

YIHUA ZHANG

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EDUCATION

Michigan State University, East Lansing, USA 2022 - Present

Ph.D. Candidate in Computer Science and Engineering

- **Advisor:** [Dr. Sijia Liu](#)
- **Ph.D. Committee:** [Dr. Anil K. Jain](#), [Dr. Xiaoming Liu](#), [Dr. Kush R. Varshney](#)
- **Research Focus:** Trustworthy Machine Learning, Efficient Machine Learning

Huazhong University of Science and Technology, Wuhan, China 2015 - 2019

B.Sc. in Automation, [Qiming Honor College of HUST](#)

HONORS

- **IBM PhD Fellowship 2024** (\$40,000, 24 recipients selected worldwide) 2025
- **Fitch H. Beach Award** (\$2,000, highest honor for MSU Ph.D. students) 2025
- **CPAL Rising Star Award** (15 recipients selected worldwide) 2025
- **MLCommons Rising Star Award** (41 recipients selected worldwide) 2024
- **UAI 2022 Best Paper Runner-up Award** 2022
- CVPR Outstanding Reviewer Award x2 2023 & 2024
- NeurIPS Top Reviewer Award x2 2022 & 2023
- NeurIPS Scholar Award x2 2022 & 2023
- AACL Travel Grant Award 2023
- ICML Travel Grant Award 2022
- UAI Student Scholarship Award 2022
- National Scholarship (Top 0.2%; highest undergraduate honor in China) 2017
- National Scholarship (Top 0.2%; highest undergraduate honor in China) 2016

INTERN EXPERIENCE

Meta AI, Full-Time, Sunnyvale, USA May 2025 - Present

Research Scientist Intern at [Jiyan Yang's team](#), worked with [Mingfu Liang](#) and [Xi Liu](#)

Project: Prototyping and Scalable Training of Next-Generation Multi-Modal Ads Ranking Foundation Model;

- Prototyping industry-level next-generation ranking foundation model with multi-modality data;
- Designing SOTA modality fusion algorithms for more than 5 modalities;
- Verifying designs with training on large-scale distributed system (32 nodes w/ 256xA100);
- Efficient training (triton-acceleration), debugging, and monitoring (GPU diagnosis).

Meta AI, Part-Time, Remote Sep. 2024 - May 2025

Research Scientist Intern at [Jiyan Yang's team](#), worked with [Mingfu Liang](#) and [Xi Liu](#)

Paper: ReasonRec: A Reasoning-Augmented Multimodal Agent for Unified Recommendation

- Developed the first multimodal VLM agent with explicit reasoning and uncertainty-aware planning;
- Build the first VLM-based multi-task recommender system;
- Improve HR@5/NDCG@5 by **30%+** over SOTA baselines;
- Demonstrated that SFT + augmented data rivals RL in VLM.

Cisco Research, Part-Time & Full-Time, Remote Dec. 2023 - Aug. 2024

Research Scientist Intern at [Ramana Rao Kompella's team](#), Mentor: [Gaowen Liu](#)

Project: Machine Unlearning for Foundation Models (MoE-LLMs, Diffusion Models)

- [Paper 1](#): UnlearnCanvas: Stylized Image Dataset for Enhanced Machine Unlearning Evaluation in Diffusion Models (NeurIPS'24)
- [Paper 2](#): SEUF: Is Unlearning One Expert Enough for Mixture-of-Experts LLMs? (ACL'25 Main)

[Amazon AWS AI Lab](#), Full-Time Seattle, USA

May. 2023 - Aug. 2023

Applied Scientist Intern at [Just Walk Out](#)'s Team, worked with [Tian Lan](#) and [Zhou Ren](#).

Project: In-context learning for Diffusion Models

- Designed novel training algorithms to enable diffusion models to perform in-context adaptation, a capability traditionally limited to autoregressive models
- Pioneered one of the first approaches to **task-generalizable diffusion models**, achieving robust performance on unseen downstream tasks without fine-tuning

PUBLICATIONS

Yihua Zhang has published over 20 papers in top-tier machine learning and computer vision venues (e.g., *NeurIPS*, *ICML*, *ICLR*, *CVPR*, *ICCV*, *ECCV*, *ACL*), including more than 10 first-author publications. His Google Scholar citation count tops up to 1368 as of June 30, 2025 (* indicates equal contribution).

[\[ACL'25\]](#) **Y. Zhang***, H. Zhuang*, K. Guo, J. Jia, G. Liu, S. Liu, X. Zhang, “SEUF: Is Unlearning One Expert Enough for Mixture-of-Experts LLMs?”, The 63rd Annual Meeting of the Association for Computational Linguistics Main Conference, 2025.

[\[ICML'25W\]](#) **Y. Zhang***, X. Liu, X. Zeng, M. Liang, J. Yang, R. Jin, W.-Y. Chen, Y. Han, B. Long, H. Li, B. Zhang, L. Luo, S. Liu, T. Chen, “ReasonRec: A Reasoning-Augmented Multimodal Agent for Unified Recommendation”, Forty-Second International Conference on Machine Learning, 2025.

[\[CVPR'25\]](#) **Y. Zhang***, H. Wang*, R. Bai, Y. Zhao, S. Liu, Z. Tu, “Edit Away and My Face Will not Stay: Personal Biometric Defense against Malicious Generative Editing”, The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025.

[\[CPAL'25\]](#) **Y. Zhang**, H. Li, Y. Yao, A. Chen, P.-Y. Chen, S. Zhang, M. Wang, S. Liu, “Visual Prompting Reimagined: The Power of Activation Prompts”, Conference on Parsimony and Learning, 2025.

[\[NeurIPS'24\]](#) **Y. Zhang**, C. Fan, Y. Zhang, Y. Yao, J. Jia, G. Zhang, G. Liu, R. Kompella, X. Liu, S. Liu, “UnlearnCanvas: A Stylized Image Dataset to Benchmark Machine Unlearning for Diffusion Models and Beyond”, The Thirty-Eighth Annual Conference on Neural Information Processing Systems, 2024.

[\[IEEE SP\]](#) **Y. Zhang**, P. Khanduri, I. Tsaknakis, Y. Zhang, M. Hong, S. Liu, “An Introduction to Bi-level Optimization: Foundations and Applications in Signal Processing and Machine Learning”, IEEE Signal Processing Magazine 2024.

[\[ICCV'23\]](#) **Y. Zhang**, R. Cai, T. Chen, G. Zhang, P.-Y. Chen, H. Zhang, S. Chang, W. Zhang, S. Liu, “Robust Mixture-of-Expert Training for Convolutional Neural Networks”, 2023 International Conference on Computer Vision, **Oral (1.7% of 8620 submissions)**.

[\[NeurIPS'22\]](#) **Y. Zhang**, Y. Yao, P. Ram, P. Zhao, T. Chen, M. Hong, Y. Wang, S. Liu, “Advancing Model Pruning via Bi-level Optimization”, The Thirty-Sixth Annual Conference on Neural Information Processing Systems, 2022.

[\[ICML'22\]](#) **Y. Zhang**, G. Zhang, P. Khanduri, M. Hong, S. Chang, S. Liu, “Fast-BAT: Revisiting and Advancing Fast Adversarial Training through the Lens of Bi-level Optimization”, The Thirty-Ninth International Conference on Machine Learning, 2022.

- [ICML'24] **Y. Zhang**, P. Li, J. Hong, J. Li, Y. Zhang, W. Zheng, P.-Y. Chen, J. Lee, W. Yin, M. Hong, Z. Wang, S. Liu, T. Chen, “*Revisiting Zeroth-Order Optimization for Memory-Efficient LLM Fine-Tuning: A Benchmark*”, The 63rd Annual Meeting of the Association for Computational Linguistics, 2025.
- [NeurIPS'23] **Y. Zhang**, Y. Zhang, A. Chen, J. Jia, J. Liu, G. Liu, S. Chang, M. Hong, S. Liu, “*Selectivity Drives Productivity: Efficient Dataset Pruning for Enhanced Transfer Learning*”, the Thirty-Seventh Annual Conference on Neural Information Processing Systems, 2023.
- [CVPR'22] **Y. Zhang***, T. Chen*, Z. Zhang*, S. Chang, S. Liu, Z. Wang, “*Quarantine: Sparsity Can Uncover the Trojan Attack Trigger for Free*”, 2022 Conference on Computer Vision and Pattern Recognition.
- [ICCV'25] Y. Sun, **Y. Zhang**, G. Liu, H. Xie, S. Liu, “*Invisible Watermarks, Visible Gains: Steering Machine Unlearning with Bi-Level Watermarking Design*”, International Conference on Computer Vision, 2025.
- [ICML'25] C. Fan, J. Jia, **Y. Zhang**, A. Ramakrishna, M. Hong, S. Liu, “*Towards LLM Unlearning Resilient to Relearning Attacks: A Sharpness-Aware Minimization Perspective and Beyond*”, Forty-Second International Conference on Machine Learning, 2025.
- [ICML'25] C. Wang, Y. Zhang, J. Jia, P. Ram, D. Wei, Y. Yao, S. Pal, N. Baracaldo, S. Liu, “*Invariance Makes LLM Unlearning Resilient Even to Unanticipated Downstream Fine-Tuning*”, Forty-Second International Conference on Machine Learning, 2025.
- [ICLR'25] H. Li, **Y. Zhang**, S. Zhang, M. Wang, S. Liu, P.-Y. Chen, “*When is Task Vector Provably Effective for Model Editing? A Generalization Analysis of Nonlinear Transformers*”, The Thirteenth International Conference on Learning Representations, 2025. **Oral, 1.8% of 11,603 submissions.**
- [AAAI'25] C. Jin, T. Huang, **Y. Zhang**, M. Pechenizkiy, S. Liu, S. Liu, T. Chen, “*Visual Prompting Upgrades Neural Network Sparsification: A Data-Model Perspective*”, The 39th Annual AAAI Conference on Artificial Intelligence, 2025.
- [EMNLP'24] J. Jia, **Y. Zhang**, Y. Zhang, J. Liu, B. Runwal, J. Diffenderfer, B. Kailkhura, S. Liu, “*SOUL: Unlocking the Power of Second-Order Optimization for LLM Unlearning*”, The 2024 Conference on Empirical Methods in Natural Language Processing.
- [NeurIPS'24] J. Jia, J. Liu, **Y. Zhang**, P. Ram, N. Baracaldo, S. Liu, “*WAGLE: Strategic Weight Attribution for Effective and Modular Unlearning in Large Language Models*”, The Thirty-Eighth Annual Conference on Neural Information Processing Systems, 2024.
- [NeurIPS'24] Y. Zhang, X. Chen, J. Jia, **Y. Zhang**, C. Fan, J. Liu, M. Hong, K. Ding, S. Liu, “*Defensive Unlearning with Adversarial Training for Robust Concept Erasure in Diffusion Models*”, The Thirty-Eighth Annual Conference on Neural Information Processing Systems, 2024.
- [ECCV'24] Y. Zhang, J. Jia, X. Chen, A. Chen, **Y. Zhang**, J. Liu, K. Ding, S. Liu, “*To Generate or Not? Safety-Driven Unlearned Diffusion Models Are Still Easy To Generate Unsafe Images ... For Now*”, European Conference on Computer Vision, 2024.
- [ICLR'24] C. Fan, J. Liu, **Y. Zhang**, E. Wong, D. Wei, S. Liu, “*Salun: Empowering Machine Unlearning via Gradient-based Weight Saliency in Both Image Classification and Generation*”, The Twelfth International Conference on Learning Representations, 2024. **Spotlight, 5% of 7262 submissions.**
- [ICLR'24] A. Chen, **Y. Zhang**, J. Jia, J. Diffenderfer, J. Liu, K. Parasyris, Y. Zhang, Z. Zhang, B. Kailkhura, S. Liu, “*DeepZero: Scaling up Zeroth-Order Optimization for Deep Model Training*”, The Twelfth International Conference on Learning Representations, 2024.

- [IEEE TSP] H. Li, S. Zhang, **Y. Zhang**, M. Wang, S. Liu, P.-Y. Chen,, “How Does Promoting the Minority Fraction Affect Generalization? A Theoretical Study of One-Hidden-Layer Network on Group Imbalance”, IEEE Journal of Selected Topics in Signal Processing, 2024.
- [CVPR’23] A. Chen, Y. Yao, P.-Y. Chen, **Y. Zhang**, S. Liu, “Understanding and Improving Visual Prompting: A Label-Mapping Perspective”, The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023.
- [CVPR’23] H. Zhuang, **Y. Zhang**, S. Liu, “A Pilot Study of Query-Free Adversarial Attack against Stable Diffusion”, The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023.
- [UAI’22] G. Zhang, S. Lu, **Y. Zhang**, X. Chen, P.-Y. Chen, Q. Fan, L. Martie, M. Hong, S. Liu, “Distributed Adversarial Training to Robustify Deep Neural Networks at Scale”, The 38th Conference on Uncertainty in Artificial Intelligence, 2022. **Best Paper Runner-Up Award.**

COMMUNITY SERVICES

Tutorial Speaker:

- [AAAI’24] Zeroth-Order Machine Learning: Fundamental Principles and Emerging Applications in Foundation Models
- [AAAI’23] Bi-level Optimization in Machine Learning: Foundations and Applications

Conference Volunteer: AAAI’23, ICLR’23

Conference Reviewer: ICLR, NeurIPS, ICML, CVPR, ICCV, ECCV, AISTATS

Journal Reviewer: JMLR, IEEE TPAMI, IEEE T-IFS, TMLR

Workshop Student Chair: New Frontiers in Adversarial Machine Learning [ICML’22], [ICML’23], [NeurIPS’24].

MENTEES

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| • Yuhao Sun (Undergraduate@USTC) — [ICCV’25] | May. 2024 - Aug. 2024 |
| • Hanhui Wang (Master@USC) — [CVPR’25] | May. 2024 - Oct. 2024 |
| • Chongyu Fan (Undergraduate@HUST, PhD@MSU) — [ICLR’24 Spotlight] | May. 2023 - Aug. 2024 |
| • Haomin Zhuang (PhD@Notre Dame) — [CVPRW’23], [ACL’25 Main] | Dec. 2022 - Aug. 2024 |
| • Can Jin (Undergraduate@USTC, PhD@Rutgers) — [AAAI’25] | Aug. 2023 - Dec. 2023 |
| • Aochuan Chen (Undergraduate@THU, PhD@HKUST) — [CVPR’23], [ICLR’24] | Oct. 2022 - Oct. 2023 |

GRANT/FUNDING EXPERIENCE

Cisco Research Award (\$75,000): “Towards LifeLong LMM Agents in Embodied AI” 2024-2025
PI: Dr. Sijia Liu.

Role: Co-Proposal Writer

NAIRR Pilot Resource Awards (\$20,000): “Enhancing Large Language Model Unlearning across the Lifecycle” 2024-2025

PI: Dr. Sijia Liu.

Role: Co-Proposal Writer