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 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

Publications

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

Journal

- Ben Greenman, Christos Dimoulas, and Matthias Felleisen.   TOPLAS, March 2023
  Typed–Untyped Interactions: A Comparative Analysis

- Ben Greenman, Asumu Takikawa, Max S. New, Daniel Feltey, Robert Bruce Findler,   JFP 2019
  Jan Vitek, and Matthias Felleisen.
  How to Evaluate the Performance of Gradual Type Systems

Conference, Symposium, and Hybrid Conference / Journal

- Ashton Wiersdorf^{UU}, Stephen Chang, Matthias Felleisen, and Ben Greenman   ECOOP 2024
  Type Tailoring   42 % *accept*

- 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   25 % *accept*

- 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   ? % *accept*

- Ben Greenman, Alan Jeffrey, Shriram Krishnamurthi, and Mitesh Shah   Programming 8.3, 2024
  Privacy-Respecting Type Error Telemetry at Scale   ? % *accept*

- Siddhartha Prasad, Ben Greenman, Tim Nelson, and Shriram Krishnamurthi Programming 8.2, 2024
  Conceptual Mutation Testing for Student Programming Misconceptions   ? % *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. PEPM 2018
  On the Cost of Type-Tag Soundness

- Sam Tobin-Hochstadt, Matthias Felleisen, Robert Bruce Findler, Matthew Flatt, SNAPL 2017
  Ben Greenman, Andrew M. Kent, Vincent St-Amour, T. Stephen Strickland,
  and Asumu Takikawa.
  Migratory Typing: 10 Years Later

- Stephen Chang, Ben Greenman, and Alex Knauth. POPL 2017
  Type Systems as Macros

- Asumu Takikawa, Daniel Feltey, Ben Greenman, Max S. New, Jan Vitek, POPL 2016
  and Matthias Felleisen.
  Is Sound Gradual Typing Dead?

- Ben Greenman, Fabian Muehlboeck, and Ross Tate. PLDI 2014
  Getting F-Bounded Polymorphism into Shape

Workshop

- Dibri Nsofor[UU] and Ben Greenman HATRA 2024
  Toward a Corpus Study of the Dynamic Gradual Type

- Taylor Allred, Xinyi Li, Ashton Wiersdorf[UU], Ben Greenman, JuliaCon, July 2023
  and Ganesh Gopalakrishnan
  FlowFPX: Nimble Tools for Debugging Floating-Point Exceptions

- Asumu Takikawa, Daniel Feltey, Ben Greenman, Max S. New, Jan Vitek, STOP 2015
  and Matthias Felleisen.
  Position Paper: Performance Evaluation for Gradual Typing

INVITED TALKS

- 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, NJPLS 2022
  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

			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*

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