# 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. Lars Lindemann*
- Viterbi School of Engineering Fellowship

**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

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

## PREPRINTS

[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, 2023.* [paper] [codes]

[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]

## CONFERENCE PAPERS

[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. [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]

## 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 policy adjustment and generation 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 EXPERIENCE

**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

**Viterbi School of Engineering Fellowship** *Aug. 2023*
**VISE Award** (Vanderbilt Institute for Surgery and Engineering Summer Fellowship) *2021*

## SERVICES

**Reviews:** Reviewer for Computing, HSCC 2024 (Repeatability Evaluation), ACC 2024, VMCAI 2024, CDC 2024.

**Organizer:** I organized a reading group on Formal methods and safe learning-enabled components at USC.

## SKILLS

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|---|---|
| **Programming** | Python, Javascript, C++, C, MATLAB, Java. |
| **Languages** | Mandarin Chinese (native), English |