Xintong Li

Ph.D. Student @ CS, UC, San Diego

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Education

University of California, San Diego

Ph.D. in Computer Science — *Sep 2023 - Present*

Advised by Prof. Jingbo Shang;

University of Wisconsin, Madison

B.S. in Computer Science & Data Science; — *Sep 2019 - May 2023*

Distinctive Scholastic Achievement; **GPA: 3.94/4**

Research Interests

LLM Reasoning • *Weak Supervision* • *Multimodal*

My research focuses on efficient machine learning, with particular interest in LLM reasoning, multimodal optimization, and weak supervision. I am currently working on balancing different modalities in multimodal instruction tuning to improve model accuracy and efficiency. Additionally, I aim to enhance model reasoning and persona capabilities through data-efficient methods. I am always eager to broaden the scope of machine learning methods toward the long tail of under-studied application fields.

Papers & Pre-prints

∗ Equal Contribution

[6] OCEAN: Offline Chain-of-thought Evaluation and Alignment in Large Language Models
Junda Wu, Xintong Li, Ruoyu Wang, Yu Xia, Yuxin Xiong, Jianing Wang, Tong Yu, Xiang Chen, Branislav Kveton, Lina Yao, Jingbo Shang, Julian McAuley
Preprint.

[5] Visual Prompting in Multimodal Large Language Models: A Survey
Junda Wu, Zhehao Zhang, Yu Xia, Xintong Li, Zhaoyang Xia, Aaron Chang, Tong Yu, Sungchul Kim, Ryan A Rossi, Ruiyi Zhang, Subrata Mitra, Dimitris N Metaxas, Lina Yao, Jingbo Shang, Julian McAuley
Preprint. arXiv:2409.15310

[4] CoMMIT: Coordinated Instruction Tuning for Multimodal Large Language Models
Junda Wu*, Xintong Li*, Tong Yu, Yu Wang, Xiang Chen, Jiuxiang Gu, Lina Yao, Jingbo Shang, Julian McAuley
Preprint. arXiv:2407.20454

[3] Open-world Multi-label Text Classification with Extremely Weak Supervision
Xintong Li, Jinya Jiang, Jayanth Srinivasa, Gaowen Liu, Jingbo Shang
*Conference on Empirical Methods in Natural Language Processing (**EMNLP**), 2024.*

[2] Escaping Label Subspaces via Label Geometry
Nicholas Roberts, Xintong Li, Dyah Adila, Sonia Cromp, Tzu-Heng Huang, Jitian Zhao, Frederic Sala
*Conference on Neural Information Processing Systems(**NeurIPS**), 2023.*

[1] AutoWS-Bench-101: Benchmarking Automated Weak Supervision with 100 Labels
Nicholas Roberts*, Xintong Li*,Tzu-Heng Huang, Dyah Adila, Spencer Schoenberg, Cheng-Yu Liu, Lauren Pick, Haotian Ma, Aws Albarghouthi, Frederic Sala
*Conference on Neural Information Processing Systems(**NeurIPS**), 2022.*

Professional Experience

Amazon, Alexa AI *Seattle, WA, USA*

Applied Scientist Intern *Jun 2024 – Sep 2024*

- Designed a multi-session conversation dataset with implicit reasoning to address complex QA tasks.
- Developed a memory-augmented framework that integrates all conversation history to enhance model persona and response accuracy.

University of California, San Diego *San Diego, CA, USA*

Graduate Student Researcher *(Advisor: Prof. Jingbo Shang)* *Sep 2023 – Present*

- Conducted research on efficient machine learning, including weak supervision, multimodal LLMs, and reinforcement learning.

University of Wisconsin, Madison *Madison, WI, USA*

Undergraduate Research Assistant *(Advisor: Prof. Jelena Diakonikolas)* *Feb 2022 – May 2023*

- Used potential function-based framework to study the convergence of adaptive gradient descent methods.
- Extended to non-convex and local smoothness case to search for better convergence rates.

University of Wisconsin, Madison *Madison, WI, USA*

Undergraduate Research Assistant *(Advisor: Prof. Frederic Sala)* *Dec 2020 – May 2023*

- Implemented plug-and-play combinations of feature representations and automatic label function generation and selection framework.
- Incorporated the geometric relationship of label spaces in order to learn in partially observed label spaces of extremely high cardinality.

Selected Honors & Awards

2023-2024	UCSD Jacob School of Engineering Fellowship
2022	NeurIPS Scholar Award
2022	Wisconsin Science and Computing Emerging Research Stars (exploreCSR award)
2020-2022	UW–Madison Dean's List

Leadership & Activities

Team Member *UW-Maidson*

Data Science Research Group *2021–2023*

Team Member *UW-Maidson*

UW-Madison Society of Women Engineers *2021 – 2022*

Team Member *UW-Maidson*

University Housing *2020*

Service & Technical Skills

Reviewer: NeurIPS (2024), ICLR (2025), AISTATS (2025)

Coursework: Machine Learning, Deep Learning, Nonlinear Optimization, Algorithm, Natural Language Processing, Web Mining and Recommender Systems, Probabilistic Reason and Learning

Tools: Python, Java, C, C++, R, Pytorch, TensorFlow, SQL, JavaScript, Docker