

Yiqi Zhao

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2211 South Budlong Avenue, Los Angeles, CA, 90007, USA

EDUCATION

University of Southern California

PhD Student in Computer Science

Los Angeles, USA

2023/08 - Present

- GPA: 4.0/4.0
- Supervisors: [Prof. Jyotirmoy V. Deshmukh](#); [Prof. Lars Lindemann](#)
- Viterbi School of Engineering Fellowship

Vanderbilt University

Bachelor of Science, Magna Cum Laude

Nashville, USA

2020/08 - 2023/05

- GPA: 3.935/4.0
- Majors: Honors in Computer Science; Mathematics
- Minors: Electrical Engineering; Data Science
- Dean's List; Good Standing

RESEARCH INTERESTS

Formal Methods, Cyber Physical System, Systems and Control Theory, Mathematical Optimization

CONFERENCE PAPERS

[c3] Anand Balakrishnan, Rohit Bernard, Shreeram Narayanan, Vidisha Kudalkar, **Yiqi Zhao**, Parinitha Nagaraja, Georgi Markov, Christof Budnik, Helmut Degen, Lars Lindemann, Jyotirmoy V. Deshmukh. "Safety Assurance for Autonomous Systems with Multiple Sensor Modalities". **The 22nd ACM-IEEE International Symposium on Formal Methods and Models for System Design (MEMOCODE)**, Raleigh, USA. 2024. [\[paper\]](#)

[c2] **Yiqi Zhao**, Bardh Hoxha, Georgios Fainekos, Jyotirmoy V. Deshmukh, and Lars Lindemann. "Robust Conformal Prediction for STL Runtime Verification under Distribution Shift". **The 15th ACM/IEEE International Conference on Cyber-Physical Systems**, Hong Kong, China. 2024. **Best Paper Award Finalist**. [\[paper\]](#) [\[codes\]](#)

[c1] **Yiqi Zhao**, Ziyang An, Xuqing Gao, Ayan Mukhopadhyay, Meiyi Ma. "Fairguard: Harness Logic-based Fairness Rules in Smart Cities". **The 8th ACM/IEEE Conference on Internet of Things Design and Implementation**, San Antonio, USA. 2023. [\[paper\]](#)

PREPRINTS

[p4] Lars Lindemann, **Yiqi Zhao**, Xinyi Yu, George J. Pappas, Jyotirmoy V. Deshmukh. "Formal Verification and Control with Conformal Prediction". *Arxiv*, 2024. *Currently under review in IEEE Control Systems Magazine*, 2024. [\[paper\]](#)

[p3] **Yiqi Zhao***, Xinyi Yu*, Jyotirmoy V. Deshmukh, and Lars Lindemann. "Conformal Predictive Programming for Chance Constrained Optimization". *Arxiv*, 2024. [\[paper\]](#) [\[codes\]](#) (* indicates equal contribution.)

[p2] Xinyi Yu, **Yiqi Zhao**, Xiang Yin, and Lars Lindemann. "Signal Temporal Logic Control Synthesis among Uncontrollable Dynamic Agents with Conformal Prediction". *Arxiv*, 2024. *Currently under review in Automatica*, 2024. [\[paper\]](#) [\[codes\]](#)

[p1] **Yiqi Zhao**, Ziyang An, Meiyi Ma, and Taylor Johnson. "EduSAT: A Pedagogical Tool for Theory and Applications of Boolean Satisfiability". *Arxiv*, 2023. [\[paper\]](#) [\[tool\]](#)

IN SUBMISSION

[s2] **Yiqi Zhao**, Emily Zhu, Bardh Hoxha, Georgios Fainekos, Jyotirmoy V. Deshmukh, Lars Lindemann. "Distributionally Robust Predictive Runtime Verification under Spatio-Temporal Logic Specifications". *Currently under review in ACM Transactions on Cyber-physical Systems*, 2024.

[s1] Xinyi Yu*, **Yiqi Zhao***, Xiang Yin, and Lars Lindemann, STL-GO: Spatio-Temporal Logic with Graph Operators for Distributed Systems with Multiple Network Topologies. (* indicates equal contribution.) *Currently under review*, 2024.

RESEARCH EXPERIENCE

VIDA Lab, SAIDS Lab, University of Southern California

Los Angeles, USA

PhD Student, Advisors: [Jyotirmoy. V. Deshmukh](#), [Prof. Lars Lindemann](#)

2023/08 - Present

- Conformal Predictive Programming (CPP)
 - Proposed an algorithm for Chance Constrained Optimization (CCO) Problems via incorporating the recent developments of Conformal Prediction.
- Robust STL Runtime Verification
 - Introduced Runtime Verification with Signal Temporal Logic (STL) using Conformal Prediction in instances of distribution shift from training to testing environment.

Meiyi Ma's Group, Vanderbilt University

Nashville, USA

Research Assistant, Advisor: [Meiyi Ma](#)

2021/11 - 2023/08

- Fairguard for Smart City
 - Introduced Fairguard, a micro-level temporal logic-based approach for fair smart city design in complex temporal-spatial domains.

BAGL Lab, Vanderbilt Institute for Surgery and Engineering

Nashville, USA

Summer Fellow, Advisor: [Jack Noble](#)

2021/06 - 2021/08

- Ultrasound Image Processing with Machine Learning Techniques
 - Studied and practiced Image Segmentation Techniques with an existing U-Net Architecture.
 - Focused on data preprocessing, cross validation, and outcome evaluations, etc.

WORK/TEACHING EXPERIENCE

Research Assistant, University of Southern California

Los Angeles, USA

Affiliation: *University of Southern California*

2024/08 - Current

- PhD Research and assistantship in advisors' research.

Grader of CS 4260 (Artificial Intelligence), Vanderbilt University

Nashville, USA

Advisors: [Meiyi Ma](#), [Daniel Moyer](#)

2022/08 - 2023/05

- Graded students' homework and exams and held TA office hours regularly.

Application Development Intern, ADP

Roseland, USA

Affiliation: *Global Product & Tech (GPT) group*

2022/06 - 2022/08

- Developed the Notification Replay API for the Autopay Group through an Agile Environment.

SELECTED HONORS

ICCPs Best Paper Award Finalist

May, 2024

Awarded at the 15th ACM/IEEE International Conference on Cyber-Physical Systems for the paper "Robust Conformal Prediction for STL Runtime Verification under Distribution Shift".

Viterbi School of Engineering Fellowship

Aug, 2023

Awarded for selected incoming PhD students at Viterbi School of Engineering, USC.

WISE Award (Vanderbilt Institute for Surgery and Engineering Summer Fellowship)

2021

Awarded for the paid fellowship at the Vanderbilt Institute for Surgery and Engineering Summer Fellows Program.

ACADEMIC SERVICES

Reviews for Computing, HSCC 2024 (Repeatability Evaluation), ACC 2024, VMCAI 2024, CDC 2024, ICLR 2025, AISTATS 2025.

Organizer: I organized a reading group on Formal Methods for Control and Autonomous Systems at USC.

SELECTED TALKS

The 15th ACM/IEEE International Conference on Cyber-Physical Systems

05/16/2024

The 43rd Southern California Control Workshop (with Xinyi Yu)

04/19/2024

The 8th ACM/IEEE Conference on Internet of Things Design and Implementation

May 2023

SKILLS

Programming Languages

Python, Javascript, C++, C, MATLAB, Java.
Mandarin Chinese (native), English