

Chenxi Yang

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Education

The University of Texas at Austin

PhD in Computer Science, Advisor: [Swarat Chaudhuri](#)

Aug 2019 – Mar 2025 (expected)

Austin, TX

Fudan University

BSc in Computer Science (Honor Program), Advisor: [Prof. Yang Chen](#)

Sep 2015 – Jul 2019

Shanghai

Expertise

- **Programming Languages:** Python, C/C++, SQL, Java, Javascript, ACL2
- **Machine Learning:** PyTorch, TensorFlow, PyTorch Lightning, Keras, Scikit-Learn, Numpy, Pandas
- **Technical:** Algorithms & Data Structures, ML Systems (Software & Hardware), Artificial Intelligence, RL, Formal Verification

Work Experience

Google

PhD Intern, [System Research Group](#) (Hosts: *Yawen Wang*, *Martin Maas*)

May 2024 – Aug 2024, Seattle, WA

- Designed and implemented **the first lightweight Tensor Processing Unit (TPU) scheduling simulator** supporting various existing TPU scheduling algorithms. The simulator automates ML job scheduling and enables exploration of TPU design spaces.
- Designed a **job-lifetime-aware ML algorithm** to enhance TPU chip scheduling with improved bin packing efficiency and a **50% TPU utilization increase** on production workloads. Implemented with 10k lines of Python code.

Student Researcher, Storage Analytics Team (Hosts: *Yan Li*, *Mustafa Uysal*, *Martin Maas*)

May 2023 – Jan 2024, Sunnyvale, CA

- Designed and implemented a storage tiering solution for high I/O-density workloads in Google's planet-scale storage system.
- Achieved a **2.48x** total cost savings compared to existing solutions – estimated to save \$12 million upon full deployment.
- The solution is being **rolled out to production**. Implemented with 20k lines of Python code.
- Paper: **A Practical Cross-Layer Approach for ML-Driven Storage Placement in Warehouse-Scale Computers**. *C. Yang, Y. Li, M. Maas, M. Uysal, U. Hafeez, A. Merchant, R. McDougall*. Under Review.

Goldman Sachs

Summer Analyst, Engineering (Host: *Gang Wang*)

Jun 2018 – Aug 2018, Hong Kong

- Built a workload generation tool simulating trading orders through OSI layers to test ultra-low-latency trading gateway.
- The tool identified > 5 critical bugs during the trading system development phase.

Selected Projects

Certifiably Performant, Safe, and Robust ML Systems, Project lead

Jul 2020 – Sep 2024, UT-Austin

• Certified Learning for Networked Systems.

C. Yang, D. Saxena, R. Dwivedula, K. Mahajan, S. Chaudhuri, A. Akella. Under Review.

- ▶ Designed and implemented the first ML-driven congestion control systems integrating learning with formal certification.
- ▶ Achieved a **78%** delay reduction and improved worst-case satisfaction with formal performance and robustness properties.

• Safe Neurosymbolic Learning with Differentiable Symbolic Execution [[Paper](#)]

C. Yang, S. Chaudhuri. ICLR 2022.

- ▶ Created an approach for end-to-end, worst-case-safe learning in neural networks within symbolic programs.
- ▶ Integrated symbolic execution and stochastic gradient estimators, reducing unsafe scenarios by **5x** in autonomous driving.

• Certifiably Robust Reinforcement Learning (RL) through Model-Based Abstract Interpretation. [[Paper](#)]

C. Yang, G. Anderson, S. Chaudhuri. SaTML 2024.

- ▶ Developed a certifiable adversarially robust RL framework, combining model-based learning and abstract interpretation, validated through control benchmarks.

Edge Server DNN Video Processing Acceleration, Project contributor

Aug 2019 – Jun 2020, UT-Austin

- Developed a batching-aware algorithm to enhance edge DNN request scheduling and enable collaborative DNN executions.
- Achieved **400%** reduction in completion time. Increased on-time ratio by **22%** compared over Earliest Deadline First batching.
- Paper: **Adaptive Scheduling for Edge-Assisted DNN Serving**. [[Paper](#)] *J. He, C. Yang, Z. He, G. Baig, L. Qiu*. MASS 2023.

For a complete list of my publications, please visit [my website](#) and [my Google Scholar profile](#).