

# NOAM ZILBERSTEIN

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## EDUCATION

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### Cornell University

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

*August 2021 - May 2026 (expected)*  
*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

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### ACM SIGPLAN John Vlissides Award

*ACM Special Interest Group on Programming Languages*

*October 2024*

### 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*

## CONFERENCE AND JOURNAL PUBLICATIONS

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- [1] **Noam Zilberstein**, Dexter Kozen, Alexandra Silva, Joseph Tassarotti. A Demonic Outcome Logic for Randomized Nondeterminism. In *Proceedings of the ACM on Programming Languages, Volume 9, Issue POPL, January 2025*. <https://doi.org/10.1145/3704855>
- [2] Linpeng Zhang, **Noam Zilberstein**, Benjamin Lucien Kaminski, Alexandra Silva. Quantitative Weakest Hyper Pre: Unifying Correctness and Incorrectness Hyperproperties via Predicate Transformers. In *Proceedings of the ACM on Programming Languages, Volume 8, Issue OOPSLA2, October 2024*. <https://doi.org/10.1145/3689740>
- [3] **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>
- [4] **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>
- [5] 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>
- [6] **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>

## WORKSHOPS AND SHORT PAPERS

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- [1] **Noam Zilberstein**. Unified Analysis Techniques for Programs with Outcomes. *In Companion Proceedings of the 2024 ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH Companion '24)*. <https://doi.org/10.1145/3689491.3691814>

## TALKS

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### Conferences and Workshops

OOPSLA 2024. Pasadena, CA.	October 2024
OOPSLA Doctoral Symposium. Pasadena, CA.	October 2024
New Jersey Programming Languages and Systems Seminar. New York, NY.	May 2024
OOPSLA 2023. Cascais, Portugal.	October 2023
Iris Workshop. MPI-SWS. Saarbrücken, Germany.	May 2023
11th ACM SIGPLAN Certified Programs and Proofs (CPP'22). Philadelphia, PA.	January 2022
13th ACM SIGPLAN International Haskell Symposium (Haskell'20).	August 2020

### Invited Talks

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
Technion—Israel Institute of Technology. Haifa, Israel	May 2023
Tel Aviv University PL & Systems Seminar. Tel Aviv, Israel	May 2023
Facebook Testing and Verification Symposium (TAV)	December 2021
YOW! Lambda Jam	May 2021

## WORK EXPERIENCE

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<b>Visiting Researcher</b> <i>Programming Principles, Logic, and Verification Group, University College London</i>	June 2023 - July 2023
<b>Graduate Research Assistant</b> <i>Cornell University, Ithaca, NY</i>	September 2021 - present
<b>Staff Software Engineer (IC6)</b> <i>Facebook Programming Languages and Runtimes, Menlo Park, CA</i>	Feb 2019 - September 2021
<b>Senior Software Engineer (IC5)</b> <i>Facebook Integrity Infrastructure. Menlo Park, CA.</i>	Aug 2017 - Feb 2019
<b>Software Engineer (IC3/4)</b> <i>Facebook Site Integrity Infrastructure. London, UK and Menlo Park, CA.</i>	July 2015 - August 2017
<b>Software Engineering Intern</b> <i>Facebook, Menlo Park, CA</i>	May 2014 - August 2014

## TEACHING

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<b>Guest Lecturer</b> <i>Cornell University</i> Probabilistic Weakest Pre-Expectations, CS 6110 (Advanced Programming Languages) Simply Typed Lambda Calculus and Type Soundness, CS 6110 (Advanced Programming Languages)	March 2022 - present
<b>Teaching Assistant</b> <i>Cornell University</i> CS 6110: Advanced Programming Languages CS 4110: Programming Languages and Logics	August 2021 - present Spring 2022 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**

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**Program Committee Member***1st Workshop on the Theory and Practice of Static Analysis (POPL'25)***External Expert Reviewer***52nd International Symposium on Principles of Programming Languages (POPL'25)***Sub-Reviewer***49th International Symposium on Mathematical Foundations of Computer Science (MFCS'24)***Sub-Reviewer***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***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)***CONFERENCE ORGANIZATION**

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**Organizer***1st Workshop on Theory and Practice of Static Analysis (TPSA), POPL'25***Organizer***New Jersey Programming Languages and Systems Seminar (NJPLS), Fall 2024 at Cornell Tech***Organizer***1st Workshop on [Formal Methods for Incorrectness](#) (POPL'24)***Student Volunteering Co-Chair***8th Federated Logic Conference (FLoC'22)***SERVICE**

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**NJPLS Steering Committee***July 2024 - present**New Jersey Programming Languages and Systems Seminar***SIGPLAN-M Long-Term Mentor (2 Mentees)***Jan 2024 - present**ACM Special Interest Group on Programming Languages*

**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*

**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)*

**STUDENTS ADVISED**

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**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.*

**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.