

Ben Greenman  
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## **RESEARCH INTERESTS**

*General interests:* Language design issues regarding proofs, performance, and people. What guarantees do languages offer, how efficiently do they run, and to what extent do they help users meet their goals?

**Keywords:** Migratory typing, Language interoperability, Formal methods, Human factors

## **EMPLOYMENT AND EDUCATION**

- Assistant Professor of Computer Science, University of Utah July 2023 – ongoing
  - Postdoctoral Researcher, Brown University 2021 – 2023  
supported by the CIFellows 2020 program  
Mentor: *Shriram Krishnamurthi*
  - Ph.D. in Computer Science, Northeastern University 2014 – 2020  
Advisor: *Matthias Felleisen*  
Thesis: *Deep and Shallow Types*
  - M. Eng. in Computer Science, Cornell University 2013 – 2014  
Advisor: *Ross Tate*
  - Programmer, Rentenna Inc. 2012 – 2014
  - B.S. in Industrial and Labor Relations (ILR), Cornell University 2010 – 2013  
Minor in Computer Science
  - General studies, Hudson Valley Community College 2009 – 2010  
toward a guaranteed transfer to Cornell ILR

## HONORS AND AWARDS

- Open Source Research Experience: Type Narrowing: A Language Design Benchmark 2025  
*received summer support for Siva Sathyaseelan, an undergraduate researcher from IIT (BHU) Varanasi sponsored by the NSF 2025 Summer of Reproducibility*

- Open Source Research Experience: Static Python Perf received summer support for Mrigank Pawagi, an undergraduate researcher from IIS Bengaluru sponsored by the [NSF 2024 Summer of Reproducibility](#) 2024
- CRA/CCC/NSF CI Fellowship 2021 – 2023
- SIGPLAN Student Scholarship to [50 Years of the ACM A.M. Turing Award](#) 2017
- Northeastern CCIS Graduate Community Service Award 2016
- Cornell CS Teaching Award 2014,  
2013
- Distinguished Paper Award CAV 2025,  
ECOOP 2025,  
Programming 2023
- Distinguished Artifact Award ECOOP 2025

## FUNDING

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- Price College VPR Seed Grant Competition 2025

No external funding to date.

## PUBLICATIONS

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### JOURNAL

- Nathaniel Hejduk, Ben Greenman, Matthias Felleisen, and Christos Dimoulas *Navigating Mixed-Typed Migration with Profilers* TOPLAS 2025
- Ben Greenman, Christos Dimoulas, and Matthias Felleisen. *Typed–Untyped Interactions: A Comparative Analysis* TOPLAS 2023
- Ben Greenman, Asumu Takikawa, Max S. New, Daniel Feltey, Robert Bruce Findler, Jan Vitek, and Matthias Felleisen. *How to Evaluate the Performance of Gradual Type Systems* JFP 2019

## CONFERENCE & SYMPOSIUM

- Xuanyu Peng, Dominic Kennedy, Yuyou Fan, Ben Greenman, John Regehr, Loris D'Antoni *Nice to Meet You: Synthesizing Practical Abstract Transformers* POPL 2026
- Ashton Wiersdorf and Ben Greenman *Chorex: Restartable, Language-Integrated Choreographies* Programming 10.3, 2026

- Hanwen Guo and Ben Greenman  
*If-T: A Benchmark for Type Narrowing* Programming 10.2, 2026
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi  
*A Misconception-Driven Adaptive Tutor for Linear Temporal Logic* CAV 2025  
**Distinguished Paper Award**
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi  
*Lightweight Diagramming for Lightweight Formal Methods: A Grounded Language Design* ECOOP 2025  
**Distinguished Paper Award**
- Ashton Wiersdorf, Stephen Chang, Matthias Felleisen, and Ben Greenman  
*Type Tailoring* ECOOP 2024
- Ben Greenman, Siddhartha Prasad, Antonio Di Stasio, Shufang Zhu,  
Giuseppe De Giacomo, Shriram Krishnamurthi, Marco Montali, Tim Nelson, and Milda Zizyte  
*Misconceptions in Finite-Trace and Infinite-Trace Linear Temporal Logic* FM 2024
- Tim Nelson, Ben Greenman, Siddhartha Prasad, Tristan Dyer, Ethan Bove,  
Qianfan Chen, Charles Cutting, Thomas Del Vecchio, Sidney LeVine, Julianne Rudner,  
Ben Ryjikov, Alexander Varga, Andrew Wagner, Luke West, and Shriram Krishnamurthi  
*Forge: A Tool and Language for Teaching Formal Methods* OOPSLA 2024
- Ben Greenman, Alan Jeffrey, Shriram Krishnamurthi, and Mitesh Shah  
*Privacy-Respecting Type Error Telemetry at Scale* Programming 8.3, 2024
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi Programming 8.2, 2024  
*Conceptual Mutation Testing for Student Programming Misconceptions*
- Siddhartha Prasad, Ben Greenman, Tim Nelson,  
and Shriram Krishnamurthi  
*Generating Programs Trivially: Student Use of Large Language Models* CompEd, December 2023
- Ben Greenman, Matthias Felleisen, and Christos Dimoulas  
*How Profilers Can Help Navigate Type Migration* OOPSLA 2023
- Matthew Flatt, Taylor Allred, Nia Angle, Stephen De Gabrielle,  
Robert Findler, Jack Firth, Kiran Gopinathan, Ben Greenman, Siddhartha Kasivajhula, Alex Knauth,  
Jay McCarthy, Sam Phillips, Sorawee Porncharoenwase, Jens Axel Søgaard, and Sam Tobin-Hochstadt  
*Rhombus: A New Spin on Macros Without All The Parentheses* OOPSLA 2023
- Lukas Lazarek, Ben Greenman, Matthias Felleisen, and Christos Dimoulas  
*How to Evaluate Blame for Gradual Types, Part 2* ICFP 2023
- Ben Greenman  
*GTP Benchmarks for Gradual Typing Performance* ACM REP, June 2023
- Ben Greenman, Sam Saarinen, Tim Nelson,  
and Shriram Krishnamurthi  
*Little Tricky Logic: Misconceptions in the Understanding of LTL* Programming 7.2, 2023

- Kuang-Chen Lu, Ben Greenman, Carl Meyer, Dino Viehland, Aniket Panse, and Shriram Krishnamurthi  
*Gradual Soundness: Lessons from Static Python*  
Programming 7.1, 2023
- Siddhartha Prasad, Ben Greenman, Tim Nelson, John Wrenn, and Shriram Krishnamurthi  
*Making Hay from Wheats: A Classsourcing Method to Identify Misconceptions*  
Koli Calling 2022
- Ben Greenman  
*Deep and Shallow Types for Gradual Languages*  
PLDI 2022
- Ben Greenman, Lukas Lazarek, Christos Dimoulas, and Matthias Felleisen  
*A Transient Semantics for Typed Racket*  
Programming 6.2, 2022
- Kuang-Chen Lu, Ben Greenman, and Shriram Krishnamurthi  
*Types for Tables: A Language Design Benchmark*  
**Editors' Choice Award**  
Programming 6.2, 2022
- Lukas Lazarek, Ben Greenman, Matthias Felleisen, and Christos Dimoulas  
*How to Evaluate Blame for Gradual Types*  
ICFP 2021
- Ben Greenman, Matthias Felleisen, and Christos Dimoulas  
*Complete Monitors for Gradual Types*  
OOPSLA 2019
- Preston Tunnell Wilson, Ben Greenman, Justin Pombrio, Shriram Krishnamurthi.  
*The Behavior of Gradual Types: A User Study*  
DLS 2018
- Daniel Feltey, Ben Greenman, Christophe Scholliers, Robert Bruce Findler, and Vincent St. Amour.  
*Collapsible Contracts: Fixing a Pathology of Gradual Typing*  
OOPSLA 2018
- Ben Greenman, Matthias Felleisen.  
*A Spectrum of Type Soundness and Performance*  
ICFP 2018
- Ben Greenman, Zeina Migeed.  
*On the Cost of Type-Tag Soundness*  
PEPM 2018
- Sam Tobin-Hochstadt, Matthias Felleisen, Robert Bruce Findler, Matthew Flatt, Ben Greenman, Andrew M. Kent, Vincent St-Amour, T. Stephen Strickland, and Asumu Takikawa.  
*Migratory Typing: 10 Years Later*  
SNAPL 2017
- Stephen Chang, Ben Greenman, and Alex Knauth.  
*Type Systems as Macros*  
POPL 2017
- Asumu Takikawa, Daniel Feltey, Ben Greenman, Max S. New, Jan Vitek, and Matthias Felleisen.  
*Is Sound Gradual Typing Dead?*  
POPL 2016
- Ben Greenman, Fabian Muehlboeck, and Ross Tate.  
*Getting F-Bounded Polymorphism into Shape*  
PLDI 2014

## WORKSHOP

- Dibri Nsofor and Ben Greenman  
*Toward a Corpus Study of the Dynamic Gradual Type* HATRA 2024
- Taylor Allred, Xinyi Li, Ashton Wiersdorf, Ben Greenman, and Ganesh Gopalakrishnan  
*FlowFPX: Nimble Tools for Debugging Floating-Point Exceptions* JuliaCon 2023
- Asumu Takikawa, Daniel Feltey, Ben Greenman, Max S. New, Jan Vitek, and Matthias Felleisen.  
*Position Paper: Performance Evaluation for Gradual Typing* STOP 2015

## INVITED TALKS

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- **WITS**  
*Type Narrowing the Hard Way* January 2026
- **Amazon Compilers Tech Talk**  
*Nice to Meet You: Synthesizing Practical MLIR Transformers* December 2025
- **RPI CS Seminar**  
*Kicking the Ladder Away: From Gradual Types to Plain Types* June 2025
- **Iowa State CS Colloquium**  
*Toward a Science of Type System Design* November 2024
- **Research Challenges in Computing @ University of Utah**  
*Rigorous Methods for Language Design* 2024
- **PLT @ Northwestern University**  
*Teaching Formal Methods with Forge* September 2024
- **IETF 120: Usable Formal Methods Research Group**  
*Forge: Usable Model-Finding* July 2024
- **BYU Grad Seminar**  
*How Profilers Can Help Navigate Type Migration* November 2023
- **TLf@AAAI-SSS'23**  
*Towards LTLf Misconceptions* March 2023
- **VardiFest**  
**NJPLS**  
*Little Tricky Logic: Misconceptions in the Understanding of LTL* 2022
- **Racket Con**  
*Shallow Typed Racket*  
*Shallow and Optional Types for Typed Racket* 2020, 2022
- **Boston University POPV Seminar**  
*Complete Monitoring for Gradual Types* 2020

- GRACE Workshop 2018  
*Three Approaches to Gradual Typing*

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## TEACHING

### UTAH

|           |              |                       | Enrollment<br>(Responded) | Course (Avg)       | Instructor (Avg)   |
|-----------|--------------|-----------------------|---------------------------|--------------------|--------------------|
| Spring 25 | CS 6110      | Software Verification | TBD                       | TBD                | TBD                |
| Spring 25 | CS 7936      | Ph.D Seminar          | TBD                       | TBD                | TBD                |
| Fall 25   | COMP 1020    | Programming for All 2 | TBD                       | TBD                | TBD                |
| Spring 25 | CS 4470      | Compilers             | 58 (51)                   | 5.28 (?)           | 5.43 (?)           |
|           | CS 7936      | Ph.D Seminar          | 6                         | 6                  | 6                  |
| Fall 24   | N/A          | <i>parental leave</i> |                           |                    |                    |
| Spring 24 | CS 5110/6110 | Software Verification | 22 (20)                   | 5.5 / 5.82 (5.18)  | 6 / 5.68 (5.21)    |
| Fall 23   | CS 3520/6520 | Programming Languages | 159 (77)                  | 5.32 / 5.82 (5.12) | 5.45 / 5.68 (5.19) |

### BROWN

- Topics in PL and Systems: Tables and Humans 2021  
 Seminar Organizer & Scribe

### NORTHEASTERN

- Software Development 2018, 2020  
 Teaching Assistant
- Fundamentals I 2016  
 Teaching Assistant
- Object-Oriented Design 2016  
 Teaching Assistant

### CORNELL

- Functional Programming and Data Structures 2012 – 2014  
 Teaching Assistant

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## ADVISING

### PH.D.

- Ashton Wiersdorf, started Fall 2023
- Dominic Kennedy, started Fall 2024

- Hanwen Guo, started Fall 2024

## MASTERS

- Dibri Nsofor, MSc  
project: *Data Science for Gradual Types* expected Fall 2025
- Suyasha Bobhate, IS Fall 2023  
project: *Quantum Key-Value Stores* graduated Spring 2024

## UNDERGRAD

- Jackson Brough, BS  
thesis: *Constructive Real Analysis via Locators* expected Spring 2026

## COMMITTEE MEMBERSHIP

- Zhaofeng Li, Ph.D, advisor [Anton Burtsev](#)
- Sara Nurollahian, Ph.D, advisor [Eliane Wiese](#)

## INFORMAL MENTEES

|                   |   |                    |
|-------------------|---|--------------------|
| Siva Sathyaseelan | IIT (BHU) Varanasi                                | Summer 2025        |
| Mrigank Pawagi    | IIS Bengaluru                                     | Summer 2024        |
| Vivaan Rajesh     | Hillcrest High School                             | 2023 – 2024        |
| Siddhartha Prasad | Ph.D. Brown University                            | 2022 – ongoing     |
| Rob Durst         |   | Fall 2023          |
| Caspar Popova     |   | Spring – Fall 2023 |
| Aniket Karna      | M.S. University of Utah                           | Fall 2023          |
| Taylor Allred     | M.S. University of Utah                           | 2022 – 2023        |
| Qianfan Chen      | Sc.B. Brown University [ <a href="#">thesis</a> ] | 2021 – 2022        |
| Kuang-Chen Lu     | Ph.D. Brown University                            | 2021 – 2022        |
| Milo Davis        | B.S. Northeastern University                      | 2017               |
| Zeina Migeed      | B.S. Northeastern University                      | 2016 – 2017        |

## DEPARTMENT, COLLEGE, AND UNIVERSITY SERVICE

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- Committee Member: Lecturing Faculty Hiring Fall 2025 – Spring 2026
- Faculty Mentor: CS 1960: Success in Computing Summer 2025 – ongoing
- Committee Member: Graduate Admissions Spring 2025,  
2026
- Teacher: Price College Hi-Gear Summer Camp Summer 2025
- Teacher: Price College Exploring Engineering Summer Camp Summer 2024
- Teaching Area Chair: Programming Languages and Web Fall 2023 – ongoing

- Committee Member: K-12 Outreach Planning Committee Fall 2023 – Summer 2025

## EXTERNAL SERVICE

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- Co-Chair of Workshop Organization ICFP 2026, [ICFP/SPLASH 2025](#)
- Co-Chair of Artifact Evaluation Committee & ERC OOPSLA 2023, 2022
- Program Committee DLS 2022  
HATRA 2025, 2024, 2023, 2022  
ICFP 2021  
OOPSLA 2025  
PLDI 2025, 2021  
Scheme 2025  
SOAP 2024  
TFP 2025, 2023
- External Review Committee ESOP 2023, ICFP 2023
- Journal Review JFP 2024, 2023, 2020, 2019  
JuliaCon 2024  
SoftwareX 2025  
STTT 2024  
TOPLAS 2025, 2023
- NSF Panel Review 2025, 2024
- Artifact Evaluation Committee ECOOP 2017; OOPSLA 2017, 2016
- Session Chair ICFP 2021; NJPLS 2023; OOPSLA 2023; POPL 2026
- SIGPLAN-M Long-Term Mentor Fall 2024 – ongoing
- El Turco: Human–AI dialogue Spring 2024  
show: Mori Art Museum, 2025-02-13 – 2025-06-08
- Senior Division Judge: University of Utah Science and Engineering Fair Spring 2025

## PROFESSIONAL MEMBERSHIPS

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- IEEE, Member 2023 – ongoing
- IEEE Computer Society, Member 2023 – ongoing
- ACM, Member 2023 – ongoing
- ACM SIGPLAN, Member 2016 – ongoing
- Sigma Xi, Member 2025  
*The Scientific Research Honor Society*

- Phi Theta Kappa, Member  
*2-year college Honor Society*

2013

## BIOGRAPHY

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Ben Greenman is an assistant professor in the Kahlert School of Computing at the University of Utah. He earned his Ph.D. from Northeastern University in 2020 and was a CIFellows 2020 postdoc at Brown University. His research focus is the science of language design. His team develops methods to measure performance, prove guarantees, and understand human factors for languages and systems.