BO CHEN

bc7b@mtmail.mtsu.edu Homepage | *Updated: February 21, 2025*

EDUCATION

Middle Tenneessee State University USA
B.S. in Mathematics and applied mathematics *01/2022 - 05/2025*

AREA OR INTEREST

My research interests primarily focus on exploring theoretical foundations, optimizing methodologies, and accelerating the performance of machine learning models.

PUBLICATION

*** denotes equal contribution.**

1. **Chen Bo*** , Liang Yingyu* , Sha Zhizhou* , Shi Zhenmei* , Song Zhao* "Hsr-enhanced sparse attention acceleration"

   CPAL 2025 [Paper]

2. **Chen Bo*** , Li Xiaoyu* , Liang Yingyu* , Shi Zhenmei* , Song Zhao* "Bypassing the exponential dependency: Looped transformers efficiently learn in-context by multi-step gradient descent"

   AISTATS 2025 [Paper]

3. Shen Xuan* , Song Zhao* , Zhou Yufa* , **Chen Bo*** , Li Yanyu , Gong Yifan , Zhang Kai , Tan Hao , Kuen Jason , Ding Henghui , Shu Zhihao , Niu Wei , Zhao Pu , Wang Yanzhi , Gu Jiuxiang "LazyDiT: Lazy Learning for the Acceleration of Diffusion Transformers"

   AAAI 2025 [Paper]

4. Shen Xuan* , Song Zhao* , Zhou Yufa* , **Chen Bo*** , Liu Jing , Zhang Ruiyi , Rossi Ryan A. , Tan Hao , Yu Tong , Chen Xiang , Zhou Yufan , Sun Tong , Zhao Pu , Wang Yanzhi , Gu Jiuxiang "Numerical Pruning for Efficient Autoregressive Models"

   AAAI 2025 [Paper]

RESEARCH EXPERIENCE

Research Assistant USA
*Supervised by **Zhenmei Shi, Zhao Song, Yingyu Liang*** *05/2024 - Present*

- Focus on researching the interpretability of modern large models, exploring methods to enhance transparency and efficiency. Work on algorithmic acceleration within models, and analyze the theoretical bounds of complexity and resource requirements.

Research Assistant USA
*MTSU | Supervised by **Letian Zhang*** *12/2023 - 05/2024*

- Develop a federated learning framework that addresses device heterogeneity through adaptive tensor selection which aims to improve training efficiency and model performance across devices with varying computational capabilities.

Research Assistant Beijing, China

Beijing HEZHENG Software Co., ltd. *05/2023 - 10/2023*

- Large model acceleration in distributed learning: focus on optimization techniques such as parallelism, model partitioning, and communication efficiency to improve performance and scalability in multi-node environments.

Research Assistant Tokyo, Japan

The University of Tokyo | Institute of Science Tokyo *05/2022 - 09/2022*

- Explore the stability characteristics of homology groups of manifolds under perturbations across different dimensions. Investigate the preservation mechanisms of topological invariants during manifold deformations, focusing on their invariance properties in dynamic settings.

AWARD & HONOR

Academic Performance Scholarship USA

Middle Tennessee State University *11/2023*

* Recognition outstanding coursework and positive seminar outcomes that have had a significant impact during the period.

Research Progress Award Beijing, China

Beijing HEZHENG Software Co., ltd. *09/2023*

* Recognition for continuous advancement in data analytics research projects.

Department Research Contribution Award Tokyo, Japan

The University of Tokyo | Institute of Science Tokyo *11/2022*

* Recognition for active participation and valuable input in departmental research activities.

SKILL

Language: Mandarin, Japanese, English

Programming: LaTeX, Python, Tensorflow, Pytorch, Jax, OpenCV, C++