

NOAM ZILBERSTEIN

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EDUCATION

Cornell University

Doctor of Philosophy (PhD), Computer Science

August 2021 - May 2026 (expected)

Master of Science (MS), Computer Science

August 2021 - December 2023

University of Pennsylvania

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

August 2011 - May 2015

summa cum laude

HONORS AND AWARDS

Jane Street Graduate Fellowship Honorable Mention

February 2025

Jane Street

ACM SIGPLAN John Vlissides Award

October 2024

ACM Special Interest Group on Programming Languages

NSF Graduate Research Fellowship Honorable Mention

April 2023

National Science Foundation

Computer Science Academic Award

May 2015

University of Pennsylvania

Computer and Information Science Senior Design Third Prize

May 2015

University of Pennsylvania

FUNDED GRANT PROPOSALS

NSF: #2504142, #2504143 SHF: Medium: Probabilistic Concurrent Outcome Logic

July 2025

The National Science Foundation

Team: Alexandra Silva (co-PI), Joseph Tassarotti (co-PI), **Noam Zilberstein** (contributor)

Safeguarded AI: Unified Automated Reasoning for Randomised Distributed Systems

September 2024

UK Advanced Research + Invention Agency (ARIA)

Team: Alexandra Silva (PI), **Noam Zilberstein** (contributor), Robin Piedeleu (contributor)

Amazon Research Award: Automated Reasoning for Correctness and Incorrectness

March 2023

Amazon Automated Reasoning Group

Team: Alexandra Silva (PI), **Noam Zilberstein** (contributor)

CONFERENCE AND JOURNAL PUBLICATIONS

- [1] **Noam Zilberstein**, Alexandra Silva, Joseph Tassarotti. Probabilistic Concurrent Reasoning in Outcome Logic: Independence, Conditioning, and Invariants. *In Proceedings of the ACM on Programming Languages, Volume 10, Issue POPL, January 2026.* <https://doi.org/10.1145/3776651>
- [2] **Noam Zilberstein**. Outcome Logic: A Unified Approach to the Metatheory of Program Logics with Branching Effects. *ACM Trans. Program. Lang. Syst. (TOPLAS) Volume 47, Issue 3, Article 14, September 2025.* <https://doi.org/10.1145/3743131>
- [3] **Noam Zilberstein**, Daniele Gorla, and Alexandra Silva. Denotational Semantics for Probabilistic and Concurrent Programs. *In 36th International Conference on Concurrency Theory (CONCUR 2025). Leibniz International Proceedings in Informatics (LIPIcs), Volume 348, pp. 39:1-39:24, Schloss Dagstuhl – Leibniz-Zentrum für Informatik (2025).* <https://doi.org/10.4230/LIPIcs.CONCUR.2025.39>

- [4] **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>
- [5] 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>
- [6] **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>
- [7] **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>
- [8] 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>
- [9] **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

- [1] James Li, **Noam Zilberstein**, Alexandra Silva. Total Outcome Logic: Termination and Nontermination Proving for Effectful Branching. *In 1st Workshop on Theory and Practice of Static Analysis (TPSA ’25).* <https://tinyurl.com/558p7ufd>
- [2] **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

Conferences and Workshops

CONCUR 2025. Aarhus, Denmark.	August 2025
POPL 2025. Denver, CO.	January 2025
OOPSLA 2024. Pasadena, CA.	October 2024
OOPSLA Doctoral Symposium. Pasadena, CA.	October 2024
New Jersey Programming Languages and Systems Seminar (NJPLS). New York, NY.	May 2024
OOPSLA 2023. Cascais, Portugal.	October 2023
Iris Workshop. MPI-SWS. Saarbrücken, Germany.	May 2023
Certified Programs and Proofs (CPP’22). Philadelphia, PA.	January 2022
Haskell Symposium (Haskell’20).	August 2020

Invited Talks

University of Pennsylvania PL Club. Philadelphia, PA.	November 2025
PL at University of Maryland Seminar. College Park, MD.	November 2025
Princeton PL Group Seminar. Princeton, NJ.	October 2025
Cornell PL Discussion Group. Ithaca, NY.	September 2025
MIT PL Review. Cambridge, MA.	April 2025
Boston University POPV Seminar. Boston, MA.	April 2025
Northeastern University. Boston, MA.	April 2025

Stevens Institute of Technology PL Seminar. Hoboken, NJ.	April 2025
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

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

TEACHING

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

PEER REVIEW

Journal Referee

Logical Methods in Computer Science (LMCS '25)

Program Committee Member

2nd Workshop on the Theory and Practice of Static Analysis (TPSA @ POPL'26)

Sub-Reviewer

16th International Symposium on Games, Automata, Logics, and Formal Verification (GandALF '25)

Sub-Reviewer

41st Conference on Mathematical Foundations of Programming Semantics (MFPS '25)

Sub-Reviewer

52nd EATCS International Colloquium on Automata, Languages, and Programming (ICALP '25)

Journal Referee

ACM Transactions on Computational Logic (ToCL '25)

Program Committee Member

1st Workshop on the Theory and Practice of Static Analysis (TPSA @ 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 (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

Organizer

2nd Workshop on Theory and Practice of Static Analysis (TPSA), POPL'26

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

PhD Admissions Committee

Fall 2022, 2024

Cornell Department of Computer Science

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

Reading Group Organizer

Spring 2022

Cornell Great Works in PL Reading Group

Reviewer for Graduate Pre-application Feedback Program

Fall 2021

Cornell Department of Computer Science

Student Volunteer

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

ADVISING AND MENTORING

Hanxi Chen. Oblivious Probabilistic Concurrent Outcome Logic.

Cornell University, Doctor of Philosophy (PhD), Computer Science, May 2031 (expected).

Emmanuel Suárez Acevedo. Logics for Probabilistic Liveness.

Cornell Tech, Doctor of Philosophy (PhD), Computer Science, May 2030 (expected).

James Li. Total Outcome Logic.

Cornell University, Master of Science (MS), Computer Science, August 2025. Now at Northeastern.

Sean Wang. Formal Verification of Outcome Logic in Coq.

Cornell University, Master of Engineering (MEng), Computer Science, May 2024. Now at Princeton.

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. Now at Palantir.