

# Liyi Li

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## Education

### University of Illinois at Urbana-Champaign

Champaign, IL

Degree: PHD, Computer Science

Graduation Date: Fall 2020

Programming Language in Compiler Verification

### University of Illinois at Urbana-Champaign

Champaign, IL

Degree: Master of Science, Computer Science

Graduation Date: Spring 2014

### University of Illinois at Urbana-Champaign

Champaign, IL

Degree: Bachelor of Science, Computer Science

Graduation Date: Spring 2012

### Case Western Reserve University

Cleveland, OH

Degree: Bachelor of Science, Computer Science

Spring 2009 – Spring 2010

## Work Experience

### Iowa State CS Department

Ames, IA

Assistant Professor

August 2023 – Present

### UMD CS Department

College Park, MD

Victor Basili Postdoc

November 2020 – August 2023

## Teaching

- Instructor: Principles of Programming Languages, Com S 342, ISU, Spring '24
- Instructor: Quantum Information and Complexity, Com S 434x, ISU, Fall '23
- Instructor: Programming Language Technologies and Paradigms, CMSC 433, UMD, Fall '22
- Instructor: Programming Language Technologies and Paradigms, CMSC 433, UMD, Spring '22

## Service

- SPIN 2022: PC Member
- OOPSLA 2023: Extended Review and Artifact Evaluation Committee Member
- PLDI 2023: External Reviewer.
- PeerJ Computer Science Journal Reviewer
- OOPSLA 2024 PC Member
- PPlanQC 2025 PC Member
- PLDI 2025 PC Member

## Award

- UIUC University Honor 2012 (Bronze Tablet)
- 2019 Spring Outstanding Teaching Assistant Award
- 2020 UMD Victor Basili Postdoc

## Research Funding

- OSI2435255: NQVL:QSTD:Pilot: Quantum Blueprint: Optimizing Analog Pathways in Diverse Scientific Realms (Q-BLUE), 12/24-11/25, \$1M, Co-PI (Phase I of a 10M funding for 7 year)
- CCF2422127: Collaborative Research: FMitF: Track I: JIVe: Just in Time Verification for High Performance Compilers, 09/24-08/27, \$640K, PI

## Journal Publication

- Liyi Li, Mingwei Zhu, Rance Cleaveland, Alexander Nicoletti, Yi Lee, Le Chang, Xiaodi Wu, Qafny: A Quantum-Program Verifier, ECOOP, 2024
- **Liyi Li**, Yiyun Liu, Deena Postol, Leonidas Lampropoulos, David Van Horn, Michael Hicks, A Formal Model of Checked C, Journal of Computer Security, vol. 31, no. 5, pp. 581-614, 2023
- Yuxiang Peng, Kesha Hietala, Runzhou Tao, **Liyi Li**, Robert Rand, Michael Hicks, Xiaodi Wu, A Formally Certified End-to-End Implementation of Shor's Factorization Algorithm, PNAS journal, 2023
- Kesha Hietala, Robert Rand, **Liyi Li**, Shih-Han Hung, Xiaodi Wu, Michael Hicks, A Verified Optimizer for Quantum Circuits, TOPLAS journal, 2023

## Conference Publication

- Finn Voichick, **Liyi Li**, Robert Rand, Michael Hicks, Qunity: A Unified Language for Quantum and Classical Computing, POPL 2023
- **Liyi Li**, Yiyun Liu, Deena Postol, Leonidas Lampropoulos, David Van Horn, Michael Hicks, A Formal Model of Checked C, CSF 2022
- **Liyi Li**, Finn Voichick, Kesha Hietala, Yuxiang Peng, Xiaodi Wu, Michael Hicks, Verified Compilation of Quantum Oracles, OOPSLA 2022
- Kesha Hietala, Robert Rand, Shih-Han Hung, **Liyi Li**, Michael Hicks, Proving Quantum Programs Correct, ITP 2021
- **Liyi Li**, Elsa L. Gunter, [https://dl.acm.org/doi/abs/10.1007/978-3-030-85315-0\\_10](https://dl.acm.org/doi/abs/10.1007/978-3-030-85315-0_10), ICTAC 2021
- **Liyi Li**, Elsa L. Gunter, Per-Location Simulation, NFM 2020
- **Liyi Li**, Elsa L. Gunter, K-LLVM: A Relatively Complete Semantics of LLVM IR, ECOOP 2020
- **Liyi Li**, Elsa L. Gunter, IsaK-Static: A Complete Static Semantics of K, FACS 2018
- **Liyi Li**, Elsa L. Gunter, William Mansky. Symbolic Analysis Tools for CSP, ICTAC 2014

## Workshop Publication

- Kesha Hietala, **Liyi Li**, Akshaj Gaur, Aaron Green, Robert Rand, Xiaodi Wu, Michael Hicks, Expanding the VOQC Toolkit, PPlanQC 2021
- **Liyi Li**, Elsa L. Gunter, A method to translate order-sorted algebras to many-sorted algebras, WPTE 201