

Alaia Solko-Breslin

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AGH 642, 3333 Chestnut St \diamond Philadelphia, PA 19104

EDUCATION

University of Pennsylvania

Fall 2022 - Present

Ph.D. in Computer and Information Science

Advisor: [Rajeev Alur](#)

Cornell University

Fall 2021 - Spring 2022

M.Eng. in Computer Science

GPA: 4.08

Cornell University

Fall 2018 - Spring 2021

B.S. in Computer Science

Minor in Applied Mathematics

GPA: 3.81

RESEARCH INTERESTS

My research interests span machine learning, programming languages, and formal methods. My current research focuses on 1) scalable neurosymbolic learning algorithms and 2) using neurosymbolic programming to improve the correctness of LLM-generated code and ML predictions for clinical forecasting.

PUBLICATIONS

* denotes equal contribution

In Preparation

- *KardiaLM: A Foundation Model for ECG Comprehension*
Seewon Choi*, Mayank Keoliya*, **Alaia Solko-Breslin***, Neelay Velingker*, Alireza Oraii, Rajat Deo, Sameed Ahmed M. Khatana, Rajeev Alur, Mayur Naik, Eric Wong.
2025

Refereed Conference Publications

- *CTSketch: Compositional Tensor Sketching for Scalable Neurosymbolic Learning*
Seewon Choi*, **Alaia Solko-Breslin***, Rajeev Alur, Eric Wong.
NeurIPS 2025
- *Understanding the Effectiveness of Large Language Models in Detecting Security Vulnerabilities*
Avishree Khare*, Saikat Dutta*, Ziyang Li, **Alaia Solko-Breslin**, Rajeev Alur, Mayur Naik.
ICST 2025
- *Data-Efficient Learning with Neural Programs*
Alaia Solko-Breslin, Seewon Choi, Ziyang Li, Neelay Velingker, Rajeev Alur, Mayur Naik, Eric Wong.
NeurIPS 2024
- *Automata Learning with an Incomplete Teacher*
Mark Moeller, Thomas Wiener, **Alaia Solko-Breslin**, Caleb Koch, Nate Foster, Alexandra Silva.
ECOOP 2023
- *Petr4: Formal Foundations for P4 Data Planes*
Ryan Doenges, Mina Tahmasbi Arashloo, Santiago Bautista, Alexander Chang, Newton Ni, Samwise Parkinson, Rudy Peterson, **Alaia Solko-Breslin**, Amanda Xu, Nate Foster.
POPL 2021

WORK EXPERIENCE

Amazon Web Services

Spring 2025

Applied Scientist Intern

- Implemented a framework for automatically learning preconditions for AWS APIs, contributing to my team's overall goal of using automated reasoning to improve the trustworthiness of LLM-generated code. Advised by [Serdar Tasiran](#).

Amazon Web Services

Summer 2021

Software Development Engineer Intern

- Implemented an API that performs a deep health check of our authentication service.
- Implemented canaries that would continuously make requests to this health check and our service and report metrics.

Amazon Web Services

Summer 2020

Software Development Engineer Intern

- Designed and implemented an API that allows test fleets to obtain the posture that is necessary for them to reach services in Native AWS.

TEACHING

University of Pennsylvania

Teaching Assistant

- CIS 7000: Special Topics: Trustworthy Machine Learning Spring 2024
Instructors: [Rajeev Alur](#) and [Osbert Bastani](#)
- CIS 5000: Software Foundations Fall 2023
Instructor: [Benjamin Pierce](#)
Lectures taught: "Induction and data structures"

Cornell University

Teaching Assistant

- CS 4160/5160: Formal Verification Spring 2022
Instructor: [Michael Clarkson](#)
- CS 3110: Data Structures and Functional Programming Fall 2021
Instructor: [Michael Clarkson](#)
- CS 4820: Introduction to Analysis of Algorithms Spring 2021
Instructor: [Robert Kleinberg](#)
- CS 4820: Introduction to Analysis of Algorithms Fall 2020
Instructor: [Dexter Kozen](#)
- CS 3110: Data Structures and Functional Programming Spring 2020
Instructor: [Nate Foster](#)
- CS 3110: Data Structures and Functional Programming Fall 2019
Instructor: [Michael Clarkson](#)

AWARDS

AWS-AI ASSET Fellow

2024

Funding to support research on safe, explainable, and trustworthy AI-enabled systems.

John Grist Brainerd Doctoral Fellowship (UPenn)

2022

SERVICE

NeurIPS Reviewer	2025
PLDI Student Volunteer	2023

LEADERSHIP AND MENTORSHIP

CISDA Co-President	Fall 2024 - Present
CIS Mentorship Program Mentor	Fall 2023 - Present
CIS Mentorship Program Volunteer	Fall 2023 - Present
CIS TGIF Event Coordinator	Summer 2023 - Summer 2024
CIS Office Committee Member	Summer 2023 - Summer 2024

TRAVEL FUNDING

Summer School on Formal Techniques Funding	2023
Programming Languages Mentoring Workshop at PLDI Funding	2022

TECHNICAL SKILLS

Programming Languages	Python, Java, OCaml, Rust, Rocq, Ruby, Racket, Dafny, C
Tools	Pytorch, Git, L ^A T _E X, Z3