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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
- *Ph.D. in Computer Science, Northeastern University* 2014 – 2020
- *M. Eng. in Computer Science, Cornell University* 2013 – 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

No external funding as of November 2024.

- NSF SHF: Medium: Language-Oriented Programming Without All the Parentheses
PI Flatt, Co-PIs Findler (Northwestern) & Greenman Submitted
October 2024
- NSF FMitF: Track I: Formal Methods for UTM Safety and Contingency Handling
PI Henderson, Co-PIs Garcia & Greenman Declined

PUBLICATIONS

[^{UU} indicates U. Utah student supervised by Greenman]

Journal

- Ben Greenman, Christos Dimoulas, and Matthias Felleisen. *Typed–Untyped Interactions: A Comparative Analysis* **TOPLAS, March 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, and Hybrid Conference / Journal

- Ashton Wiersdorf^{UU}, Stephen Chang, Matthias Felleisen, and Ben Greenman *Type Tailoring* **ECOOP 2024**
42 % *accept*
- 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**
25 % *accept*
- 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**
? % *accept*
- Ben Greenman, Alan Jeffrey, Shriram Krishnamurthi, and Mitesh Shah *Privacy-Respecting Type Error Telemetry at Scale* **Programming 8.3, 2024**
? % *accept*
- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi *Conceptual Mutation Testing for Student Programming Misconceptions* **Programming 8.2, 2024**
? % *accept*

- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi
Generating Programs Trivially: Student Use of Large Language Models CompEd, December 2023 35 % accept
- Ben Greenman, Matthias Felleisen, and Christos Dimoulas
How Profilers Can Help Navigate Type Migration OOPSLA, October 2023 38 % accept
- 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, October 2023 38 % accept
- Lukas Lazarek, Ben Greenman, Matthias Felleisen, and Christos Dimoulas
How to Evaluate Blame for Gradual Types, Part 2 ICFP, August 2023 22 % accept
- Ben Greenman
GTP Benchmarks for Gradual Typing Performance ACM REP, June 2023 64 % accept
- Ben Greenman, Sam Saarinen, Tim Nelson, and Shriram Krishnamurthi
Little Tricky Logic: Misconceptions in the Understanding of LTL Programming 7.2, March 2023
- Kuang-Chen Lu, Ben Greenman, Carl Meyer, Dino Viehland, Aniket Panse, and Shriram Krishnamurthi
Gradual Soundness: Lessons from Static Python Programming 7.1, March 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 6.1, 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^{UU} and Ben Greenman *Toward a Corpus Study of the Dynamic Gradual Type* HATRA 2024
- Taylor Allred, Xinyi Li, Ashton Wiersdorf^{UU}, Ben Greenman, and Ganesh Gopalakrishnan *FlowFPX: Nimble Tools for Debugging Floating-Point Exceptions* JuliaCon, July 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

- [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** 2020
Complete Monitoring for Gradual Types
- **GRACE Workshop** 2018
Three Approaches to Gradual Typing

TEACHING

			Enrollment (Responded)	Course (Avg)	Instructor (Avg)
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)

ADVISING

Ph.D.

- Ashton Wiersdorf, started Fall 2023
joined U. Utah Fall 2022
- 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

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 ICFP 2021
OOPSLA 2025
PLDI 2025, 2021
DLS 2022
HATRA 2023, 2022
SOAP 2024
TFP 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 OOPSLA 2023, NJPLS 2023, ICFP 2021
- SIGPLAN-M Long-Term Mentor Fall 2024 – ongoing
- [El Turco: Human–AI dialogue](#), Spring 2024

PROFESSIONAL MEMBERSHIPS

- IEEE, Member 2023 – ongoing
- IEEE Computer Society, Member 2023 – ongoing
- ACM, Member 2023 – ongoing
- ACM SIGPLAN, Member 2016 – ongoing