Xiaoxuan Wang

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Education:

University of California, Los Angeles
Ph.D. of Computer Science
Advisor: Wei Wang
Sept. 2022 – Present

University of Illinois Urbana-Champaign
B.S. of Computer Science in Grainger Engineering College
Minor in Mathematics | James Scholar Honor | Dean List
August, 2018 – May, 2022

Publications:

- **From Solving to Verifying: A Unified Objective for Robust Reasoning in LLMs**
  Xiaoxuan Wang, Bo Liu, Song Jiang, Jingzhou Liu, Jingyuan Qi, Xia Chen, Baosheng He
  Preprint, 2025
- **MatSciBench: Benchmarking the Reasoning Ability of Large Language Models in Materials Science**
  Junkai Zhang, Jingru Gan, **Xiaoxuan Wang**, Zian Jia, Changquan Gu, Jianpeng Chen, Yanqiao Zhu, Mingyu Derek Ma, Dawei Zhou, Ling Li, Wei Wang
  Preprint, 2025
- **EAST: Entropy-Based Adaptive Weighting for Self-Training**
  Xiaoxuan Wang, Yihe Deng, Mingyu Derek Ma, Wei Wang
  Submit to ARR, 2025
- **SciBench: Evaluating College-Level Scientific Problem-Solving Abilities of Large Language Model**
  Xiaoxuan Wang*, Ziniu Hu*, Pan Lu*, Yanqiao Zhu*, Jieyu Zhang, Satyen Subramaniam, Arjun R. Loomba, Shichang Zhang, Yizhou Sun, Wei Wang
  ICML 2024
  Media Covered by Nature News Feature
- **CliBench: Multifaceted Evaluation of Large Language Models in Clinical Decisions on Diagnoses, Procedures, Lab Tests Orders and Prescriptions**
  Mingyu Derek Ma, Chenchen Ye, Yu Yan, **Xiaoxuan Wang**, Peipei Ping, Timothy S Chang, Wei Wang
  Preprint, 2024
- **Memorize and Rank: Evaluating Large Language Models For Clinical Diagnosis Prediction**
  Mingyu Derek Ma, **Xiaoxuan Wang**, Yijia Xiao, Anthony Cuturrufo, Wei Wang
  AAAI, 2025 and NeurIPS GenAI4Health, 2024

- **STAR: Boosting Low-Resource Event Extraction by Structure-to-Text Data Generation with Large Language Models**
  Mingyu Derek Ma, **Xiaoxuan Wang**, Po-Nien Kung, P. Jeffrey Brantingham, Nanyun Peng, Wei Wang
  AAAI 2024
- **Learning under Label Proportions for Text Classification**
  Jatin Chauhan, **Xiaoxuan Wang**, Wei Wang
  EMNLP-Findings 2023
- **Global Responses to the COVID-19 Pandemic: A Case Study of Spatiotemporal Evidence Finding and Verification**
  Rotem Dror, **Xiaoxuan Wang**, Dan Roth
  Preprint, 2022
- **Seamless Equal Accuracy Ratio for Inclusive CTC Speech Recognition**
  Heting Gao, **Xiaoxuan Wang**, Sunghun Kang, Rusty Mina, Dias Issa, John Harvill, Leda Sari, Mark Hasegawa-Johnson, Chang D. Yoo
  Speech Communication 2022

Ongoing Project:

An Empirical Analysis and Design Principle for Building Agentic LLMs.

Leading a research project on agentic large language models, developing principled training and inference recipes across diverse tasks, including mathematical reasoning, web shopping, embodied AI, games, code generation, and search. Building a unified and extensible pipeline supporting 16+ policy optimization algorithms, with extensions to asynchronous agent training. Conducting extensive empirical analyses of training performance, scalability, and system efficiency, including cross-hardware comparisons across NVIDIA and AMD GPU platforms.

Internship Experience:

- **Meta Platforms, Inc.**
  Research Intern (AI) (*Summer 2025)*
  Developed and implemented GRPO-Verif, a novel reinforcement learning algorithm that jointly optimizes solution generation and self-verification capabilities in large language models (LLMs) within a unified loss function. The approach addresses the critical challenge of enhancing LLMs' ability to verify their own reasoning traces while maintaining robust reasoning performance. Conducted extensive experiments demonstrating that the method successfully improves self-verification capabilities while preserving comparable performance in reasoning tasks, with adjustable hyperparameters to control the weight of verification signals in the training process.
- **Amazon Development Center U.S., Inc.**
  Applied Scientist Intern (*Summer 2024)*
  Implemented and evaluated various Reinforcement Learning Human Feedback (RLHF) methods, such as REST-EM, Iterative DPO and its variants to determine the most effective approach for integrating tools in problem-solving capabilities of Large Language Models (LLMs). Iterative experiment demonstrating that REST-EM exhibits greater sensitivity to data quality and quantity compared to online preference optimization methods. Observed that self-generated answers may introduce noise, and applying regularization loss mitigates algorithmic overfitting and improves search tool utilization, verifying the effects of chosen log probability.