Curriculum Vitae

Yuancheng Xu
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Education

University of Maryland, College Park
Ph.D. student in Applied Mathematics & Statistics, and Scientific Computation *2020-2025 (expected)*
Advisor: Prof. Furong Huang (Computer Science)

Southern University of Science and Technology, China *2016-2020*
B.S. in Mathematics and Applied Mathematics
GPA 3.94/4.00 (1/909)
Summa Cum Laude (1%)

New York University *Spring, 2019*
Visiting Student at the Courant Institute of Mathematical Sciences

Research Interests

My research focuses on **Trustworthy Machine Learning**, including adversarial robustness, fairness, and alignment of AI systems. I am also interested in understanding and enriching the reasoning and planning capabilities of machine learning systems.

Publications and Preprints

1. **Yuancheng Xu**, Jiarui Yao, Manli Shu, Yanchao Sun, Zichu Wu, Ning Yu, Tom Goldstein, Furong Huang. " Shadowcast: Stealthy Data Poisoning Attacks Against Vision-Language Models". *Preprint*, 2024.

2. **Yuancheng Xu**, Chenghao Deng, Yanchao Sun, Ruijie Zheng, Xiyao Wang, Jieyu Zhao, Furong Huang. "Adapting Static Fairness to Sequential Decision-Making: Bias Mitigation Strategies towards Equal Long-term Benefit Rate". In *International Conference on Machine Learning (ICML)*, 2024.

3. Bang An, Mucong Ding, Tahseen Rabbani, Aakriti Agrawal, **Yuancheng Xu**, Chenghao Deng, Sicheng Zhu, Abdirisak Mohamed, Yuxin Wen, Tom Goldstein, Furong Huang. "Benchmarking the Robustness of Image Watermarks". In *International Conference on Machine Learning (ICML)*, 2024.

4. Xiyao Wang, Yuhang Zhou, Xiaoyu Liu, Hongjin Lu, **Yuancheng Xu**, Feihong He, Jaehong Yoon, Taixi Lu, Gedas Bertasius, Mohit Bansal, Huaxiu Yao, Furong Huang. "Mementos: A Comprehensive Benchmark for Multimodal Large Language Model Reasoning over Image Sequences". In *Association for Computational Linguistics (ACL)*, 2024.

5. Mucong Ding, Bang An, **Yuancheng Xu**, Anirudh Satheesh, Furong Huang. "SAFLEX: Self-Adaptive Augmentation via Feature Label Extrapolation". In *International Conference on Learning Representations (ICLR)*, 2024.

6. Xiaoyu Liu, Jiaxin Yuan, Bang An, **Yuancheng Xu**, Yifan Yang, Furong Huang. "C-Disentanglement: Discovering Causally-Independent Generative Factors under an Inductive Bias of Confounder". In *Neural Information Processing Systems (NeurIPS)*, 2023.

7. **Yuancheng Xu**, Yanchao Sun, Micah Goldblum, Tom Goldstein, Furong Huang. "Exploring and Exploiting Decision Boundary Dynamics for Adversarial Robustness". In *International Conference on Learning Representations (ICLR)*, 2023.

8. **Yuancheng Xu**, Yanchao Sun, and Furong Huang. "Everyone Matters: Customizing the Dynamics of Decision Boundary for Adversarial Robustness". In *International Conference on Machine Learning (ICML) Workshop on Continuous Time Perspectives in Machine Learning*, 2022.

9. **Yuancheng Xu**, Athanasse Zafirov, R. Michael Alvarez, Dan Kojis, Min Tan, and Christina M. Ramirez. "FREEtree: a Tree-Based Approach for High Dimensional Longitudinal Data with Correlated Features". *Preprint*, 2020.

Research Experience

- **Research Assistant** University of Maryland, College Park

Ph.D. Advisor: Prof. Furong Huang (Computer Science) *June 2020 - 2025 (on-going)*

  - Trustworthy machine learning

- **Machine Learning Research Intern** Comcast Applied AI, Washington D.C.

Advisor: Dr. Mahmudul Hasan *June – Sept 2023*

  - Scene-text understanding via vision-language models

- **Research Intern** University of California, Los Angeles

Cross-disciplinary Scholars in Science and Technology (CSST) Program *May – Sept 2019*

Advisor: Prof. Christina Ramirez (Biostatistics)

  - Tree-based Methods for Longitudinal Analysis

- **Research Intern** New York University

Undergraduate Research program *May – Sept 2018*

Advisor: Prof. Sukbin Lim (Neuroscience)

  - Computational Mechanisms for Working Memory

Awards

Dean's fellowship, University of Maryland, College Park 2020,2021
Summa Cum Laude at Southern University of Science and Technology (10/1000) 2020

China National Scholarship (0.2%, Highest honor of Chinese undergraduate students) 2019
National Mathematical Olympiad (National Second Prize) 2015