

# Yiqi Zhao

✉ [yiqizhao@usc.edu](mailto:yiqizhao@usc.edu) 🏠 [zhaoy37.github.io](https://zhaoy37.github.io) 🎓 [Google scholar](#)  
2211 South Budlong Avenue, Los Angeles, CA, 90007, USA

## EDUCATION

<b>University of Southern California</b> <i>PhD Student in Computer Science</i> <ul style="list-style-type: none"><li>• GPA: 4.0/4.0</li><li>• Supervisors: <a href="#">Prof. Jyotirmoy V. Deshmukh</a>; <a href="#">Prof. Lars Lindemann</a></li><li>• Viterbi School of Engineering Fellowship</li></ul>	Los Angeles, USA 2023/08 - Present
<b>Vanderbilt University</b> <i>Bachelor of Science, Magna Cum Laude</i> <ul style="list-style-type: none"><li>• GPA: 3.935/4.0</li><li>• Majors: Honors in Computer Science; Mathematics</li><li>• Minors: Electrical Engineering; Data Science</li><li>• Dean's List; Good Standing</li></ul>	Nashville, USA 2020/08 - 2023/05

## RESEARCH INTERESTS

Formal Methods, Cyber Physical System, Systems and Control Theory, Robotics

## JOURNAL PAPERS

[j1] Ziyang An, **Yiqi Zhao**, Xuqing Gao, Ayan Mukhopadhyay, Meiyi Ma. "Formal Logic-Guided Harnessing Heterogeneous Fairness Rules in Smart Cities". *ACM Transactions on Cyber-physical Systems*.

## 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.)

- [s4] Xinyi Yu\*, **Yiqi Zhao**\*, Bardh Hoxha, Georgios Fainekos, Jyotirmoy V. Deshmukh, and Lars Lindemann. "STL-GO: Spatio-Temporal Logic with Graph Operators for Distributed Systems with Multiple Network Topologies". *Currently under review*.
- [s3] 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](#)]
- [s2] 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](#)]
- [s1] **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*. [[paper](#)] [[codes](#)]

## 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

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**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

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**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

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**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

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**Journal Reviews** for Computing, NAHS

**Conference Reviews** for ACC 2024, VMCAI 2024, CDC 2024, ICLR 2025, AISTATS 2025, HSCC 2025, L4DC 2025, ICCPS 2025, NEUS 2025, MECC 2025.

**Conference PC Member and Reviews** for HSCC 2024 (Repeatability Evaluation), HSCC 2025 (Repeatability Evaluation), ICCPS 2025 (Posters and Demos).

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

## SELECTED TALKS

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The 15th ACM/IEEE International Conference on Cyber-Physical Systems  
The 43rd Southern California Control Workshop (with Xinyi Yu)  
The 8th ACM/IEEE Conference on Internet of Things Design and Implementation

05/16/2024  
04/19/2024  
May 2023

## SKILLS

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<b>Programming Languages</b>	Python, Javascript, C++, C, MATLAB, Java, SQL. Mandarin Chinese (native), English
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