

Jiaxuan Zou (邹嘉轩)

B.S. student, School of Mathematics and Statistics, Xi'an Jiaotong University

Research Intern, Seed Pre-training Team, ByteDance

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Research Interests

Turning empirical training phenomena into first-principles mechanisms: mechanistic interpretability of LLMs, training dynamics of finite-width networks, optimizer design for LLM pre-training, scaling laws and their failure modes, deep learning theory and optimization.

Education

Xi'an Jiaotong University

B.S. in Mathematics and Statistics, School of Mathematics and Statistics

Xi'an, China

Sep. 2024 – Present

Research Experience

ByteDance, Seed Pre-training Team

Research Intern

Beijing, China

Jul. 2026 – Present

Gaoling School of Artificial Intelligence, Renmin University of China

Research Intern, advised by Prof. Yong Liu

Beijing, China

Jun. 2025 – Jun. 2026

- Mechanistic interpretability, deep learning theory, optimizer design, and scaling laws.
- First-authored work on linear attention, neural scaling laws, and latent chain-of-thought.

ScalingOpt

Co-maintainer

Remote

Apr. 2026 – Present

- Benchmark and discussion platform for optimizer design in LLM training; maintain the optimizer library, including the Nora entry.

Tsinghua-affiliated AI Startup

AI Technical Consultant

Beijing, China

- Advise on “AI + K-12 Education” products developed with the Beijing Dongcheng District Education Commission.

Publications and Preprints

- [1] Jiaxuan Zou, Ruifeng Ren, Yong Liu. **Kaczmarz Linear Attention**. Under review, 2026. [arXiv:2605.08587](#).
- [2] Jinghui Yuan, Jiaxuan Zou, Shuo Wang, Yong Liu, Feiping Nie. **Nora: Normalized Orthogonal Row Alignment for Scalable Matrix Optimizer**. Under review, 2026. [arXiv:2605.03769](#).
- [3] Jiaxuan Zou, Zixuan Gong, Ye Su, Huayi Tang, Yong Liu. **Effective Frontiers: A Unification of Neural Scaling Laws**. Under review, 2026. [arXiv:2602.02593](#).
- [4] Jiaxuan Zou, Yaozhong Xiong, Yong Liu. **Capabilities and Fundamental Limits of Latent Chain-of-Thought**. EMNLP, 2026. [arXiv:2602.01148](#).
- [5] Jialong Sun, Zeming Wei, Jiaxuan Zou, Jiacheng Gong, Guanheng Wang, Chengyang Dong, Jialong Li, Bo Liu. **Statistical MIA: Rethinking Membership Inference Attack for Reliable Unlearning Auditing**. Under review, 2026. [arXiv:2602.01150](#).
- [6] Jialong Sun, Xinpeng Ling, Jiaxuan Zou, Jiawen Kang, Kejia Zhang. **FreIE: Low-Frequency Spectral Bias in Neural Networks for Time-Series Tasks**. IEEE ICDM, 2025. [arXiv:2510.25800](#).
- [7] Tian Zhang, Jiaju He, Naihao Liu, Jiaxuan Zou, Yongxiang Jiang. **Mamba-Driven and Feature-Fused U-Net for Automatic Seismic Horizon Interpretation**. IEEE Transactions on Geoscience and Remote Sensing, 2026. [doi:10.1109/TGRS.2026.3660880](#).
- [8] Jiaxuan Zou, Naihao Liu, Tian Zhang, Jiaju He, Tao Li, Jinghuai Gao. **Seismic Horizon Picking Using Channel-Independent Multi-Scale UNet**. Under review, 2024.

Service and Outreach

Xi'an Jiaotong University Deep Learning Seminar

Founder and Organizer

Xi'an, China

Sep. 2024 – Present

- Founded an undergraduate deep learning seminar that grew to over one thousand participants nationwide and led to several research collaborations.

Skills and Languages

Mathematical tools	Optimization, statistics, dynamical systems, mathematical modeling
Applied AI	LLM pre-training, matrix optimizers, linear attention
Languages	Chinese (native), English (working proficiency)