

# 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. [\[paper\]](#)

## IN SUBMISSION (\* INDICATES EQUAL CONTRIBUTION.)

[s5] Xinyi Yu\*, **Yiqi Zhao\***, Jyotirmoy V. Deshmukh, and Lars Lindemann. "STL-GO: Spatio-Temporal Logic with Graph Operators for Distributed Systems with Multiple Network Topologies". *Currently under review in Hybrid Systems: Computation and Control*, 2025.

[s4] 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*. [\[paper\]](#) [\[codes\]](#)

[s3] 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*. [\[paper\]](#)

[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*.

[s1] Ziyang An, **Yiqi Zhao**, Xuqing Gao, Ayan Mukhopadhyay, Meiyi Ma. "Formal Logic-Guided Harnessing Heterogeneous Fairness Rules in Smart Cities". *Currently under review in ACM Transactions on Cyber-physical Systems*.

## PREPRINTS (\* INDICATES EQUAL CONTRIBUTION.)

[p2] **Yiqi Zhao\***, Xinyi Yu\*, Jyotirmoy V. Deshmukh, and Lars Lindemann. "Conformal Predictive Programming for Chance Constrained Optimization". *Arxiv*, 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]

## 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

- Stochastic Optimization
  - Conducting research in chance constrained optimization
- Runtime and Multiagent Verification
  - Conducting Research in runtime and multiagent verification with STL and STREL and worked on proposing multiagent logic specifications.

**Meiyi Ma's Group, Vanderbilt University** Nashville, USA  
*Research Assistant, Advisor: Meiyi Ma* 2021/11 - 2023/08

- 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 group* 2022/06 - 2022/08

- Developed a Notification Replay API for the Autopay Group.

## 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 Con-formal 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, HSCC 2025, HSCC 2025 (Repeatability Evaluation).

**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