# Alaia Solko-Breslin

alaia@seas.upenn.edu ◇ alaiasolkobreslin.github.io
AGH 642, 3333 Chestnut St ◇ 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) trustworthy machine learning for healthcare applications. My goal is to use scalable neurosymbolic learning algorithms to apply medical domain knowledge to the problems of predicting sepsis and cardiac arrest.

## PUBLICATIONS

### Under Review

· *CTSketch: Compositional Tensor Sketching for Scalable Neurosymbolic Learning* 2025
Seewon Choi*, **Alaia Solko-Breslin***, Rajeev Alur, Eric Wong.

### Refereed Publications

· *Evaluating the Effectiveness of Large Language Models in Detecting Security Vulnerabilities* [pdf] ICST 2025
Avishree Khare*, Saikat Dutta*, Ziyang Li, **Alaia Solko-Breslin**, Rajeev Alur, Mayur Naik.

· *Data-Efficient Learning with Neural Programs* [pdf] NeurIPS 2024
**Alaia Solko-Breslin**, Seewon Choi, Ziyang Li, Neelay Velingker, Rajeev Alur, Mayur Naik, Eric Wong.

· *Automata Learning with an Incomplete Teacher* [pdf] ECOOP 2023
Mark Moeller, Thomas Wiener, **Alaia Solko-Breslin**, Caleb Koch, Nate Foster, Alexandra Silva.

· *Petr4: Formal Foundations for P4 Data Planes* [pdf] POPL 2021
Ryan Doenges, Mina Tahmasbi Arashloo, Santiago Bautista, Alexander Chang, Newton Ni, Samwise Parkinson, Rudy Peterson, **Alaia Solko-Breslin**, Amanda Xu, Nate Foster.

## WORK EXPERIENCE

**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

**PLDI Student Volunteer** June 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, LaTeX |

## REFERENCES

**Rajeev Alur**
Professor
University of Pennsylvania, Department of Computer and Information Science
alur@seas.upenn.edu