

Zhengyao Lin

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Education

Carnegie Mellon University
Ph.D. in Computer Science
Advisor: Bryan Parno

Pittsburgh, PA, USA
Aug. 2022 - Present

University of Illinois at Urbana-Champaign
B.S. in Mathematics and Computer Science (with Highest Distinction)
GPA: 3.98/4.0

Champaign, IL, USA
Aug. 2018 - May. 2022

Publications

- [1] **Zhengyao Lin**, Joshua Gancher, Bryan Parno. FlowCert: Translation Validation for Asynchronous Dataflow via Dynamic Fractional Permissions. *Proceedings of the ACM on Programming Languages (OOPSLA 2024)*, October, 2024. <https://doi.org/10.1145/3689729>
- [2] **Zhengyao Lin**, Xiaohong Chen, Minh-Thai Trinh, John Wang, and Grigore Roşu. Generating Proof Certificates for a Language-Agnostic Deductive Program Verifier. *Proceedings of the ACM on Programming Languages (OOPSLA 2023)*, October, 2023. <https://doi.org/10.1145/3586029>
- [3] Paul Krogmeier*, **Zhengyao Lin***, Adithya Murali*, and P. Madhusudan. Synthesizing Axiomatizations using Logic Learning. *Proceedings of the ACM on Programming Languages (OOPSLA 2022)*, December 2022. <https://doi.org/10.1145/3563348>
- [4] Xiaohong Chen, **Zhengyao Lin**, Minh-Thai Trinh, and Grigore Roşu. Towards a Trustworthy Semantics-Based Language Framework via Proof Generation. *Proceedings of the 33rd International Conference on Computer-Aided Verification (CAV 2021)*, July 2021. https://doi.org/10.1007/978-3-030-81688-9_23
- [5] Theodoros Kasampalis, Daejun Park, **Zhengyao Lin**, Vikram Adve, and Grigore Roşu. Language-Parametric Compiler Validation with Application to LLVM. *Proceedings of the 26th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2021)*, April 2021. <https://doi.org/10.1145/3445814.3446751>

Research Experience

- Carnegie Mellon University**, Research Assistant Nov. 2022 - Present
Working with Prof. Bryan Parno to build software and hardware verification tools for CGRA architectures.
- Intel Labs**, Research Intern Jun. 2023 - Aug. 2023
Verification of a pass in a compiler for fully homomorphic encryption.
- University of Illinois**, Research Assistant Jun. 2021 - Aug. 2022
Worked with Prof. Madhusudan Parthasarathy on lemma and axiom synthesis for first-order logic with least fixpoints and modal logics.
- Formal Systems Lab at UIUC**, Research Assistant Aug. 2020 - Aug. 2022
Worked with Xiaohong Chen and Prof. Grigore Roşu on generating proof objects for the \mathbb{K} framework.
- LLVM Group at UIUC**, Research Assistant Jan. 2020 - Aug. 2021
Worked with Prof. Vikram Adve on translation validation of LLVM backend passes.
- Illinois Geometry Lab at UIUC**, Research Assistant Aug. 2020 - Dec. 2020
Exploring Büchi-automatic fractals and implementing a decision procedure for Presburger arithmetic with quadratic irrational coefficients.

Teaching Experience

TA for 15-330 Introduction to Computer Security at CMU	Aug. 2024 - Dec. 2024
TA for CS 426 Compiler Construction at UIUC	Aug. 2021 - Dec. 2021
TA for CS 473 Algorithms at UIUC	Jan. 2020 - May. 2020
TA for CS 241 System Programming at UIUC	Jan. 2019 - May. 2020

Professional and Volunteering Experience

CAV 2021 , Student Volunteer	Jul. 2021
At the 33rd International Conference on Computer-Aided Verification.	
Runtime Verification , Software Engineering Intern	Jun. 2021 - Aug. 2021
Worked on matching logic proof objects for deductive program verification in \mathbb{K} .	
Facebook , Software Engineering Intern, Reliability Team	May. 2020 - Aug. 2020
Developed templating tools for an error monitoring system.	
Runtime Verification , Software Engineering Intern	Nov. 2019 - Dec. 2019
Prototyped an interface for verification of ERC20 contracts using the \mathbb{K} framework.	
Cloudflare , Software Engineering Intern	May. 2019 - Aug. 2019
Developed and shipped a customer-facing origin server monitoring product.	

Awards

Bronze Tablet Award (UIUC, top 3% in the graduating class)	May. 2022
CRA Outstanding Undergraduate Researcher Award, Honorable Mention	Jan. 2022
Most Outstanding Major Award in Mathematics and Computer Science (UIUC)	Feb. 2020
Dean's List (UIUC)	2018 - 2021