Yiqi Zhao

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EDUCATION

University of Southern California — Los Angeles, USA
PhD Student in Computer Science — *2023/08 - Present*
- GPA: 4.0/4.0
- Supervisors: *Prof. Jyotirmoy V. Deshmukh*; *Prof. Yue Wang*
- Viterbi School of Engineering Fellowship

University of Southern California — Los Angeles, USA
Master of Science in Computer Science — *2023/08 - 2025/08*
- GPA: 4.0/4.0

Vanderbilt University — Nashville, USA
Bachelor of Science, Magna Cum Laude — *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

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

JOURNAL PAPERS (* INDICATES EQUAL CONTRIBUTION.)

[j4] **Yiqi Zhao***, Xinyi Yu*, 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". *ACM Transactions on Embedded Computing Systems* - to be presented at *the ACM SIGBED International Conference on Embeddeed Software (EMSOFT 2025, ESWEEK)*, Taipei, 2025. [paper]

[j3] Xinyi Yu, **Yiqi Zhao**, Xiang Yin, and Lars Lindemann. "Signal Temporal Logic Control Synthesis among Uncontrollable Dynamic Agents with Conformal Prediction". *Automatica*. 2025. [paper] [codes] (**Regular Paper.**)

[j2] **Yiqi Zhao**, Emily Zhu, Bardh Hoxha, Georgios Fainekos, Jyotirmoy V. Deshmukh, Lars Lindemann. "Distributionally Robust Predictive Runtime Verification under Spatio-Temporal Logic Specifications". *ACM Transactions on Cyber-physical Systems.* 2025. [paper] [codes]

[j1] Ziyan 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.* 2025. [paper]

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**, Ziyan 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.)

[s2] **Yiqi Zhao***, Xinyi Yu*, Matteo Sesia, Jyotirmoy V. Deshmukh, and Lars Lindemann. "Conformal Predictive Programming for Chance Constrained Optimization". *Arxiv, 2025. Currently under review in Automatica.* [paper] [codes]

[s1] 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] [tutorial]

PREPRINTS

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

NON-AUTHORSHIP ACKNOWLEDGED CONTRIBUTIONS

[o2] Junyang Cai, Weimin Huang, Jyotirmoy V. Deshmukh, Lars Lindemann, Bistra Dilkina. "Neuro-Symbolic Acceleration of MILP Motion Planning with Temporal Logic and Chance Constraints". *Arxiv, 2025.* [paper] (Acknowledged for the help.)

[o1] Hanwen Liu, Shashank Giridhara, Ibrahim Sabek. "Conformal Prediction for Verifiable Learned Query Optimization". *Arxiv, 2025.* [paper] (Acknowledged for the support.)

WORK/TEACHING EXPERIENCE

Research and Development Intern, **Toyota Research Institute of North America** — Ann Arbor, USA
Focus: Cyber-Physical Systems — 2025/05 - 2025/08
- Worked on Cyber-Physical Systems Research at the Future Research Department.

Research Assistant, **University of Southern California** — Los Angeles, USA
Affiliation: University of Southern California — 2024/08 - 2025/05, 2025/05 - Now
- 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 API(s) 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 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.

VISE 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

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, ICRA 2026, AISTATS 2026.

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

Tutorial on Formal Verification and Control with Conformal Prediction at the CPS-IoT Week 2025 [homepage]. — *05/06/2025*

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