Xinyang Liu

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Education:

Xidian University, Xi'an, China 09/2021 ~ 06/2024
Master of Engineering in Information and Telecommunication Engineering
Main course: Matrix Theory, Stochastic Processes, Feature Learning,

Xidian University, Xi'an, China 09/2017 ~ 06/2021
Bachelor of Engineering in Electronic Information Engineering
Main course: Linear Algebra, Advanced Mathematics, Probability Theory and Mathematics Statistics, Data Structure and Algorithm Application

Experience:

Purdue University 09/2024~01/2025
Research Intern (remote, unpaid), advised by Prof. Ruqi Zhang

- Proposed an optimal stochastic trace estimator for variance reduction in generative modeling.
- Designed practical schemes that balance frequency and accuracy, backed by theoretical guarantees.
- Validated the method on multiple types of density modeling and provided theoretical error analysis in divergence-based likelihood training.
  (The paper was accepted at AISTATS 2025)

The University of Texas at Austin 05/2024~09/2024
Research Intern (remote, unpaid), advised by Prof. Mingyuan Zhou

- Proposed a novel graph generative model beta graph diffusion (GBD) that is capable of modeling both discrete and continuous feature effectively.
- Designed the concentration modulation method predefined with statistical properties of topologies in training set, leading a high-quality and stable graph generation.
- Evaluated GBD on widely used graph generation benchmarks and visualized the graph generative process with reverse multiplicative beta diffusion.
  (The paper was accepted at ICLR 2025)

Publications:

Core contributor (first or equal-first author):

[1] Optimal Stochastic Trace Estimation in Generative Modeling (*AISTATS 2025*)
Xinyang Liu, Hengrong Du, Wei Deng, Ruqi Zhang

[2] Advancing Graph Generation through Beta Diffusion (*ICLR 2025*)
Xinyang Liu, Yilin He, Bo Chen and Mingyuan Zhou

[3] Patch-Prompt Aligned Bayesian Prompt Tuning for Vision-Language Models (*UAI 2024*)
Xinyang Liu, Dongsheng Wang, Bowei, Fang, Miaoge Li, Zhibin Duan, Yishi Xu, Bo Chen and Mingyuan Zhou

[4] Zhibin Duan, **Xinyang Liu**, Yudi Su, Yishi Xu, Bo Chen and Mingyuan Zhou
Bayesian Progressive Deep Topic Model with Knowledge Informed Textual Data Coarsening Process (ICML 2023)

Others:

[5] Yishi Xu, Jianqiao Sun, Yudi Su, **Xinyang Liu**, Zhibin Duan, Bo Chen and Mingyuan Zhou
Context-guided Embedding Adaptation for Effective Topic Modeling in Low-Resource Regimes (*NeurIPS 2023*)

[6] Dongsheng Wang, Miaoge Li, **Xinyang Liu**, MingSheng Xu, Bo Chen and Hanwang Zhang
Tuning Multi-mode Token-level Prompt Alignment across Modalities (*NeurIPS 2023*)

[7] Miaoge Li, Dongsheng Wang, **Xinyang Liu**, Zequn Zeng, Ruiying Lu, Bo Chen and Mingyuan Zhou
PatchCT: Aligning Patch Set and Label Set with Conditional Transport for Multi-Label Image Classification (*ICCV 2023*)

Awards:

2023 The University-Level First-Class Graduate Scholarship
2022 The University-Level Second-Class Graduate Scholarship
2020 The University-Level Third-Class Scholarship
2018 The University-Level Individual Scholarship

Skills:

Languages: Chinese Mandarin (Native), English (TOEFL 90)
Research Abilities: Solid foundation in mathematics and statistics; Proficient in coding: Python, LaTeX