Zhiwei Tang

Email: zhiweitang1@link.cuhk.edu.cn Homepage: zhiweitang-ml.bio Date of Birth: December 5, 1998

EDUCATION

The Chinese University of Hong Kong, Shenzhen, China Sept 2020 – Present
PhD in Computer Science,
Sun Yat-sen University, Guangzhou, China Aug 2016 – July 2020
BS in Statistic

RESEARCH INTEREST

- Mathematical Optimization, especially first-order and zeroth-order optimization
- Generative Models, especially Diffusion Generative Models
- Vision AIGC

PUBLICATIONS AND PREPRINTS

1. **Zhiwei Tang**, Tsung-Hui Chang, Xiaojing Ye, Hongyuan Zha, "Low-rank Matrix Recovery With Unknown Correspondence" (**UAI 2023**) – *Solved a discrete optimization problem for matrix recovery via optimal transport*
2. Hao Wang, **Zhiwei Tang**, Shutao Zhang, Chao Shen, Tsung-Hui Chang, "Embracing Uncertainty: A Diffusion Generative Model of Spectrum Efficiency in 5G Networks" 2023 International Conference on Wireless Communications and Signal Processing – *Application of Diffusion Models in Wireless Communication*
3. **Zhiwei Tang**, Tsung-Hui Chang, "FedLion: Faster Adaptive Federated Optimization with Fewer Communication" (**ICASSP 2024**) – *Distributed optimization for training neural networks*
4. **Zhiwei Tang**, Yanmeng Wang, Tsung-Hui Chang, "z-SignFedAvg: A Unified Stochastic Sign-based Compression for Federated Learning" (**AAAI 2024**) – *Distributed optimization for training neural networks*
5. **Zhiwei Tang**, Dmitry Rybin, Tsung-Hui Chang, "Zeroth-Order Optimization Meets Human Feedback: Provable Learning via Ranking Oracles" (**ICLR 2024**) – *RLHF for Diffusion Models*
6. **Zhiwei Tang**, Jiasheng Tang, Hao Luo, Fan Wang, Tsung-Hui Chang, "Accelerating Parallel Sampling of Diffusion Models" (**ICML 2024**)– *Inference Acceleration for Diffusion Models*
7. **Zhiwei Tang**, Jiangweizhi Peng, Jiasheng Tang, Mingyi Hong, Fan Wang, Tsung-Hui Chang, "Tuning-Free Alignment of Diffusion Models with Direct Noise Optimization" **Preprint** – *A tuning-free approach for aligning diffusion generative models with downstream objectives such as improving human preference.*

INTERN EXPERIENCES

1. **Research Intern, Autonomous Driving Team, SenseTime Group** Oct 2019 – July 2020
   - Research on reinforcement learning for autonomous driving.
2. **Research Intern, Damo Academy, Alibaba Group** Oct 2023 – June 2024
   - Research on improving vision diffusion models.

VISITNG EXPERIENCES

University of Minnesota Twin Cities, USA. **Advisor:** Prof. Mingyi Hong July 2023 – Oct 2023

OPEN SOURCE PROJECT

- Optimizing Diffusion Models with Human Feedback
  https://github.com/TZW1998/Taming-Stable-Diffusion-with-Human-Ranking-Feedback **GitHub Stars: 194**