Ben Greenman
University of Utah
College of Engineering
Kahlert School of Computing
MEB 3252
50 Central Campus Drive
Salt Lake City, UT, 84112

benjamin.l.greenman@gmail.com
cell: 781-924-9989

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

- 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,   JFP 2019
  Jan Vitek, and Matthias Felleisen.
  How to Evaluate the Performance of Gradual Type Systems

Conference & Symposium

- Xuanyu Peng, Dominic Kennedy, Yuyou Fan, Ben Greenman,   POPL 2026
  John Regehr, Loris D'Antoni
  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, Programming 7.1, 2023
  Aniket Panse, and Shriram Krishnamurthi
  Gradual Soundness: Lessons from Static Python

- 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

- RPI CS Seminar — June 2025
  Kicking the Ladder Away: From Gradual Types to Plain Types

- Iowa State CS Colloqium — 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	58 (51)	5.28 (?)	5.43 (?)
	CS 7936	PhD. Seminar	6	6	6
Fall 24	*N/A*	*parental leave*			
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

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

<div align="right">
ICFP 2021
OOPSLA 2025
PLDI 2025, 2021
Scheme 2025
SOAP 2024
TFP 2025, 2023
</div>

- External Review Committee

<div align="right">ESOP 2023, ICFP 2023</div>

- Journal Review

<div align="right">
JFP 2024, 2023, 2020, 2019
JuliaCon 2024
SoftwareX 2025
STTT 2024
TOPLAS 2023
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- NSF Panel Review

<div align="right">2025, 2024</div>

- Artifact Evaluation Committee

<div align="right">ECOOP 2017; OOPSLA 2017, 2016</div>

- Session Chair

<div align="right">ICFP 2021; NJPLS 2023; OOPSLA 2023</div>

- SIGPLAN-M Long-Term Mentor

<div align="right">Fall 2024 – ongoing</div>

- El Turco: Human–AI dialogue
  show: Mori Art Museum, 2025-02-13 — 2025-06-08

<div align="right">Spring 2024</div>

- Senior Division Judge: University of Utah Science and Engineering Fair

<div align="right">Spring 2025</div>

Professional Memberships

- IEEE, Member

<div align="right">2023 – ongoing</div>

- IEEE Computer Society, Member

<div align="right">2023 – ongoing</div>

- ACM, Member

<div align="right">2023 – ongoing</div>

- ACM SIGPLAN, Member

<div align="right">2016 – ongoing</div>

- Sigma Xi, Member
  The Scientific Research Honor Society

<div align="right">2025</div>

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

<div align="right">2013</div>

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.