



# Yuan Xia

## AI & LLM

### Research Scientist



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## Education

University of Southern California

Ph.D., Computer Science, GPA: 3.95/4.0

Los Angeles, CA

08/2020-05/2026

University of California, Irvine

B.S., Computer Science with *Honors degree*, GPA: 3.91/4.0

Irvine, CA

09/2017- 12/2019

## Publications

Yuan Xia, Akanksha Atrey, Fadoua Khmaissia, Kedar S. Namjoshi. *Can Large Language Models Learn Formal Logic? A Data-Driven Training and Evaluation Framework*, AAAI Conference on Artificial Intelligence (AAAI under review), 2025.

Yuan Xia, Aabha Pingle, Deepayan Sur, Jyotirmoy Deshmukh, Mukund Raghothaman, Srivatsan Ravi. *Guiding Likely Invariant Synthesis on Distributed Systems with Large Language Models*, Formal Methods in Computer-Aided Design (FMCAD), 2025.

Yuan Xia, Aabha Pingle, Deepayan Sur, Jyotirmoy Deshmukh, Mukund Raghothaman, Srivatsan Ravi. *LLM-guided Predicate Discovery and Data Augmentation for Learning Likely Program Invariants*, ACM/SIGAPP Symposium On Applied Computing (SAC), 2025

Yuan Xia, Deepayan Sur, Aabha Shailesh Pingle, Jyotirmoy V. Deshmukh, Mukund Raghothaman, Srivatsan Ravi. *Discovering Likely Invariants and Anomalies in Distributed Systems through Runtime Monitoring and Learning*, International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI), 2025,

Sara Mohammadinejad, Sheryl Paul, Yuan Xia, Vidisha Kudalkar, Jesse Thomason and Jyotirmoy V. Deshmukh. *Systematic Translation from Natural Language Robot Task Descriptions to STL*, AISOLA 2024.

Xin Qin, YuanXia, Aditya Zutshi, Chuchu Fan, Jyotirmoy V. Deshmukh. Statistical Verification using *Surrogate Models and Conformal Inference and a Comparison with Risk-aware Verification*, Transactions on Cyber-Physical Systems (TCPS), 2023.

Xin Qin, Yuan Xia, Aditya Zutshi, Chuchu Fan, Jyotirmoy V. Deshmukh. *Statistical Verification of Cyber-Physical Systems using Surrogate Models and Conformal Inference*, ACM/IEEE International Conference on Cyber-Physical Systems (ICCPs), 2022.

Joshua Garcia, Yang Feng, Junjie Shen, Sumaya Almanee, Yuan Xia, and Qi Alfred Chen. *A Comprehensive Study of Autonomous Vehicle Bugs*, International Conference on Software Engineering (ICSE), 2020.

## Teaching Experience

University of Southern California

Teaching Assistant, Algorithm

Spring, 2025

Los Angeles, CA

University of Southern California

Teaching Assistant, Autonomous Driving System

Fall, 2025

Los Angeles, CA

University of California, Irvine

Teaching Assistant, Programming

Spring, 2018

Irvine, CA

## Mentoring Experience

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<b>Mentee: Aabha Shailesh Pingle (apingle@usc.edu)</b> <i>USC CS Graduate Student &amp; Software Engineer, Amazon</i>	<b>2023 - 2025</b> <i>Los Angeles, CA</i>
<b>Mentee: Deepayan Sur (deepayan@usc.edu)</b> <i>USC CS Graduate Student &amp; Startup</i>	<b>2023 - 2025</b> <i>Los Angeles, CA</i>
<b>Mentee: Asmaa Hassan Ahmed Hassan (hassanas@usc.edu)</b> <i>Second-year Master Student, Computer Science, University of Southern California</i>	<b>Jan, 2025 - Present</b> <i>Los Angeles,, CA</i>

## Grant Writing Experience

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<b>Capital One Fellow</b> <i>Proposal for Capital One Center for Responsible AI Decision Making in Finance</i>	<b>June, 2025</b>
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## Honors And Awards

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<b>CREDIF Grant</b>	<b>June, 2025</b>
<b>Capital One Fellow</b>	<b>June, 2025</b>
<b>Amazon Research Award</b>	<b>June, 2025</b>
<b>ACM Student Travel Award</b>	<b>March, 2025</b>
<b>Honors Degree at UC, Irvine (top 5% tier),</b>	<b>June, 2019</b>

## Services

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<b>Reviewer at Runtime Verification,</b>	<b>2025</b>
<b>Reviewer at IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI),</b>	<b>2025</b>
<b>Reviewer at Journal of X-Ray Science and Technology</b>	<b>2025</b>
<b>Reviewer at IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI),</b>	<b>2024</b>
<b>Subreviewer at ICAA, VMCAI,</b>	<b>2024</b>

## Research Experience

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<b>Applied Scientist Intern</b> <i>Office, Microsoft</i>	<b>June 2025 – Present</b> <i>Redmond, WA</i>
<b>Research Intern</b> <i>Bell Labs, NOKIA</i>	<b>May 2024 – May 2025</b> <i>Muray Hill, NJ</i>
<b>Research Assistant</b> <i>CPS-VIDA LAB, USC</i>	<b>June 2025 – Present</b> <i>Los Angeles, CA</i>
<b>Research Assistant</b> <i>UC, Irvine</i>	<b>June 2019 – Dec 2019</b> <i>Irvine, CA</i>

## Internship Experience

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<b>Applied Scientist Intern</b> <i>Office, Microsoft</i>	<b>June 2025 – Present</b> <i>Redmond, WA</i>
<ul style="list-style-type: none"><li>Core contributor to improve Copilot Agent performance in formatting and connect with multiple platforms to build up the Word formatting training pipeline and the multi-modality LLM agentic workflow.</li><li>Skills: GPT, Copilot, CoT, SFT, In-context Learning, Agent, Multi-modality, 2000K Data Annotation, Quality evaluation,</li></ul>	
<b>Machine Learning Research Intern</b> <i>Bell Labs, NOKIA</i>	<b>May 2024 – May 2025</b> <i>Muray Hill, NJ</i>
<ul style="list-style-type: none"><li>Collaborated with the head of software system research and other senior researchers on paper publication and patent filing.</li><li>Skills: HuggingFace, LLaMa, LangChain, RLHF, GRPO, PPO, DPO, CoT, Finetuning.</li></ul>	