

NOAM ZILBERSTEIN

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EDUCATION

Cornell University

Doctor of Philosophy (PhD), Computer Science
Master of Science (MS), Computer Science

August 2021 - present
August 2021 - December 2023

University of Pennsylvania

Bachelor of Science in Engineering (BSE), Computer and Information Science
summa cum laude

August 2011 - May 2015

HONORS AND AWARDS

NSF Graduate Research Fellowship Honorable Mention
National Science Foundation

April 2023

Amazon Research Award (Co-PI)
Amazon Automated Reasoning Group

March 2023

Computer Science Academic Award
University of Pennsylvania

May 2015

Computer and Information Science Senior Design Third Prize
University of Pennsylvania

May 2015

PUBLICATIONS

- [1] **Noam Zilberstein**, Angelina Saliling, Alexandra Silva. Outcome Separation Logic: Local Reasoning for Correctness and Incorrectness with Computational Effects. *In Proceedings of the ACM on Programming Languages, Volume 8, Issue OOPSLA1, April 2024.* <https://doi.org/10.1145/3649821>
- [2] **Noam Zilberstein**, Derek Dreyer, Alexandra Silva. Outcome Logic: A Unifying Foundation for Correctness and Incorrectness Reasoning. *In Proceedings of the ACM on Programming Languages, Volume 7, Issue OOPSLA1, April 2023.* <https://doi.org/10.1145/3586045>
- [3] Quentin Carbonneaux, **Noam Zilberstein**, Christoph Klee, Peter O’Hearn, Francesco Zappa Nardelli. Applying Formal Verification to Microkernel IPC at Meta. *In Proceedings of the 11th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP ’22), January, 2022.* <https://doi.org/10.1145/3497775.3503681>
- [4] **Noam Zilberstein**. Eliminating Bugs with Dependent Haskell. *In Proceedings of the 13th ACM SIGPLAN International Haskell Symposium (Haskell ’20), August 2020.* <https://doi.org/10.1145/3406088.3409020>

TALKS

- [1] **Outcome Logic: A Unifying Foundation for Correctness and Incorrectness Reasoning**
 - New Jersey Programming Languages and Systems Seminar. New York, NY. *May 2024*
 - OOPSLA’23. Cascais, Portugal *October 2023*
 - PL & Formal Methods Seminar. New York University. New York, NY. *October 2023*
 - Type My Morning. Meta London. London, UK *June 2023*
 - Imperial College London. London, UK *June 2023*
 - Iris Workshop. MPI-SWS. Saarbrücken, Germany *May 2023*
 - Technion—Israel Institute of Technology. Haifa, Israel *May 2023*
 - Tel Aviv University PL & Systems Seminar. Tel Aviv, Israel *May 2023*

- [2] **Applying Formal Verification to Microkernel IPC at Meta**
 11th ACM SIGPLAN Certified Programs and Proofs (CPP'22). Philadelphia, PA *January 2022*
 Facebook Testing and Verification Symposium (TAV) *December 2021*
 Cornell PL Discussion Group. Ithaca, NY *October 2021*
- [3] **Eliminating Bugs with Dependently Typed Haskell**
 YOW! Lambda Jam *May 2021*
 13th ACM SIGPLAN International Haskell Symposium (Haskell'20) *August 2020*

WORK EXPERIENCE

- Visiting Researcher** *June 2023 - July 2023*
Programming Principles, Logic, and Verification Group, University College London
- Graduate Research Assistant** *September 2021 - present*
Cornell University, Ithaca, NY
- Staff Software Engineer (IC6)** *May 2020 - September 2021*
Facebook Programming Languages and Runtimes, Menlo Park, CA
- Software Engineer (IC4)–Senior Engineer (IC5)–Staff Engineer (IC6)** *June 2016 - May 2020*
Facebook Integrity Infrastructure, Menlo Park, CA
- Software Engineer (IC3/4)** *July 2015 - June 2016*
Facebook, London, UK
- Software Engineering Intern** *May 2014 - August 2014*
Facebook, Menlo Park, CA

TEACHING

- Guest Lecturer** *March 2022 - present*
Cornell University
 Probabilistic Weakest Pre-Expectations, CS 6110 (Advanced Programming Languages)
 Simply Typed Lambda Calculus and Type Soundness, CS 6110 (Advanced Programming Languages)
- Teaching Assistant** *August 2021 - present*
Cornell University
 CS 6110: Advanced Programming Languages *Spring 2022*
 CS 4110: Programming Languages and Logics *Fall 2021*
- Course Instructor, CIS 194: Introduction to Haskell** *January 2015 - May 2015*
University of Pennsylvania
<https://www.seas.upenn.edu/~cis194/spring15/>
- Teaching Assistant** *August 2012 - May 2015*
University of Pennsylvania
 CIS 320: Algorithms *Spring 2015*
 CIS 121: Programming Languages and Techniques II: Algorithms and Data Structures *Fall 2014*
 CIS 371: Computer Organization and Design *Spring 2014*
 CIS 261: Discrete Probability, Stochastic Processes, and Statistical Inference *Fall 2013*
 CIS 120: Programming Languages and Techniques I (OCaml and Java) *Fall 2012, Spring 2013*

PEER REVIEW

- Sub-Reviewer (2 Papers)**
25th Conference on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR'24)

Program Committee Member

1st Workshop on Formal Methods for Incorrectness (POPL'24)

External Expert Reviewer (4 Papers)

51st International Symposium on Principles of Programming Languages (POPL'24)

Sub-Reviewer

33rd International Conference on Concurrency Theory (CONCUR'22)

Sub-Reviewer

34th International Conference on Computer Aided Verification (CAV'22)

SERVICE

Organizer

New Jersey Programming Languages and Systems Seminar (NJPLS), Fall 2024 at Cornell Tech

Long-Term Mentor (2 Mentees)

SIGPLAN-M

Jan 2024 - present

Organizer

1st Workshop on [Formal Methods for Incorrectness](#) (POPL'24)

PhD Panel Speaker

Programming Languages Mentoring Workshop (PLMW) at SPLASH 2023

Reviewer

Cornell Undergraduate Research Journal

PhD Admissions Committee

Cornell Department of Computer Science

Fall 2022 - Spring 2023

Student Volunteering Co-Chair

8th Federated Logic Conference (FLoC'22)

Reading Group Organizer

Cornell Great Works in PL Reading Group

Spring 2022

Reviewer for Graduate Pre-application Feedback Program

Cornell Department of Computer Science

Fall 2021

Student Volunteer

55th Annual Symposium on Foundations of Computer Science (FOCS'14)

MENTORING AND ADVISING

James Li. Total Correctness Outcome Logic.

Cornell University, Master of Science (MS), Computer Science, May 2025 (expected).

Sean Wang. Formal Verification of Outcome Logic in Coq.

Cornell University, Master of Engineering (MEng), Computer Science, May 2024 (expected).

Angelina Saliling. It's a Warning, Not an Error! Formal Methods for Finding Bugs.

Cornell University, Bachelor of Arts (BA), Computer Science, May 2023.

Runner up in Cornell CIS undergraduate poster session competition.