harrisongoldste.in
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@hgoldstein95

Education

Ph.D. in Computer Science
University of Pennsylvania
Ongoing

M.Eng. in Computer Science
Cornell University
2018 — GPA 4.02

B.S. in Computer Science
Cornell University
2014-2018 — GPA 4.08

Teaching

Penn CIS 552
Head TA 2020-2021

Penn CIS 810
Head TA 2021

Cornell CS 3110
Head TA 2017

Cornell Eng. Leadership
Head TA 2017

Cornell CS 2112
TA 2016

Awards and Honors

Victor Basili Postdoctoral Fellowship
University of Maryland

Certificate in Engineering Leadership
Cornell ECLP

1st Place, Business Plan Competition
Cornell Sch. of Hotel Admin.

Harrison Goldstein

Ph.D. Researcher

I am a Ph.D. candidate studying under Prof. Benjamin C. Pierce. My work combines techniques from programming languages and human-computer interaction to address software engineering problems. My current focus is on property-based testing.

Selected Publications

Property-Based Testing in Practice **DISTINGUISHED PAPER**
ICSE 2024 Research Paper

Reflecting on Random Generation **DISTINGUISHED PAPER**
ICFP 2023 Research Paper

Etna: An Evaluation Platform for Property-Based Testing
ICFP 2023 Experience Report

Parsing Randomness
OOPSLA 2022 Research Paper

Do Judge a Test by its Cover: Combining Combinatorial and Property-Based Testing
ESOP 2021 Research Paper

Conferences after COVID: An Early-Career Perspective
PL Perspectives SIGPLAN Blog Post

Employment

Research Intern
Galois, Inc. 2023

Research Intern
Amazon Web Services 2020

Software Engineer *and* Software Engineering Intern
Broadway Technology 2017-2019

Technology Intern
Susquehanna International Group, LLC 2016

Chief Technolgy Officer
Last Second Beach, LLC 2015-2016

Selected Service Roles

Steering Committee Member
NJPLS Ongoing

Research Mentor
REPL REU 2023

PC Member
HATRA 2023

Research Mentor
DeepSpec REU

Organizer
NJPLS 2023

Editor in Chief
PLClub Blog

Social Chair
POPL 2021

A/V Coordinator
ICFP 2021

Harrison Goldstein

Ph.D. Researcher

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Publications and Talks

Papers

1. *Stream Types*
   Joseph W. Cutler, Christopher Watson, Emeka Nkurumeh, Phillip Hilliard, **Harrison Goldstein**, Caleb Stanford, Benjamin C. Pierce
   Programming Language Design and Implementation (PLDI) 2024. Pending publication, 20 pages.

2. *Daedalus: Safer Document Parsing*
   Iavor Diatchki, Mike Dodds, **Harrison Goldstein**, Bill Harris, David Holland, Benoit Razet, Cole Schlesinger, Simon Winwood
   Programming Language Design and Implementation (PLDI) 2024. Pending publication, 20 pages.

3. *Property-Based Testing in Practice* **Distinguished Paper**
   Harrison Goldstein, Joseph W. Cutler, Daniel Dickstein, Benjamin C. Pierce, Andrew Head
   International Conference on Software Engineering (ICSE) 2024. Pending publication, 10 pages.

4. *Tyche: In Situ Analysis of Random Testing Effectiveness (Demo)*
   Harrison Goldstein, Benjamin C. Pierce, Andrew Head
   User Interface Software and Technology (UIST) 2023. Article 96, pages 1–3.

5. *Reflecting on Random Generation* **Distinguished Paper**
   Harrison Goldstein, Samantha Frohlich, Meng Wang, Benjamin C. Pierce
   International Conference on Functional Programming (ICFP) 2023. Article 200, 34 pages.

6. *Etna: An Evaluation Platform for Property-Based Testing (Experience Report)*
   Jessica Shi, Alperen Kelles, **Harrison Goldstein**, Benjamin C. Pierce, Leonidas Lampropoulos
   International Conference on Functional Programming (ICFP) 2023. Article 218, 17 pages.

7. *Parsing Randomness*
   Harrison Goldstein, Benjamin C. Pierce
   Object-Oriented Programming, Systems, Languages, and Apps. (OOPSLA) 2022. Article 128, 25 pages.

8. *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. Non-archival, 8 pages.

9. *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. Vol 12648, pages 264–291.

10. *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. Non-archival, 3 pages.

Talks

1. *Consider Collaboration* [Talk]
   Samantha Frohlich, **Harrison Goldstein**
   PL Mentoring Workshop @ POPL, January 2024

2. *Advancing Property-Based Testing in Theory and Practice* [Talk]
   Harrison Goldstein
   Microsoft Research, September 2023
   and UC Berkeley PLAIT Lab, September 2023
   and Galois, Inc., October 2023
   and UCSC LSD Seminar, October 2023
   and University of Bristol, January 2024

3. *Property-Based Testing in Practice* [Talk]
   Harrison Goldstein
   Jane Street Programming Languages Colloquium, December 2023

4. *TheForkJoin Episode 2* [Podcast]
   Oliver Flatt, Rachit Nigam, **Harrison Goldstein**
   TheForkJoin

5. *Some Problems with Properties* [Talk]
   Harrison Goldstein
   NJPLS October 2022

6. *Reflecting on Random Generation* [Talk]
   Harrison Goldstein
   NJPLS May 2022

Other Content

1. *Ungenerators (Poster)*
   Harrison Goldstein
   ICFP 2021

2. *Delimited Continuations and Monads*
   Harrison Goldstein
   Unpublished PhD Milestone Draft, April 2021

3. *Confernces after COVID: An Early Career Perspective*
   Joseph W. Cutler, Harrison Goldstein, Andrew K. Hirsch, Jaemin Hong, Chandrakana Nandi
   SIGPLAN PL Perspectives Blog, March 2021

4. *Algebraic Combinatorial Testing (Poster)*
   Harrison Goldstein
   POPL 2020

Employment

1. *Research Intern*
   Galois, Inc. 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.
2. *Research Intern*
   Amazon Web Services 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.
3. *Software Engineer and Software Engineering Intern*
   Broadway Technology 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.
4. *Technology Intern*
   Susquehanna International Group, LLC 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.
5. *Chief Technology Officer*
   Last Second Beach, LLC 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.

Service

Conference Organizing and Reviewing

1. *Steering Committee Member*, NJPLS — Ongoing
2. *Reviewer*, PLATEAU 2024
3. *PC Member*, HATRA 2023
4. *Organizer*, NJPLS 2023
5. *Social Chair*, POPL 2021
6. *A/V Coordinator*, ICFP 2021

Mentorship

1. *Ph.D. Mentor*, SIGPLAN-M
2. *Ph.D. Mentor*, Penn CIS Mentoring
3. *Speaker*, PL Mentoring Workshop @ POPL 2024
4. *Research Mentor*, REPL REU 2023
5. *Research Mentor,* DeepSpec REU

Misc.

1. *Editor in Chief*, PLClub Blog

Education

1. *Ph.D.* in Computer Science, University of Pennsylvania
   2019–2024
2. *M.Eng.* in Computer Science, Cornell University
   2018 — GPA 4.02
3. *B.S.* in Computer Science, Cornell University
   2014–2018 — GPA 4.08

Teaching and Advising

Courses

1. *Penn CIS 552* “Advanced Programming”
   Prof. Stephanie Weirich
   Head TA 2020-2021
2. *Penn CIS 810* “Writing and Speaking with Style”
   Prof. Benjamin C. Pierce
   Head TA 2021
3. *Cornell CS 3110*
   Prof. Nate Foster
   Head TA 2017
4. *Cornell Engineering Leadership*
   Profs. Erica Dawson and Werner Zorman
   Head TA 2017

5. *Cornell CS 2112*
   Prof. Dexter Kozen
   TA 2016

Graduate Advisees

1. *Collaborator and Research Mentor*, Joseph W. Cutler

2. *Collaborator and Research Mentor*, Jessica Shi

3. *Co-Advisor*, Ernest Ng

Grant Writing

1. *Amazon Research Award: Automated Reasoning*
   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

1. *Victor Basili Postdoctoral Fellowship*
   University of Maryland, Computer Science Department

2. *Distinguished Paper (Property-Based Testing in Practice)*
   ICSE 2024

3. *Distinguished Paper (Reflecting on Random Generation)*
   ICFP 2023

4. *Certificate in Engineering Leadership*
   Cornell Engineering Leadership Certification Program

5. *1st Place, Business Plan Competition*
   Cornell School of Hotel Administration