# Gaokai Zhang

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## EDUCATION

**Carnegie Mellon University**  Pittsburgh, Pennsylvania
*Master of Science in Intelligent Information Systems*  Dec 2026

**University of Illinois at Urbana-Champaign**  Champaign, Illinois
*Bachelor of Science in Computer Engineering (Highest Honors), GPA: 3.89/4.0*  May 2025

**Zhejiang University**  Hangzhou, China
*Bachelor of Engineering in Electrical and Computer Engineering, GPA: 3.95/4.0*  May 2025

## SKILLS

**Languages & Tools:** Python, C/C++, Bash, Git, SQL, Slurm, RSpec, Linux, Docker, ReactJS
**Frameworks:** PyTorch, Hugging Face Transformers, Spark, verl, OpenRLHF, DeepSpeed, Megatron-LM
**ML/Systems:** Distributed Training, Supervised Fine-tuning, Reinforcement Learning, Cloud (Azure, CloudLab)

## PROFESSIONAL EXPERIENCE

**Microsoft Research Asia**  Beijing, China
*Machine Learning Engineer Intern in Systems Research Group supervised by Dr. Li Lyna Zhang*  July 2024 – Aug 2025

- Initiated design of a multi-stage reinforcement learning recipe for long-context reasoning with Group Relative Policy Optimization (GRPO); boosted Qwen2.5-7B-Instruct by **48%** on long-context benchmarks, surpassing larger state-of-the-art (SOTA) 32B Large Reasoning Models (LRMs).
- Collaborated with mentors and colleagues to scale context windows of Large Language Models (LLMs); extended Llama3-8B from 8K to 128K using only 10B tokens—**80×** fewer than Meta's approach—while retaining 98.5% short-context accuracy.
- Led development of a parallel pipeline for browsing-history retrieval and filtering, reducing 8B-token data curation time by **80%** (35h → 7h); partnered with customer-oriented teams to deliver production-ready recommendation LLMs with 70% user-interest prediction accuracy against GPT-4o, supporting Microsoft Asia-Pacific R&D Group in product delivery.

**LLM Systems & Cloud Optimization**  Champaign, Illinois
*Research Intern supervised by Prof. Fan Lai from UIUC*  Nov 2024 – Aug 2025

- Coordinated with peers to design an MCTS planner for cloud machine learning under Service-Level Objectives (SLOs), integrating multi-fidelity profiling data from collaborators; cut search time for training an 80-layer model on 32 GPUs from 100,000s with Metis' exhaustive search to only **80s**.
- Benchmarked and validated profiling via Megatron-LM across diverse RSpec configurations; communicated findings with peers to resolve heterogeneity mismatches across GPU (V100, A40, A100, H200, etc.) deployments.

**LLM Randomness Safety Evaluation**  Champaign, Illinois
*Research Intern supervised by Professors Minjia Zhang and Gagandeep Singh from UIUC*  Mar 2024 – Oct 2024

- Built an automated evaluation pipeline across 17 models using 25 random augmentations per prompt with teammates; calibrated thresholds with a 1,220-sample manmade dataset to minimize positives/negatives.
- Demonstrated how simple random edits raised harmful-compliance by up to **21%** under greedy decoding for aligned models (Llama 3, Phi 3, Qwen 2), and revealed common W8A8/W4A16 quantization sacrifice safety by up to **15%**.

## PUBLICATIONS & SUBMISSIONS

- Siyuan Wang*, **Gaokai Zhang***, Li Lyna Zhang, Ning Shang, Fan Yang, Dongyao Chen, Mao Yang. LoongRL:Reinforcement Learning for Advanced Reasoning over Long Contexts. Under review at International Conference on Learning Representations (ICLR), 2026.
- Ning Shang*, Li Lyna Zhang*, Siyuan Wang, **Gaokai Zhang**, Gilsinia Lopez, Fan Yang, Weizhu Chen, Mao Yang. LongRoPE2: Near-Lossless LLM Context Window Scaling. International Conference on Machine Learning (ICML), 2025.
- Jason Vega, Junsheng Huang*, **Gaokai Zhang***, Hangoo Kang*, Minjia Zhang, Gagandeep Singh. Stochastic Monkeys at Play: Random Augmentations Cheaply Break LLM Safety Alignment. Under review at Transactions on Machine Learning Research (TMLR), 2026. (*: equal contribution)