

Ben Greenman
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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 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** 2024
received summer support for Mrigank Pawagi, an undergraduate researcher from IIS Bengaluru 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, 2013
- **Distinguished Paper Award** CAV 2025, ECOOP 2025, Programming 2023
- **Distinguished Artifact Award** ECOOP 2025

FUNDING

- **Price College VPR Seed Grant Competition** 2025

No external funding to date.

PUBLICATIONS

JOURNAL

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

CONFERENCE & SYMPOSIUM

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

- Hanwen Guo and Ben Greenman Programming 10.2, 2026
If-T: A Benchmark for Type Narrowing
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi CAV 2025
A Misconception-Driven Adaptive Tutor for Linear Temporal Logic
Distinguished Paper Award
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi ECOOP 2025
*Lightweight Diagramming for Lightweight Formal Methods:
A Grounded Language Design*
Distinguished Paper Award
- Ashton Wiersdorf, Stephen Chang, Matthias Felleisen, and Ben Greenman ECOOP 2024
Type Tailoring
- Ben Greenman, Siddhartha Prasad, Antonio Di Stasio, Shufang Zhu, FM 2024
Giuseppe De Giacomo, Shriram Krishnamurthi, Marco Montali, Tim Nelson, and Milda Zizyte
Misconceptions in Finite-Trace and Infinite-Trace Linear Temporal Logic
- Tim Nelson, Ben Greenman, Siddhartha Prasad, Tristan Dyer, Ethan Bove, OOPSLA 2024
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
- Ben Greenman, Alan Jeffrey, Shriram Krishnamurthi, and Mitesh Shah Programming 8.3, 2024
Privacy-Respecting Type Error Telemetry at Scale
- 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, CompEd, December 2023
and Shriram Krishnamurthi
Generating Programs Trivially: Student Use of Large Language Models
- Ben Greenman, Matthias Felleisen, and Christos Dimoulas OOPSLA 2023
How Profilers Can Help Navigate Type Migration
- Matthew Flatt, Taylor Allred, Nia Angle, Stephen De Gabrielle, OOPSLA 2023
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
- Lukas Lazarek, Ben Greenman, Matthias Felleisen, and Christos Dimoulas ICFP 2023
How to Evaluate Blame for Gradual Types, Part 2
- Ben Greenman ACM REP, June 2023
GTP Benchmarks for Gradual Typing Performance
- Ben Greenman, Sam Saarinen, Tim Nelson, Programming 7.2, 2023
and Shriram Krishnamurthi
Little Tricky Logic: Misconceptions in the Understanding of LTL

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

INVITED TALKS

- [WITS](#) January 2026
Type Narrowing the Hard Way
- Amazon Compilers Tech Talk December 2025
Nice to Meet You: Synthesizing Practical MLIR Transformers
- RPI CS Seminar June 2025
Kicking the Ladder Away: From Gradual Types to Plain Types
- [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**
Three Approaches to Gradual Typing

2018

TEACHING

UTAH

			Enrollment (Responded)	Course (Avg)	Instructor (Avg)
Spring 25	CS 6110	Software Verification	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>
Spring 25	CS 7936	Ph.D Seminar	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>
Fall 25	COMP 1020	Programming for All 2	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>
Spring 25	CS 4470	Compilers	58 (51)	5.28 (?)	5.43 (?)
	CS 7936	Ph.D Seminar	6	6	6
Fall 24	<i>N/A</i>	<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
Seminar Organizer & Scribe
- 2021

NORTHEASTERN

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

CORNELL

- Functional Programming and Data Structures
Teaching Assistant
- 2012 – 2014

ADVISING

PH.D.

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

- Hanwen Guo, started Fall 2024

MASTERS

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

UNDERGRAD

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

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 [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

- 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

- 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

- 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

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.