

Ben Greenman
University of Utah
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Kahlert School of Computing
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RESEARCH INTERESTS

General interests: Language design issues regarding proofs, performance, and people. What guarantees do languages offer, how efficiently can 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: Static Python Perf 2024
received summer support for Mrigank Pawagi, an undergraduate researcher from IIS Begaluru
sponsored by the *NSF 2024 Summer of Reproducibility*

- 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
- Cornell CS Teaching Award 2013

FUNDING ---

- Price College VPR Seed Grant Competition 2025
\$30,000

No external funding to date.

PUBLICATIONS ---

JOURNAL

- 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

- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi *Lightweight Diagramming for Lightweight Formal Methods: A Grounded Language Design* **ECOOP 2025**
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi *A Misconception-Driven Adaptive Tutor for Linear Temporal Logic* **CAV 2025**
- 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 *Conceptual Mutation Testing for Student Programming Misconceptions* Programming 8.2, 2024
- 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 Sogaard, 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* 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

- [Iowa State CS Colloquium](#) November 2024
Toward a Science of Type System Design
- [Research Challenges in Computing @ University of Utah](#) 2024
Rigorous Methods for Language Design
- [PLT @ Northwestern University](#) September 2024
Teaching Formal Methods with Forge
- [IETF 120: Usable Formal Methods Research Group](#) July 2024
Forge: Usable Model-Finding

- **BYU Grad Seminar** November 2023
How Profilers Can Help Navigate Type Migration
- **TLf@AAAI-SSS'23** March 2023
Towards LTLf Misconceptions
- **VardiFest** 2022
NJPLS
Little Tricky Logic: Misconceptions in the Understanding of LTL
- **Racket Con** 2020, 2022
Shallow Typed Racket
Shallow and Optional Types for Typed Racket
- **Boston University POPV Seminar** 2020
Complete Monitoring for Gradual Types
- **GRACE Workshop** 2018
Three Approaches to Gradual Typing

TEACHING

UTAH

| | | | Enrollment (Responded) | Course (Avg) | Instructor (Avg) |
|-----------|--------------|-----------------------|---------------------------|--------------------|--------------------|
| Fall 25 | COMP 1020 | Programming for All 2 | TBD | TBD | TBD |
| Spring 25 | CS 4470 | Compilers | TBD | TBD | TBD |
| | CS 7936 | PhD. Seminar | TBD | TBD | TBD |
| 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 Teaching Assistant

2012 – 2014

ADVISING

PH.D.

- Ashton Wiersdorf, started Fall 2023
- Dibri Nsofor, started Fall 2023
- Dominic Kennedy, started Fall 2024
- Hanwen Guo, started Fall 2024

M.S.

- Suyasha Bobhate, IS Fall 2023, project: *Quantum Key-Value Stores* graduated Spring 2024

COMMITTEE MEMBERSHIP

- Zhaofeng Li, Ph.D, advisor Anton Burtsev
- Sara Nurollahian, Ph.D, advisor Eliane Wiese

INFORMAL MENTEES

| | | | |
|-------------------|-------|---------------------------|--------------------|
| 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 [thesis] | 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

- Price College Exploring Engineering Summer Camp Summer 2024
- Teaching Area Coordinator: Programming Languages and Web Fall 2023 – ongoing
- K-12 Outreach Planning Committee Fall 2023 – ongoing

EXTERNAL SERVICE

- 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 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](#)
[STTT 2024](#)
[TOPLAS 2023](#)
- NSF Panel Review [2024](#)
- Artifact Evaluation Committee [ECOOP 2017](#); [OOPSLA 2017](#), [2016](#)
- Session Chair [ICFP 2021](#); [NJPLS 2023](#); [OOPSLA 2023](#)
- 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

- IEEE, Member [2023](#) – ongoing
- IEEE Computer Society, Member [2023](#) – ongoing
- ACM, Member [2023](#) – ongoing
- ACM SIGPLAN, Member [2016](#) – ongoing

BIOGRAPHY

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.