Bolian Li

PhD Candidate

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Education

PhD, Computer Science — *2022 – Present*
Purdue University — *West Lafayette, IN, USA*
Advisor: Ruqi Zhang

BE, Computer Science and Technology — *2018 – 2022*
Tianjin University — *Tianjin, China*
Advisor: Changqing Zhang
GPA: 3.8/4.0

Experiences

Amazon.com, Inc. — *May 2025 – Aug. 2025*
Applied Scientist Intern
Preference Alignment Generalization

University of Illinois Urbana-Champaign — *May 2021 – Nov. 2021*
Research Intern, working with Hanghang Tong
Graph Representation Learning

Institute of Computing Technology, Chinese Academy of Sciences — *Jan. 2021 – Feb. 2021*
Research Intern, working with Shuhui Wang
Video Object Detection

Research Interests

I am interested in building statistical frameworks to enhance the stability and efficiency of LLM post-training. Recently, I focus on the sampling process in RL frameworks. I am also broadly interested in preference alignment, (multimodal) LLM safety, and Bayesian deep learning.

Publications

Structure-R1: Dynamically Leveraging Structural Knowledge in LLM Reasoning through Reinforcement Learning
Preprint, under review
Junlin Wu, Xianrui Zhong, Jiashuo Sun, *Bolian Li*, Bowen Jin, Jiawei Han, Qingkai Zeng

DRIFT: Learning from Abundant User Dissatisfaction in Real-World Preference Learning
Preprint, under review
Yifan Wang, *Bolian Li*, Junlin Wu, Zhaoxuan Tan, Zheli Liu, Ruqi Zhang, Ananth Grama, Qingkai Zeng

From Personal to Collective: On the Role of Local and Global Memory in LLM Personalization
Preprint, under review
Zehong Wang, Junlin Wu, ZHaoxuan Tan, *Bolian Li*, Xianrui Zhong, Zheli Liu, Qingkai Zeng

Reward-Shifted Speculative Sampling Is An Efficient Test-Time Weak-to-Strong Aligner
Conference on Empirical Methods in Natural Language Processing (EMNLP 2025)
Bolian Li, Yanran Wu, Xinyu Luo, Ruqi Zhang

More is Less: The Pitfalls of Multi-Model Synthetic Preference Data in DPO Safety Alignment
Conference on Language Modeling (COLM 2025)
Yifan Wang, Runjin Chen, *Bolian Li*, David Cho, Yihe Deng, Ruqi Zhang, Tianlong Chen, Zhangyang Wang, Ananth Grama, Junyuan Hong

Cascade Reward Sampling for Efficient Decoding-Time Alignment
Conference on Language Modeling (COLM 2025)
*Bolian Li**, Yifan Wang*, Anamika Lochab*, Ananth Grama, Ruqi Zhang

Bayesian Computation in Deep Learning
MCMC Handbook
Wenlong Chen*, *Bolian Li**, Ruqi Zhang, Yingzhen Li

Stacey: Promoting Stochastic Steepest Descent via Accelerated ℓ_p-Smooth Nonconvex Optimization
International Conference on Machine Learning (ICML 2025)
Xinyu Luo*, Site Bai*, *Bolian Li**, Petros Drineas, Ruqi Zhang, Brian Bullins

Making Reliable and Flexible Decisions in Long-tailed Classification
Transactions on Machine Learning Research (TMLR)
Bolian Li, Ruqi Zhang

ETA: Evaluating Then Aligning Safety of Vision Language Models at Inference Time
International Conference on Learning Representations (ICLR 2025)
Yi Ding, *Bolian Li*, Ruqi Zhang

Entropy-MCMC: Sampling from Flat Basins with Ease
International Conference on Learning Representations (ICLR 2024)
Bolian Li, Ruqi Zhang

Long-tailed Classification from a Bayesian-decision-theory Perspective
Symposium on Advances in Approximate Bayesian Inference (AABI 2023)
Bolian Li, Ruqi Zhang

Trustworthy Long-tailed Classifications
The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022)
Bolian Li, Zongbo Han, Haining Li, Huazhu Fu, Changqing Zhang

Graph Communal Contrastive Learning
The Web Conference (WWW 2022), Oral Presentation
Bolian Li, Baoyu Jing, Hanghang Tong

Services

Reviewer	CVPR 2026; ICML 2025; NeurIPS 2024; ICLR 2025; AISTATS 2024, 2025; UAI 2024, 2025
Guest Lecturer	CS 57800 - Statistical Machine Learning
Teaching Assistant	CS 57800; CS 38003; CS 17600

Awards

Tan Xuguang Alumni Scholarship, *Tianjin University* *2020*
Tianjin University Vision Education Fund, *Tianjin University* *2019*