

RESEARCH INTEREST

My research focuses on developing principled machine learning algorithms using tools such as weak supervision and adversarial training. I am interested in natural language processing and point process.

EDUCATION

2019 - 2023	Georgia Institute of Technology Ph.D. in Machine Learning
2015 - 2019	The University of Texas at Austin B.S. in Computer Science (with Highest Honors) B.S. in Mathematics (with Highest Honors)

PUBLICATIONS

- **Efficient Long Sequence Modeling via State Space Augmented Transformer**
Simiao Zuo*, Xiaodong Liu*, Jian Jiao, Denis Charles, Eren Manavoglu, Tuo Zhao and Jianfeng Gao
In submission, 2023
- **DiP-GNN: Discriminative Pre-Training of Graph Neural Networks**
Simiao Zuo, Haoming Jiang, Qingyu Yin, Xianfeng Tang, Bing Yin and Tuo Zhao
In submission, 2023
- **Differentially Private Estimation of Hawkes Process**
Simiao Zuo, Tianyi Liu, Tuo Zhao and Hongyuan Zha
In submission, 2023
- **SMURF-THP: Score Matching-based Uncertainty quantification for Transformer Hawkes Process**
Zichong Li, Yanbo Xu, **Simiao Zuo**, Haoming Jiang, Tuo Zhao and Hongyuan Zha
International Conference on Machine Learning (ICML), 2023
- **Machine Learning Force Fields with Data Cost Aware Training**
Alexander Bukharin, Tianyi Liu, Shengjie Wang, **Simiao Zuo**, Weihao Gao, Wen Yan and Tuo Zhao
International Conference on Machine Learning (ICML), 2023
- **Less is More: Task-guided Layer-wise Distillation for Language Model Compression**
Chan Liang, **Simiao Zuo**, Qingru Zhang, Pengcheng He, Weizhu Chen and Tuo Zhao
International Conference on Machine Learning (ICML), 2023
- **Context-Aware Query Rewriting for Improving Users' Search Experience on E-commerce Websites**
Simiao Zuo, Qingyu Yin, Haoming Jiang, Shaohui Xi, Bing Yin, Chao Zhang and Tuo Zhao
Association for Computational Linguistics, Industry Track (ACL), 2023
- **PLATON: Pruning Large Transformer Models with Upper Confidence Bound of Weight Importance**
Qingru Zhang, **Simiao Zuo**, Chen Liang, Alexander Bukharin, Pengcheng He, Weizhu Chen and Tuo Zhao
International Conference on Machine Learning (ICML), 2022

- **MoEBERT: from BERT to Mixture-of-Experts via Importance-Guided Adaptation**
Simiao Zuo, Qingru Zhang, Chen Liang, Pengcheng He, Tuo Zhao and Weizhu Chen
North American Chapter of the Association for Computational Linguistics (NAACL), 2022
- **Self-Training with Differentiable Teacher**
Simiao Zuo*, Yue Yu*, Chen Liang, Haoming Jiang, Siawpeng Er, Chao Zhang, Tuo Zhao and Hongyuan Zha
Findings of North American Chapter of the Association for Computational Linguistics (NAACL), 2022
- **Adversarially Regularized Policy Learning Guided by Trajectory Optimization**
Zhigen Zhao, Simiao Zuo, Tuo Zhao and Ye Zhao
Annual Learning for Dynamics & Control Conference (L4DC), 2022
- **No Parameters Left Behind: Sensitivity Guided Adaptive Learning Rate for Training Large Neural Networks**
Chen Liang, Haoming Jiang, Simiao Zuo, Pengcheng He, Xiaodong Liu, Jianfeng Gao, Weizhu Chen and Tuo Zhao
International Conference on Learning Representations (ICLR), 2022
- **Taming Sparsely Activated Transformer with Stochastic Experts**
Simiao Zuo, Xiaodong Liu, Jian Jiao, Young Jin Kim, Hany Hassan, Ruofei Zhang, Tuo Zhao and Jianfeng Gao
International Conference on Learning Representations (ICLR), 2022
- **ARCH: Efficient Adversarial Regularized Training with Caching**
Simiao Zuo, Chen Liang, Haoming Jiang, Pengcheng He, Xiaodong Liu, Jianfeng Gao, Weizhu Chen and Tuo Zhao
Findings of Empirical Methods in Natural Language Processing (EMNLP), 2021
- **Adversarial Regularization as Stackelberg Game: An Unrolled Optimization Approach**
Simiao Zuo, Chen Liang, Haoming Jiang, Xiaodong Liu, Pengcheng He, Jianfeng Gao, Weizhu Chen and Tuo Zhao
Empirical Methods in Natural Language Processing (EMNLP), 2021
- **Super Tickets in Pre-Trained Language Models: From Model Compression to Improving Generalization**
Chen Liang, Simiao Zuo, Minshuo Chen, Haoming Jiang, Xiaodong Liu, Pengcheng He, Tuo Zhao and Weizhu Chen
Association for Computational Linguistics (ACL), 2021
- **Fine-Tuning Pre-trained Language Model with Weak Supervision: A Contrastive-Regularized Self-Training Approach**
Yue Yu*, Simiao Zuo*, Haoming Jiang, Wendi Ren, Tuo Zhao and Chao Zhang
North American Chapter of the Association for Computational Linguistics (NAACL), 2021
- **A Hypergradient Approach to Robust Regression without Correspondence**
Yujia Xie*, Yixiu Mao*, Simiao Zuo, Hongteng Xu, Xiaojie Ye, Tuo Zhao and Hongyuan Zha
International Conference on Learning Representations (ICLR), 2021
- **Transformer Hawkes Process**
Simiao Zuo, Haoming Jiang, Zichong Li, Tuo Zhao and Hongyuan Zha
International Conference on Machine Learning (ICML), 2020
- **Tensor maps for synchronizing heterogeneous shape collections**
Qixing Huang, Zhenxiao Liang, Haoyun Wang, Simiao Zuo and Chandrajit Bajaj
ACM Transactions on Graphics (TOG), 2019

PROFESSIONAL EXPERIENCES

2023.02 - present Data scientist, Microsoft Bing Ads
2022.10 - 2023.01 Research intern, Microsoft Research
2022.05 - 2022.07 Data scientist intern, Microsoft Bing Ads
2022.01 - 2022.04 Applied scientist intern, Amazon Search
2021.05 - 2021.07 Data scientist intern, Microsoft Bing Ads
2020.09 - 2020.12 Applied scientist intern, Amazon Search
2020.06 - 2020.08 Research intern, Microsoft Azure AI

I served as a reviewer for AAAI, ACL, AISTATS, COLING, ICLR, ICML, KDD and NeurIPS.

TEACHING EXPERIENCES

Teaching Assistant:

- Basic Statistical Methods (ISyE 3030), Fall 2019/Spring 2020

REFERENCES

Tuo Zhao	Assistant Professor H. Milton School of Industrial and Systems Engineering Georgia Institute of Technology Email: tourzhao@gatech.edu
Hongyuan Zha	X.Q. Deng Presidential Chair Professor, Executive Dean School of Data Science The Chinese University of Hong Kong, Shenzhen Email: zhahy@cuhk.edu.cn