European Conference on Object-Oriented Programming (ECOOP 2017)*, Barcelona, Spain, June 2017.

C2. **Lindsey Kuper**, Aaron Todd, Sam Tobin-Hochstadt, and Ryan R. Newton.
"Taming the parallel effect zoo: extensible deterministic parallelism with LVish."
*35th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2014)*, Edinburgh, UK, June 2014.

C1. **Lindsey Kuper**, Aaron Turon, Neelakantan R. Krishnaswami, and Ryan R. Newton.
"Freeze after writing: quasi-deterministic parallel programming with LVars."
*41st ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2014)*, San Diego, CA, USA, January 2014.

## Peer-reviewed workshop publications

W7. Tim Goodwin†, Andrew Quinn, and **Lindsey Kuper**.
"What goes wrong in serverless runtimes? A survey of bugs in Knative Serving."
*1st Workshop on SErverless Systems, Applications and MEthodologies (SESAME 2023)*, Rome, Italy, May 2023.

W6. Patrick Redmond†, Gan Shen†, and **Lindsey Kuper**.
"Toward hole-driven development in Liquid Haskell."
*Human Aspects of Types and Reasoning Assistants (HATRA) 2021*, Chicago, IL, USA, October 2021.

W5. Gan Shen† and **Lindsey Kuper**.
"Toward SMT-based refinement types in Agda."
*Human Aspects of Types and Reasoning Assistants (HATRA) 2021*, Chicago, IL, USA, October 2021.

W4. **Lindsey Kuper**, Guy Katz, Justin Gottschlich, Kyle Julian, Clark Barrett, and Mykel J. Kochenderfer.
"Toward scalable verification for safety-critical deep networks."
*Conference on Systems and Machine Learning (SysML) 2018*, Stanford, CA, USA, February 2018. (Poster available.)

W3. **Lindsey Kuper** and Ryan R. Newton.
"Joining forces: toward a unified account of LVars and convergent replicated data types."
*5th Workshop on Determinism and Correctness in Parallel Programming (WoDet 2014)*, Salt Lake City, UT, USA, March 2014.

W2. **Lindsey Kuper** and Ryan R. Newton.
"LVars: lattice-based data structures for deterministic parallelism."
*2nd ACM SIGPLAN Workshop on Functional High-Performance Computing (FHPC 2013)*, Boston, MA, USA, September 2013.

W1. Andrew W. Keep, Michael D. Adams, **Lindsey Kuper**, William E. Byrd, and Daniel P. Friedman.
"A pattern matcher for miniKanren, or, how to get into trouble with CPS macros."
*10th Annual Workshop on Scheme and Functional Programming (Scheme 2009)*, Boston, MA, USA, August 2009.

## Technical reports

TR3. **Lindsey Kuper**, Aaron Turon, Neelakantan R. Krishnaswami, and Ryan R. Newton.
"Freeze after writing: quasi-deterministic parallel programming with LVars." (56 pages)
Indiana University Technical Report TR710, November 2013.

TR2. **Lindsey Kuper** and Ryan R. Newton.
"A lattice-theoretical approach to deterministic parallelism with shared state." (60 pages)
Indiana University Technical Report TR702, October 2012.

TR1. David Cok, John Phillips, Scott Wisniewski, Suan Hsi Yong, Nathan Lloyd, **Lindsey Kuper**, Denis Gopan, and Alexey Loginov.
"Safety in numbers." (105 pages)
ONR project final report, November 2010.

## Invited articles

I1. **Lindsey Kuper**.
"My first fifteen compilers."
*PL Perspectives* (the SIGPLAN blog), July 2019.

## Patents

P2. "Detecting mobile device sensor malfunctions."
**Lindsey Kuper** and Justin E. Gottschlich.
U.S. Patent 10,591,313, issued March 17, 2020.

P1. "Autonomous vehicle advanced sensing and response."
Barath Lakshamanan, Linda L. Hurd, Ben J. Ashbaugh, Elmoustapha Ould-Ahmed-Vall, Liwei Ma, Jingyi Jin, Justin E. Gottschlich, Chandrasekaran Sakthivel, Michael S. Strickland, Brian T. Lewis, **Lindsey Kuper**, Altug Koker, Abhishek R. Appu, Prasoonkumar Surti, Joydeep Ray, Balaji Vembu, Javier S. Turek, and Naila Farooqui.
U.S. Patent 10,332,320, issued June 25, 2019.

## Peer-reviewed artifacts

These are software artifacts that have been formally evaluated separately from the companion paper.

A4. Gan Shen†, Shun Kashiwa†, and **Lindsey Kuper**.
"HasChor: functional choreographic programming for all (Artifact)."
*ICFP 2023 Artifacts*, 2023.

A3. Yiyun Liu, James Parker, Patrick Redmond†, **Lindsey Kuper**, Michael Hicks, and Niki Vazou.
"Verifying replicated data types with typeclass refinements in Liquid Haskell."
*SPLASH 2020 OOPSLA Artifacts*, 2020.

A2. Todd A. Anderson, Hai Liu, **Lindsey Kuper**, Ehsan Totoni, Jan Vitek, and Tatiana Shpeisman.
"Parallelizing Julia with a non-invasive DSL (Artifact)."
*Dagstuhl Artifacts Series*, 2017.

A1. **Lindsey Kuper**, Aaron Todd, Sam Tobin-Hochstadt, and Ryan R. Newton.
"Taming the parallel effect zoo: extensible deterministic parallelism with LVish."
PLDI 2014 Artifact Evaluation Process, 2014.

## Selected open source software contributions

2015–17 Contributor to ParallelAccelerator.jl, a library and compiler for high-performance, high-level array-style programming in Julia.

2014–15 Contributor to River Trail, a library, JIT compiler, and web browser extension to enable parallel programming in JavaScript.

2013–15 Contributor to LVish, the Haskell library for deterministic and quasi-deterministic parallel programming based on my dissertation work on LVars.

2011–14 Contributor to the first ten releases of the Rust programming language, and various pre-release versions.

## Professional activities

### Talks and panel appearances

March 23, 2023 "Verified causal broadcast with Liquid Haskell." (Programming Languages and Verification Seminar, Portland State University, online)

March 13, 2023 "Verified causal broadcast with Liquid Haskell." (Dagstuhl Seminar 23112: Unifying Formal Methods for Trustworthy Distributed Systems, Wadern, Germany)

Jan. 11, 2023 "Causally ordered communication, cooked three ways." (IFIP TC2 Working Group 2.16 (Programming Language Design), Claremont, CA, USA)

Oct. 24, 2022 "Verified causal broadcast with Liquid Haskell." (Programming Systems Seminar, University of California Berkeley, Berkeley, CA, USA)

Oct. 12, 2022 "Verified causal broadcast with Liquid Haskell." (Programming Languages & Software Engineering Seminar, National University of Singapore, online)

Aug. 31, 2022 "Verified causal broadcast with Liquid Haskell." (IFL 2022, Copenhagen, Denmark)

May 10, 2022 "Adventures in building reliable distributed systems with Liquid Haskell." (**Keynote talk**, FLOPS 2022, online)

June 21, 2021 "Reasoning under uncertainty in SMT solving, research, and life." (Programming Languages Mentoring Workshop at PLDI 2021, online)

Dec. 11, 2020 "Using solver-aided languages to build reliable distributed systems." (CSE Colloquium, Univeristy of California Riverside, online)

Oct. 14, 2020 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (Guest lecture for CS294-170: Programming the Cloud, University of California Berkeley, online)

Jan. 21, 2020 "Reasoning under uncertainty in SMT solving, research, and life." (Programming Languages Mentoring Workshop at POPL 2020, New Orleans, LA, USA)

July 24, 2019 "A few big ideas from distributed systems." (Blizzard Entertainment, Inc., Irvine, CA, USA)

July 2, 2019 "Toward domain-specific solvers for distributed consistency." (Shonan Meeting No. 143: Programming Language Support for Data-Intensive Applications, Hayama, Japan)

May 16, 2019 "Toward domain-specific solvers for distributed consistency." (SNAPL 2019, Providence, RI, USA)

Feb. 6, 2019 "Domain-specific SMT solving for neural network verification or anything else." (IFIP TC2 Working Group 2.16 (Programming Language Design), Portland, OR, USA)

Jan. 24, 2019 "Abstractions for expressive, efficient parallel and distributed computing." (Jane Street Tech Talk, New York, NY, USA)

March 5, 2018 "Abstractions for expressive, efficient parallel and distributed computing." (UC Santa Cruz, Santa Cruz, CA)

May 8, 2017 "Proving that safety-critical neural networks do what they're supposed to!" (The Recurse Center, New York, NY, USA)

Jan. 18, 2017 "A tour of ParallelAccelerator.jl: a library and compiler for high-level, high-performance scientific computing in Julia." (Center for Computer Research in Music and Acoustics, Stanford University, Palo Alto, CA, USA)

June 24, 2016 "A tour of ParallelAccelerator.jl: a library and compiler for high-level, high-performance scientific computing in Julia." (JuliaCon 2016, Cambridge, MA, USA)

April 14, 2016 "Prospect: a library and compiler for high-level, high-performance scientific computing in Julia." (University of California Berkeley, Berkeley, CA, USA)

Jan. 19, 2016 Panelist, Young Researcher Panel (Programming Languages Mentoring Workshop at POPL 2016, St. Petersburg, FL, USA)

Oct. 29, 2015 "Prospect: finding and exploiting parallelism in a productivity language for scientific computing." (SPLASH-I 2015, Pittsburgh, PA, USA)

Oct. 28, 2015 Panelist, "The Future of Programming Languages and Programmers" panel (SPLASH 2015, Pittsburgh, PA, USA)

May 26, 2015 "LVars for distributed programming, or, LVars and CRDTs join forces." (IFIP TC2 Working Group 2.8 (Functional Programming), Kefalonia, Greece)

Jan. 31, 2015 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (Compose::Conference, New York, NY, USA)

March 24, 2014 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (The Recurse Center, New York, NY, USA)

March 21, 2014 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (Intel Labs, Santa Clara, CA, USA)

March 4, 2014 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (University of Utah, Salt Lake City, UT, USA)

March 2, 2014 "Joining forces: toward a unified account of LVars and convergent replicated data types." (WoDet 2014, Salt Lake City, UT, USA)

Jan. 27, 2014 "LVars: lattice-based data structures for deterministic parallel and distributed programming." (Microsoft Research, Mountain View, CA, USA)

Jan. 23, 2014 "Freeze after writing: quasi-deterministic parallel programming with LVars." (POPL 2014, San Diego, CA, USA)

Oct. 31, 2013 "LVars: lattice-based data structures for deterministic parallelism." (Mozilla Corporation, Mountain View, CA, USA)

Oct. 29, 2013 "LVars: lattice-based data structures for deterministic parallelism." (RICON West 2013, San Francisco, CA, USA)

Sept. 23, 2013 "LVars: lattice-based data structures for deterministic parallelism." (FHPC 2013, Boston, MA, USA)

June 10, 2013 "LVars: lattice-based data structures for deterministic parallelism." (The Recurse Center, New York, NY, USA)

Jan. 30, 2013 "A lattice-based approach to deterministic parallelism." (MPI-SWS, Saarbrücken, Germany)

Jan. 25, 2013 "A lattice-based approach to deterministic parallelism." (POPL 2013 student talk session, Rome, Italy)

Sept. 14, 2012 "A lattice-based approach to deterministic parallelism with shared state." (Aarhus University, Aarhus, Denmark)

Aug. 16, 2012 "A lattice-based approach to deterministic parallelism with shared state." (University of California Berkeley, Berkeley, CA, USA)

Aug. 9, 2012 "Rust typeclasses turn trait-er." (Mozilla Corporation, Mountain View, CA, USA)

April 5, 2012 "Hacking the Rust object system at Mozilla." (Grinnell College, Grinnell, IA, USA; hosted by the Grinnell Alumni Scholars Program)

Aug. 18, 2011 "Some pieces of the Rust object system: extension, overriding, and self." (Mozilla Corporation, Mountain View, CA, USA)

Feb. 23, 2011 "Parametric polymorphism through run-time sealing, or, theorems for low, low prices!" (Northeastern University, Boston, MA, USA)

Aug. 20, 2010 "A system for testing specifications of CPU semantics, or, what I did on my summer vacation." (GrammaTech, Inc., Ithaca, NY, USA)

## Leadership positions in professional organizations

2020– Member at Large, Board of Directors of the Exclamation Foundation, the nonprofit organization that oversees the !!Con and !!Con West conferences

2021–23 Steering committee member, ACM SIGPLAN Programming Languages Mentoring Workshop (PLMW)

2021 Co-chair, Programming Languages Mentoring Workshop (PLMW) @ ICFP 2021

Accessibility co-chair, 26th ACM SIGPLAN International Conference on Functional Programming (ICFP 2021)

2020 Co-chair, Programming Languages Mentoring Workshop (PLMW) @ ICFP 2020

Accessibility co-chair, 25th ACM SIGPLAN International Conference on Functional Programming (ICFP 2020)

2019–20 President, Board of Directors of the Exclamation Foundation

2015–18 Steering committee member and publicity chair, ACM SIGPLAN International Conference on Functional Programming (ICFP)

2018 Program co-chair, 2018 Workshop on Domain-Specific Language Design and Implementation (DSLDI 2018)

2017 Program co-chair, 2017 Workshop on Domain-Specific Language Design and Implementation (DSLDI 2017)

General chair, Off the Beaten Track 2017

2016 Program chair, Off the Beaten Track 2016

## Program committee membership and other reviewing service

2023 Program committee, 4th International Workshop on Human Aspects of Types and Reasoning Assistants (HATRA 2023)

Program committee, 10th ACM SIGPLAN International Workshop on Functional High-Performance and Numerical Computing (FHPNC 2023)

Program committee, 10th Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC) 2023

Reviewer, ICFP 2023

Program committee, 50th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2023)

2022 Review panelist, National Science Foundation, Directorate for Computer & Information Science & Engineering

2021 Reviewer, *Foundations and Trends in Programming Languages*

External review committee, 2021 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2021)

Program committee, 42nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2021)

Program committee, 26th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2021)

2020 External review committee, 41st ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2020)

Reviewer, POPL 2020

2019 Review panelist, National Science Foundation, Directorate for Computer & Information Science & Engineering

Program committee, 10th Workshop on Programming Languages and Operating Systems (PLOS 2019)
Program committee, 6th Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC) 2019
External review committee, 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2019)

2018 Program committee, 2018 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2018)
Program committee, SPLASH 2018 Doctoral Symposium
Program committee, 5th Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC 2018)
External review committee, 39th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2018)

2017 Program committee, 22nd ACM SIGPLAN International Conference on Functional Programming (ICFP 2017)

2016 Review panelist, National Science Foundation, Directorate for Computer & Information Science & Engineering
Program committee, 2016 Workshop on Domain-Specific Language Design and Implementation (DSLDI 2016)
External review committee, 30th European Conference on Object-Oriented Programming (ECOOP 2016)
External review committee, 43rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2016)
Reviewer, PODC 2016

2015 Program committee, 27th Symposium on the Implementation and Application of Functional Programming Languages (IFL 2015)
Program committee, Onward! Papers 2015
Program committee, 2015 Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC 2015)
Program committee, Off the Beaten Track 2015
Reviewer, PLDI 2015
Reviewer, *Distributed Computing*

2014 Program committee, 26th Symposium on the Implementation and Application of Functional Programming Languages (IFL 2014)
Program committee, ACM SIGPLAN Haskell Symposium 2014

2013 Reviewer, ICFP 2013
Reviewer, PPoPP 2013

2012 Reviewer, *ACM Transactions on Programming Languages and Systems (TOPLAS)*
Reviewer, PLPV 2012

## Media appearances

2020 "Not your Typical Tech Conference: !!Con West Brings Joy, Excitement, and Surprise to Computing." *Santa Cruz Tech Beat*, March 2020.

2019 "The thrill of computing: Inaugural !!Con West Conference revels in the playful side of high tech, letting participants 'experience computing viscerally'." *UC Santa Cruz Magazine*, March 2019.

2018 "#267: Cute and Squishy." *Embedded.fm* podcast, Nov. 8, 2018.

2016 "Epsiode 13: Lindsey Kuper on a new kind of computing conference." *PG Podcast*, Aug. 23, 2016.

### Other professional activities

March 2023 Invited participant, Dagstuhl Seminar 23112: Unifying Formal Methods for Trustworthy Distributed Systems

Jan. 2023 Invited participant, IFIP TC2 Working Group 2.16 (Programming Language Design)

Feb. 2019 Invited participant, IFIP TC2 Working Group 2.16 (Programming Language Design)

May 2015 Invited participant, IFIP TC2 Working Group 2.8 (Functional Programming)

2013–14 Three week-long invited residencies (summer 2013, fall 2014, winter 2014) at the Recurse Center, a free, self-directed educational retreat for programmers

## University and public service

### Service to the Department

2020– Co-organizer of the Languages, Systems, and Data Seminar weekly talk series

2021–22 Member of Faculty Recruitment Committee, Experimental Computer Systems

2021–22 Member of Space Committee (aka the "Space Force")

2019–22 Member of Undergraduate Curriculum Committee

2019–20 Member of Graduate Admissions Committee

2018–19 Member of Faculty Recruitment Committee, Software Foundations

### Service to the Baskin School of Engineering

April 12, 2019 Panelist for presentation to CSin3 cohort students on BSOE graduate programs, CSU Monterey Bay

### Service to the University

Jan. 30, 2019 Faculty Dinner, Scientist in Residence Program, Oakes College

Oct. 11, 2018 Panelist, *Word from the W.I.S.E. (Women in Science and Engineering)* event, Oakes College

### Other service and outreach activities

2014– Co-founder and organizer of the !!Con and !!Con West conferences of ten-minute talks on the joy, excitement, and surprise of computing

2021 Mentor, SIGPLAN-M Long-Term Mentoring Committee

2015 Program committee member, *Tiny Transactions on Computer Science* volume 3, the premier venue for peer-reviewed computer science research of $\leq$140 characters

### At Indiana University

2013–14 Student member of Graduate Education Committee, Computer Science Program

2010–14 Website and mailing list administrator, Programming Languages Group

2011–13 Officer, Computer Science Club

2012 Co-organizer and program committee member, Indiana Celebration of Women in Computing (InWIC) 2012

2010–12 Organizer, Programming Languages Colloquium Series

2010–11 President, Computer Science Graduate Student Association

2010–11 Steering Committee member, Women in Informatics and Computing

## Mentoring and student advising

### Doctoral students

| Dates | Relationship | Deg. Year | Name and Activities |
|---|---|---|---|
| 2023– | Other Advisor | - | Federico Mora Rocha (UC Berkeley)<br>• External Member of Dissertation Committee, External Member of Qualifying Examination Committee<br>• Title: "Learning-Enabled Verification of Distributed Systems with End-to-End Proofs" |
| 2022– | Primary Supervisor | - | Jonathan Castello |
| 2022– | Primary Supervisor | - | Tim Goodwin (co-advised with Andrew Quinn) |
| 2021– | Primary Supervisor | - | Nathan Liittschwager |
| 2021–23 | Other Advisor | 2023 | Zehui Cheng<br>• Member of Dissertation Committee, Member of Advancement Committee<br>• Title: "Some aspects of temporal data exchange" |
| 2020– | Primary Supervisor | - | Patrick Redmond |
| 2019– | Primary Supervisor | - | Gan Shen |
| 2019–22 | Other Advisor | 2022 | Kamala Ramasubramanian<br>• Member of Dissertation Committee, Member of Qualifying Examination Committee<br>• Title: "Seeing the forest and the trees: Tackling distributed systems problems by querying observations of executions" |
| Fall 2021 | Other Advisor | - | Haofan Zheng<br>• Member of Qualifying Examination Committee<br>• Title: "Building secure distributed applications" |

### Master's students

| Dates | Relationship | Deg. Year | Name and Activities |
|---|---|---|---|
| 2023– | Other Advisor | - | Shun Kashiwa |
| Spring 2022 | Other Advisor | 2022 | David Lung<br>• Member of Master's Project Committee<br>• Title: "A compounding test framework to help grow test suites in Haskell" |
| 2020–21 | Primary Supervisor | - | Farhad Yalmaz |
| Fall 2019 | Other Advisor | 2019 | Ana McTaggart<br>• Member of Master's Project Committee<br>• Title: "FLORAM: improving the efficiency of Oblivious RAM with formal languages" |

### Undergraduate students

| Dates | Relationship | Deg. Year | Name and Activities |
|---|---|---|---|
| 2021–22 | Other Advisor | 2022 | Simon Guo |
| 2019–20 | Other Advisor | 2020 | Matthew Rhea |

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|---|---|---|---|
| Spring 2013 | Other Advisor | 2015 | Isaiah Weating (Indiana University)<br>• Mentor for undergraduate research project<br>• Awarded third place in Indiana University Undergraduate Research Opportunities in Computing (UROC) poster competition for "Parallel Programming with LVars", May 2013 |

## Courses taught

### 2022-23

| Quarter | Name | Enrolled | Co-taught | % Evals Retd. |
|---|---|---|---|---|
| Winter | CSE290S Advanced Topics in Computer Systems: Distributed Software Systems: Global-First and Local-First Perspectives | 11 | no | 55% |
| Spring | CSE114A Foundations of Programming Languages | 139 | no | 35% |

### 2021-22

| Quarter | Name | Enrolled | Co-taught | % Evals Retd. |
|---|---|---|---|---|
| Fall | CSE138 Distributed Systems | 60 | no | 32% |
| Fall | CSE232 Distributed Systems | 32 | no | 66% |
| Spring | CSE114A Foundations of Programming Languages | 253 | no | 38% |

### 2020-21

| Quarter | Name | Enrolled | Co-taught | % Evals Retd. |
|---|---|---|---|---|
| Fall | CSE232 Distributed Systems | 16 | no | 81% |
| Spring | CSE138 Distributed Systems | 86 | no | 28% |

### 2019-20

| Quarter | Name | Enrolled | Co-taught | % Evals Retd. |
|---|---|---|---|---|
| Fall | CSE290Q Topics in Programming Languages: SMT Solving and Solver-Aided Systems | 8 | no | 50% |
| Winter | CSE30 Programming Abstractions: Python | 231 | no | 15% |
| Spring | CSE138 Distributed Systems | 99 | no | 40% |

### 2018-19

| Quarter | Name | Enrolled | Co-taught | % Evals Retd. |
|---|---|---|---|---|
| Fall | CMPS290S Advanced Topics in Computer Systems: Languages and Abstractions for Distributed Programming | 6 | no | 67% |
| Spring | CMPS128 Distributed Systems | 84 | no | 55% |

### At Indiana University (Associate Instructor)

| | |
|---|---|
| Fall 2011 | CSCI H211 Introduction to Computer Science, Honors, taught by Will Byrd |
| Spring 2010 | CSCI C311 Programming Languages, taught by Dan Friedman |
| Fall 2009 | CSCI B521 Programming Language Principles, taught by Dan Friedman |
| Fall 2009 | CSCI C311 Programming Languages, taught by Dan Friedman |
| Spring 2009 | CSCI C311 Programming Languages, taught by Dan Friedman |