Jie Hao

George Mason University

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https://jhao6.github.io/JieHao.github.io

Education

George Mason University *Ph.D. student in CS (Advised by Prof. Mingrui Liu and Prof. Jie Xu) 2023 Spring- Present*
University of Electronic Science and Technology of China *M.Sc. in Computer Science (Advised by William Zhu)* **Chengdu, China** *2018 - 2021*
Sichuan University *B.E. in Electronic Information Science and Technology* **Chengdu, China** *2014 - 2018*

Research Interest

Large language model pre-training and fine-tuning, Bilevel optimization, Continual learning, Neural architecture search

I am currently focused on efficient large language model pre-training and fine-tuning. My work focuses on designing computing-efficient optimizers and data selection algorithms for LLM training, with the aim of accelerating model convergence and enhancing generalization performance. Additionally, I have a strong interest in bilevel optimization and work on developing efficient optimization algorithms with convergence guarantees for bilevel problems. These algorithms are applied to address specific challenges in areas such as continual learning, meta-learning, and large language models.

Publications

1. Jie Hao, Xiaochuan Gong, and Mingrui Liu. "Bilevel Optimization under Unbounded Smoothness: A New Algorithm and Convergence Analysis." in ICLR 2024 (Spotlight).
2. Xiaochuan Gong, Jie Hao, and Mingrui Liu. "A Nearly Optimal Single Loop Algorithm for Stochastic Bilevel Optimization under Unbounded Smoothness." ICML 2024.
3. Xiaochuan Gong, Jie Hao, and Mingrui Liu. "An Accelerated Algorithm for Stochastic Bilevel Optimization under Unbounded Smoothness" Neurips 2024.
4. Jie Hao, Kaiyi Ji, and Mingrui Liu. "Bilevel Coreset Selection in Continual Learning: A New Formulation and Algorithm." Neurips 2023.
5. Xiangyu Zhu, Jie Hao, Yunhui Guo, Mingrui Liu. "Auc maximization in imbalanced lifelong learning." Uncertainty in Artificial Intelligence, UAI 2023.
6. Jie Hao, and William Zhu. "Deep graph clustering with enhanced feature representations for community detection." Applied Intelligence 53.2 (2023): 1336-1349.
7. Jie Hao, and William Zhu. "Layered feature representation for differentiable architecture search." Soft Computing 26.10 (2022): 4741-4753.
8. Jie Hao, et al. "Saliency: a new selection criterion of important architectures in neural architecture search." Neural Computing and Applications (2022): 1-15.
9. Jie Hao, and William Zhu. "Architecture self-attention mechanism: Nonlinear optimization for neural architecture search." J. Nonlinear Var. Anal 5 (2021): 119-140.

Language Skills

1. **Programming**: Python, C
2. **Machine Learning**: PyTorch framework (PyTorch, Huggingface)

Services

Reviewer of ICML2025, ICLR 2025, Neurips 2025, AISTATS 2024, Neurips 2024, EMNLP 2024.

Awards

1. Research Assistant Scholarship (George Mason University), 2023 Spring - Present
2. First-class Graduate Academic scholarship of UESTC, Oct. 2019
3. First-class Graduate Academic scholarship of UESTC, Oct. 2018
4. Second-class Undergraduate Academic scholarship of SCU, Oct. 2017
5. Second-class Undergraduate Academic scholarship of SCU, Oct. 2016