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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

## EDUCATION

- Northeastern University                                                2014 – 2020
  *Degree*   Ph.D
  *Area*   Programming Languages
  *Advisor*   Matthias Felleisen
  *Thesis*   Deep and Shallow Types

- Cornell University                                                     2013 – 2014
  *Degree*   Master of Engineering
  *Major*   Computer Science
  *Advisor*   Ross Tate

- Cornell University                                                     2010 – 2013
  *Degree*   Bachelor of Science
  *Major*   Industrial and Labor Relations
  *Minor*   Computer Science

- Hudson Valley Community College                                        2009 – 2010
  *General studies, toward a guaranteed transfer to Cornell ILR*

## EMPLOYMENT

- University of Utah                                          August 2023 – ongoing
  Assistant Professor

- Brown University                                                       2021 – 2023
  Postdoctoral Researcher, CIFellows 2020
  *Mentor* Shriram Krishnamurthi

- Knightsbridge Park     2017
  Consultant, Web Scraping

- Cornell University     2012 – 2014
  Research Assistant

- Rentenna Inc.     2012 – 2014
  Software Engineering Intern

## Teaching

- CS 5110/6110: Software Verification     2024
  Instructor, 22 students

- CS 3520/6520: Programming Languages     2023
  Co-Instructor with Matthew Flatt, 159 students

- Topics in PL and Systems: Tables and Humans     2021
  Organizer

- Software Development     2018, 2020
  Teaching Assistant

- Fundamentals I     2016
  Teaching Assistant

- Object-Oriented Design     2016
  Teaching Assistant

- Functional Programming and Data Structures     2012 – 2014
  Teaching Assistant

## Students Supervised

- Mrigank Pawagi     2024 – ongoing
  Undergraduate researcher, via OSRE 2024

- Hanwen Guo     2024 – ongoing
  Ph.D., University of Utah

- Dominic Kennedy     2024 – ongoing
  Ph.D., University of Utah

- Dibri Nsofor     2023 – ongoing
  Ph.D., University of Utah

- Ashton Wiersdorf     2022 – ongoing
  Ph.D., University of Utah

- Suyasha Bobhate     2023 – 2024
  M.S, University of Utah

- Sara Nurollahian                                                         2024 – ongoing
  Ph.D., University of Utah
  [Committee Member. Advisor: Eliane Wiese]

- Vivaan Rajesh                                                            2023 – 2024
  Hillcrest High School,

- Siddhartha Prasad                                                        2022 – ongoing
  Ph.D., Brown University

- Rob Durst                                                                2023 – 2023
  Independent Researcher,

- Caspar Popova                                                            2023 – 2023
  Independent Researcher,

- Aniket Karna                                                             2023 – 2023
  M.S., University of Utah

- Taylor Allred                                                           2022 – 2023
  M.S., University of Utah

- Qianfan Chen                                                            2021 – 2022
  Sc.B. with Honors [thesis], Brown University

- Kuang-Chen Lu                                                           2021 – 2022
  Ph.D., Brown University

- Milo Davis                                                                      2017
  B.S., Northeastern University

- Zeina Migeed                                                            2016 – 2017
  B.S., Northeastern University

## Awards

- Open Source Research Experience: Static Python Perf                             2024
  role: Mentor; funding via NSF 2024 Summer of Reproducibility
  PI Cormac Flanagan, Co-PI Stephanie Lieggi, Former PI Carlos Maltzahn

- NSF SHF: Small: Little Tricky Logics                                            2023
  role: Postdoc; PI Shriram Krishnamurthi, Co-PIs: Tim Nelson, Rob Lewis, and Milda Zizyte

- CRA/CCC/NSF CI Fellowship                                               2021 – 2023

- SIGPLAN Student Scholarship: 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

## PROFESSIONAL SERVICE

- Co-Chair of Workshop Organization                                ICFP 2025, 2026

- NSF Panel Reviewer                                                            2024

- Teaching Area Coordinator: Programming Languages and Web                       2024

- K-12 Outreach Planning Committee                                       2023 – 2024

- Co-Chair of Artifact Evaluation Committee & ERC              OOPSLA 2023, 2022

- Program Committee                                                   OOPSLA 2025
                                                                        SOAP 2024
                                                                          TFP 2023
                                                                 HATRA 2023, 2022
                                                                         DLS 2022
                                                              ICFP 2021, PLDI 2021

- Journal Reviewer                                                   JuliaCon 2024
                                                                 ACM TOPLAS 2023
                                                          JFP 2024, 2023, 2020, 2019

- External Review Committee                                    ESOP 2023, ICFP 2023

- Artifact Evaluation Committee                      ECOOP 2017, OOPSLA 2017, 2016

- Session Chair                              OOPSLA 2023, NJPLS 2023, ICFP 2021,

## 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, and Hybrid Conference / Journal

- 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, and Shriram Krishnamurthi    CompEd 2023
  *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, Robert Bruce Finder,   OOPSLA 2023
  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 2023
  *GTP Benchmarks for Gradual Typing Performance*

- Ben Greenman, Sam Saarinen, Tim Nelson, and Shriram Krishnamurthi    Programming 7.2, 2023
  *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,    Koli Calling 2022
  and Shriram Krishnamurthi
  *Making Hay from Wheats: A Classsourcing Method to Identify Misconceptions*

- Ben Greenman    PLDI 2022
  *Deep and Shallow Types for Gradual Languages*

- Ben Greenman, Lukas Lazarek, Christos Dimoulas, and Matthias Felleisen   Programming 6.2, 2022
  *A Transient Semantics for Typed Racket*

- Kuang-Chen Lu, Ben Greenman, and Shriram Krishnamurthi    Programming 6.1, 2022
  *Types for Tables: A Language Design Benchmark*

- Lukas Lazarek, Ben Greenman, Matthias Felleisen, and Christos Dimoulas    ICFP 2021
  *How to Evaluate Blame for Gradual Types*

- Ben Greenman, Matthias Felleisen, and Christos Dimoulas    OOPSLA 2019
  *Complete Monitors for Gradual Types*

- Preston Tunnell Wilson, Ben Greenman, Justin Pombrio, Shriram Krishnamurthi.                    DLS 2018
  *The Behavior of Gradual Types: A User Study*

- Daniel Feltey, Ben Greenman, Christophe Scholliers, Robert Bruce Findler,                    OOPSLA 2018
  and Vincent St. Amour.
  *Collapsible Contracts: Fixing a Pathology of Gradual Typing*

- Ben Greenman, Matthias Felleisen.                    ICFP 2018
  *A Spectrum of Type Soundness and Performance*

- 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

- Taylor Allred, Xinyi Li, Ashton Wiersdorf, Ben Greenman,                    JuliaCon 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                    2024
  *Teaching Formal Methods with Forge*

- IETF 120: Usable Formal Methods Research Group                    2024
  *Forge: Usable Model-Finding*

- BYU Grad Seminar                    2023
  *How Profilers Can Help Navigate Type Migration*

- TLf@AAAI-SSS'23                    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*

## Volunteering

- Price College Exploring Engineering Summer Camp Summer 2024

- El Turco: Human–AI dialogue 2023 – 2024
  Programmer

- Bootstrap Professional Development Summer 2021
  Teaching Assistant

- Housing Chair SPLASH 2018

- Northeastern CCIS Hiring Committee Spring 2018
  Student Representative

- PRL Offsite Fall 2019
  Organizer

- Each One Teach One Fall 2015
  AP Java Tutor

- Student Volunteer OOPSLA 2019; Turing Celebration 2017; POPL 2016, 2018; PLDI 2016; ICFP 2015, 2018; ECOOP 2015, 2016

- Ithaca Media Arts Summer 2012
  Teacher, LEGO Mindstorms Camp

- Cornell Math Explorers Winter 2011
  Module Designer

## Professional Memberships

- IEEE 2023 – ongoing

- IEEE Computer Society 2023 – ongoing

- ACM 2023 – ongoing

- ACM SIGPLAN                                                                      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.