

## Current Position

**University at Buffalo, SUNY**  
Department of Computer Science and Engineering  
Assistant Professor

## Education and Past Academic Positions

**University of Maryland, College Park**  
Victor Basili Postdoctoral Research Fellow  
Advised by Leonidas Lampropoulos

**University of Pennsylvania**  
Ph.D. in Computer Science  
Advised by Benjamin C. Pierce

**Cornell University**  
M.Eng., B.S. in Computer Science  
Advised by Adrian Sampson

## Publications, Talks, and Grants

### Dissertation

**Property-Based Testing for the People**  
**Harrison Goldstein** *advised by* Benjamin C. Pierce  
University of Pennsylvania, Defended May 24, 2024

### Referreed Conference Publications

- OOPSLA'25 **Tuning Random Generators: Property-Based Testing as Probabilistic Programming**  
R. Tjoa, P. Garg, **H. Goldstein**, T. Millstein, B. C. Pierce, G. Van den Broek  
Obj.-Oriented Programming, Sysys., Langs., and Apps. (OOPSLA) 2025. 25 pages.
- OOPSLA'25 **QED in Context: An Observation Study of Proof Assistant Users**  
Jessica Shi, Cassia Torczon, **Harrison Goldstein**, Benjamin C. Pierce, Andrew Head  
Obj.-Oriented Programming, Sysys., Langs., and Apps. (OOPSLA) 2025. 25 pages.
- UIST'25 **FEDT: Supporting experiment design and execution in HCI fabrication research**  
V. Savage, **H. Goldstein**, N. Püsök, J. Ren, B. Dutt, C. Nandi, L. Oehlberg  
User Interface Software and Technology (UIST) 2025. 13 pages.
- UIST'24 **Tyche: Making Sense of Property-Based Testing Effectiveness**  
**Harrison Goldstein**, Jeffrey Tao, Zac Hatfield-Dodds, Benjamin C. Pierce, Andrew Head  
User Interface Software and Technology (UIST) 2024. 13 pages.
- PLDI'24 **Stream Types**  
J. W. Cutler, C. Watson, E. Nkurumeh, P. Hilliard, **H. Goldstein**, C. Stanford, B. C. Pierce  
Programming Language Design and Impl. (PLDI) 2024. 24 pages.
- PLDI'24 **Daedalus: Safer Document Parsing**  
I. Diatchki, M. Dodds, **H. Goldstein**, B. Harris, D. Holland, B. Razet, C. Schlesinger, S. Winwood  
Programming Language Design and Implementation (PLDI) 2024. 24 pages.

- ICSE'24 **Property-Based Testing in Practice**  
Distinguished **Harrison Goldstein**, Joseph W. Cutler, Daniel Dickstein, Benjamin C. Pierce, Andrew Head  
International Conference on Software Engineering (ICSE) 2024. 23 pages.
- ICFP'23 **Reflecting on Random Generation**  
Distinguished **Harrison Goldstein**, Samantha Frohlich, Meng Wang, Benjamin C. Pierce  
International Conference on Functional Programming (ICFP) 2023. 34 pages.
- OOPSLA'22 **Parsing Randomness**  
**Harrison Goldstein**, Benjamin C. Pierce  
Obj.-Oriented Programming, Sys., Langs., and Apps. (OOPSLA) 2022. 25 pages.
- ESOP'21 **Do Judge a Test by its Cover: Combining Combinatorial and Property-Based Testing**  
**Harrison Goldstein**, John Hughes, Leonidas Lampropoulos, Benjamin C. Pierce  
European Symposium on Programming (ESOP) 2021. 27 pages.

## Workshop Papers and Experience Reports

- PLATEAU'25 **Designing Proof Deautomation in Rocq**  
Jessica Shi, Cassia Torczon, **Harrison Goldstein**, Benjamin C. Pierce, Andrew Head  
PLATEAU Workshop 2025. 12 pages.
- OCaml'24 **Mica: Automated Differential Testing for OCaml Modules**  
Ernest Ng, **Harrison Goldstein**, Benjamin C. Pierce  
OCaml Workshop 2024. 2 pages.
- ICFP'23 **Etna: An Evaluation Platform for Property-Based Testing (Experience Report)**  
J. Shi, A. Kelles, **H. Goldstein**, B. C. Pierce, L. Lampropoulos  
International Conference on Functional Programming (ICFP) 2023. 17 pages.
- HATRA'22 **Some Problems with Properties: A Study on Property-Based Testing in Industry**  
**Harrison Goldstein**, Joseph W. Cutler, Adam Stein, Benjamin C. Pierce, Andrew Head  
Human Aspects of Types and Reasoning Assistants (HATRA) 2022. 8 pages.
- SysML'18 **Programming Language Support for Natural Language Interaction**  
Alex Renda, **Harrison Goldstein**, Sarah Bird, Chris Quirk, Adrian Sampson  
Conference on Machine Learning and Systems (SysML) 2018. 3 pages.

## Demos

- SCF'24 **Supporting Characterization Experiments in Fabrication Research**  
V. Savage, N. Püsök, **H. Goldstein**, C. Nandi, J. Yi Ren and L. Oehlberg  
Symposium on Computational Fabrication (SCF) 2024.
- UIST'23 **Tyche: In Situ Analysis of Random Testing Effectiveness**  
**Harrison Goldstein**, Benjamin C. Pierce, Andrew Head  
User Interface Software and Technology (UIST) 2023.

## Talks and Podcasts

- Talk  
Invited **Property-Based Testing for the People**  
**Harrison Goldstein**  
Cornell + UT Software Engineering Seminar
- Talk **The Best New Programming Language is a Proof Assistant**  
**Harrison Goldstein**  
DC Systems 006

Podcast Invited	<b>Haskell Interlude #59</b> Samantha Frohlich, Wouter Swierstra, <b>Harrison Goldstein</b> Haskell Interlude Podcast, December 2024
Talk Invited	<b>My PhD Compass: 6 Ways to Guide a PhD Towards Success</b> <b>Harrison Goldstein</b> PL Mentoring Workshop @ ICFP, September 2024
Podcast Invited	<b>Disseminate #55</b> Jack Waudby, <b>Harrison Goldstein</b> Disseminate Podcast, June 2024
Talk	<b>Usable Property-Based Testing</b> <b>Harrison Goldstein</b> Amazon Web Services, June 2024
Talk Invited	<b>Consider Collaboration</b> Samantha Frohlich, <b>Harrison Goldstein</b> PL Mentoring Workshop @ POPL, January 2024
Talk Invited	<b>Advancing Property-Based Testing in Theory and Practice</b> <b>Harrison Goldstein</b> Microsoft Research, UC Berkeley, Galois, Inc., UCSC, University of Bristol
Talk	<b>Property-Based Testing in Practice</b> <b>Harrison Goldstein</b> Jane Street Programming Languages Colloquium, December 2023
Podcast Invited	<b>TheForkJoin #2</b> Oliver Flatt, Rachit Nigam, <b>Harrison Goldstein</b> TheForkJoin Podcast, July 2024
Talk	<b>Some Problems with Properties</b> <b>Harrison Goldstein</b> NJPLS, October 2022
Talk	<b>Reflecting on Random Generation</b> <b>Harrison Goldstein</b> NJPLS, May 2022

## Posters

ICFP'21	<b>Ungenerators</b> <b>Harrison Goldstein</b> ICFP 2021
POPL'20	<b>Algebraic Combinatorial Testing</b> <b>Harrison Goldstein</b> POPL 2020

## Misc.

Blog Post	<b>Think Globally, Discuss PL Locally</b> <b>Harrison Goldstein</b> , Michael Greenberg, Noam Zilberstein SIGPLAN PL Perspectives Blog, September 2025
Draft	<b>Delimited Continuations and Monads</b> <b>Harrison Goldstein</b> Unpublished PhD Milestone Draft, April 2021

- SIGBOVIK'21 **Everybody Clap Your Hands: The Cha-Cha Slide is Turing Complete**  
**Harrison Goldstein**  
Conf. of the ACH Special Interest Group on Harry Q. Bovik (SIGBOVIK) 2021. 5 pages.
- Blog Post **Conferences after COVID: An Early Career Perspective**  
J. W. Cutler, **H. Goldstein**, A. K. Hirsch, J. Hong, C. Nandi  
SIGPLAN PL Perspectives Blog, March 2021

## Funded Grant Proposals

### **NSF #2402449 SHF: Medium: Usable Property-Based Testing**

2023-2024

Made significant contributions, in the form of both research project ideas and grant writing, to help secure a NSF Medium grant. This grant helped to fund my dissertation work, and it will continue to fund follow-on projects.

Team: Benjamin Pierce (co-PI), Andrew Head (co-PI), **Harrison Goldstein** (contributor)

### **Amazon Research Award: TYCHE: An IDE for Property-Based Testing**

Spring 2023

Secured funding from AWS to fund my ongoing work on user interfaces for property-based testing. This award includes the opportunity to collaborate with contacts at AWS, including Michael Hicks, on interfaces that support real industrial workloads.

Team: **Harrison Goldstein** (primary author), Benjamin Pierce (co-PI), Andrew Head (co-PI)

## Awards and Honors

### **John C. Reynolds Doctoral Dissertation Award 2025**

ACM Special Interest Group on Programming Languages

### **Morris and Dorothy Rubinoff Award 2024**

University of Pennsylvania, Department of Computer and Information Science

### **Victor Basili Postdoctoral Fellowship**

University of Maryland, Computer Science Department

### **Certificate in Engineering Leadership**

Cornell Engineering Leadership Certification Program

### **1250 Day Crossword Streak**

New York Times Games

## Teaching and Advising

### **Graduate Advisees**

Collaborator and Research Mentor, Cassia Torczon

Collaborator and Research Mentor, Thia Richey

Collaborator and Research Mentor, Segev Elazar Mittelman

Collaborator and Research Mentor, Alperen Keles

Collaborator and Research Mentor, Pierce Darragh

Collaborator and Research Mentor, Joseph W. Cutler

Collaborator and Research Mentor, Jessica Shi

Co-Advisor, Ernest Ng

## **Courses**

UB CIS 702 "Effective and Usable Formal Methods"  
Graduate Seminar

Penn CIS 552 "Advanced Programming"  
Prof. Stephanie Weirich  
Head TA 2020-2021

Penn CIS 810 "Writing and Speaking with Style"  
Prof. Benjamin C. Pierce  
Head TA 2021

Cornell CS 3110 "Functional Programming"  
Prof. Nate Foster  
Head TA 2017

Cornell Engineering Leadership  
Profs. Erica Dawson and Werner Zorman  
Head TA 2017

Cornell CS 2112 "Object-Oriented Design and Data Structures (Honors)"  
Prof. Dexter Kozen  
TA 2016

## **Service**

### **Conference Organizing and Reviewing**

Steering Committee Member, Upstate PL — Ongoing

PC Member, OOPSLA 2026 — Upcoming

PC Member, PLDI 2025

PC Member, PLATEAU 2025

Steering Committee Member, NJPLS

Student Reviewer, PLATEAU 2024

Co-Organizer, Celebration for Benjamin Pierce's 60th Birthday

PC Member, HATRA 2023

Organizer, NJPLS 2023

Social Chair, POPL 2021

A/V Coordinator, ICFP 2021

### **Mentorship**

Speaker, PL Mentoring Workshop @ ICFP 2024

Ph.D. Mentor, SIGPLAN-M

Ph.D. Mentor, Penn CIS Mentoring

Speaker, PL Mentoring Workshop @ POPL 2024

Research Mentor, REPL REU 2023

Research Mentor, DeepSpec REU

## **Misc.**

Editor in Chief, PLClub Blog 2021-2024

## **Employment**

### **University at Buffalo, SUNY**

Assistant Professor 2025–

### **University of Maryland, College Park**

Victor Basili Postdoctoral Fellow 2024-2025

Working with Prof. Leonidas Lampropoulos on topics related to usable property-based testing.

### **Galois, Inc.**

Research Intern 2023

Worked on two research papers related to the SafeDocs DARPA program. Provided expertise on testing that helped situate the papers in the broader research context.

### **Amazon Web Services**

Research Intern 2020

Worked on Zelkova, a tool for analyzing and proving properties about AWS access policies. Encoded logical constraints from access policies as SMT formulas, in order to infer policy implications.

### **Broadway Technology**

Software Engineer and Software Engineering Intern 2017–2019

Built mission-critical internal tools for the company's financial personnel, in particular facilitating a transition to new financial tracking software. Designed and implemented data connectors, financial calculations, web interfaces, and more.

### **Susquehanna International Group, LLC**

Technology Intern 2016

Helped to implement a safety system, protecting the firm from anomalous trading behaviors. Built an engine for executing business rules as monitors for live trading activities.

### **Last Second Beach, LLC**

Chief Technology Officer 2015–2016

Helped to lead a small, early stage start-up, focused on providing one-price vacations. Built a demo iOS application, helping the company to win a \$25,000 grant as part of a Business Plan Competition.