Zelin Li

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Education

University of Minnesota, Twin Cities, Bachelor's Degree in Computer Science — Sept 2025 – May 2027
- **GPA: 4.0/4.0**

Beijing University of Posts and Telecommunications (BUPT), Artificial Intelligence — Sept 2023 – June 2025
- GPA: 3.85/4.0, **Rank: 1/180**

Research Interests

Efficient LLM Training & Inference Systems
Integrated Training & Inference · Algorithm–System Co-Design · LLM Post-Training · On-Device AI

Publications & Preprints

Inference-Native Zeroth-Order Optimization for LLMs.
Zelin Li, Caiwen Ding.
Under review at ICLR 2027. Preprint: arXiv:2605.28760, 2026.

Sample-Stable Subspaces and Mini-Batch Noise in Zeroth-Order Fine-Tuning.
Zelin Li, Caiwen Ding.
Preprint, 2026.

DynamicMem: A Long-Horizon Memory Benchmark on Evolving Users and Multi-App Behavioral Trajectories.
Wenya Xie, Shengming Zhou, **Zelin Li**, et al.
Under review at ACL Rolling Review (ARR), October 2026. Preprint: arXiv:2606.22877, 2026.

Research Experience

Research Assistant, University of Minnesota, Twin Cities — Apr 2026 – Present
Advisor: Prof. Caiwen Ding

Integrated Training & Inference Systems
- Developing an inference-time training system with fine-grained execution control to utilize idle GPU resources.

Efficient On-Device LLM Systems
- Coordinating CPU/GPU/NPU execution with hardware-aware quantization for on-device LLMs.

InferZO: Inference-Native Execution for LLM Training
- Developed inference-native execution for LLM fine-tuning, reusing inference-engine optimizations.
- Built a vLLM-based prototype for integrated training and inference co-serving, with LoRA-side candidate/update state, lazy and banked updates, and packed variable-length scoring.

Optimization Stability and Mini-Batch Noise
- Studied mini-batch sensitivity in structured, low-dimensional zeroth-order fine-tuning, despite stable search geometry across samples.
- Designed large-batch, fixed-subspace, and matched-direction experiments to separate mini-batch noise from search-space variation.

Research Assistant, University of Minnesota, Twin Cities — Nov 2025 – Mar 2026
Advisor: Prof. Zirui Liu; worked with Wenya Xie

Long-Horizon LLM Memory Benchmark
- Implemented and evaluated HippoRAG and SimpleMem; contributed to benchmark construction and data auditing.
- Informed data and algorithm revisions through audits; contributed to analysis and manuscript preparation.

Honors & Awards

National Scholarship, Ministry of Education of China (5/470) — 2024
Silver Medal, International Collegiate Programming Contest (ICPC), Asia Shenyang Regional (39/300) — 2024
Bronze Medal, CCPC Harbin — 2024
Bronze Medal, Beijing Collegiate Programming Contest — 2024
First Prize, National Olympiad in Informatics in Provinces (NOIP), Shanxi — 2021

Technical Skills

Programming: Python, C++ **Frameworks:** PyTorch, vLLM, Hugging Face Transformers **Tools:** Linux, Git