

# Jing Xu

PhD Candidate, Institute for Interdisciplinary Information Sciences, Tsinghua University  
Tel: (+86) 18811613160, E-mail: xujing21@mails.tsinghua.edu.cn

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## EDUCATION

### TSINGHUA UNIVERSITY

2021.9 – Now

*Ph.D. in Computer Science at IIIS*

- **Advisor:** Andrew Chi-Chih Yao
- **Honors and Awards:**  
IIIS Scholarship (2022.9 & 2023.9)  
Toyota Scholarship (2023.9)

### PEKING UNIVERSITY

2017.9 – 2021.7

*B.S. in Artificial Intelligence at EECS (Turing Honor Program, with summa cum laude)*

- **Overall GPA:** 3.87/4.00
- **Ranking:** 1/93
- **Advisor:** Liwei Wang
- **Honors and Awards:**  
May 4th Scholarship at PKU (2018.9)  
Award for Academic Excellence at PKU (2018.9)  
Turing Class Scholarship (2019.9)  
John Hopcroft Scholarship (2020.9)  
Huawei Scholarship (2020.9)  
Excellent Graduate of PKU (2021.7)

## RESEARCH INTERESTS

My research focuses on machine learning, both on theoretical side and application side. I enjoy establishing theoretical guarantees of generalization and optimization of deep learning algorithms. My current research focuses on designing practical and theoretically-sound optimization algorithms to pretrain and finetune large language models. I have previously worked on topics including generalization, adversarial robustness, federated learning and differential privacy.

## PUBLICATIONS AND PREPRINTS

(\* denotes equal contribution)

1. **Random Masking Finds Winning Tickets for Parameter Efficient Fine-tuning**  
Jing Xu, JingZhao Zhang  
The Forty-first International Conference on Machine Learning (ICML 2024)
2. **On Bilevel Optimization without Lower-level Strong Convexity**  
Lesi Chen\*, Jing Xu\*, JingZhao Zhang  
The Thirty-seventh Annual Conference on Learning Theory (COLT 2024)
3. **Towards Data-Algorithm Dependent Generalization Analysis: a Case Study on Overparameterized Linear Regression**  
Jing Xu\*, Jiaye Teng\*, Yang Yuan, Andrew C Yao  
The Thirty-eighth Annual Conference on Neural Information Processing Systems (Neurips 2023)

4. **Quantifying the Variability Collapse of Neural Networks**

Jing Xu\*, Haoxiong Liu\*

The Fortieth International Conference on Machine Learning (ICML 2023)

5. **Faster Gradient-Free Algorithms for Nonsmooth Nonconvex Stochastic Optimization**

Lesi Chen, Jing Xu, Luo Luo

The Fortieth International Conference on Machine Learning (ICML 2023)

6. **FedCM: Federated Learning with Client-level Momentum**

Jing Xu, Sen Wang, Liwei Wang, Andrew C Yao

in submission, arXiv 2106.10874

## SKILLS

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- **Programming:** Python, C/C++, Matlab, PyTorch, LaTeX
- **English Proficiency:** TOEFL iBT: 107(Reading: 30, Listening: 29, Speaking: 24, Writing: 24), GRE: 332

## TEACHING ASSISTANT EXPERIENCE

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1. Mathematics for Computer Science  
Taught by Professor Andrew Chi-Chih Yao, Tsinghua University, 2022~2023 Spring
2. Introduction to Optimization  
Taught by Professor Jingzhao Zhang, Tsinghua University, 2022~2023 Autumn
3. Introduction to Computer Systems  
Taught by Professor Chenren Xu, Peking University, 2019~2020 Autumn

## SERVICES

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- Served as a reviewer of ICML2022, 2024, Neurips2023, ICLR2024, CVPR2024.