

Yuanzhe Hu

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GitHub Profile
Personal Website

EDUCATION

University of California, San Diego

MS. in Computer Science Engineering

Sep. 2024 – Mar. 2026

Huazhong University of Science and Technology

BEng. in Artificial Intelligence (Innovation Experimental Honor Class)

Sep. 2020 – Jun. 2024

GPA: 3.91/4.0

PUBLICATIONS AND PREPRINTS

1. **Y. Hu**, K. Goel, V. Killiakov, Y. Yang. "Eigenspectrum Analysis of Weight Matrices without Aspect Ratio Bias", ICML 2025, [Paper Link](#).
2. **Y. Hu***, Y. Wang*, K. Lin, J. McAuley. "Evaluating Memory in LLM Agents via Incremental Multi-Turn Interactions", Submitted to NeurIPS 2025 (D&B Track).
3. Z. Liu*, **Y. Hu***, T. Pang, Y. Zhou, P. Ren, Y. Yang. "Model Balancing Helps Low-data Training and Fine-tuning", EMNLP 2024 (Oral) (168/6105), [Paper Link](#).
4. H. Lu*, **Y. Hu***, Y. Zhou, T. Pang, X. Liu, P. Ren, Y. Yang. "Loss Landscape Analysis of Scientific Machine Learning Models", Under Review.
5. Y. Wang, D. Krotov, **Y. Hu**, Y. Gao, W. Zhou, J. McAuley, D. Gutfreund, R. Feris, Z. He. "M+: Extending MemoryLLM with Scalable Long-Term Memory", ICML 2025, [Paper Link](#).

* Equal Contribution

ACADEMIC EXPERIENCE

Large-Scale Reasoning LLM Training

Summer Research Intern, Advised by **Prof. Zhiting Hu** and **PhDs. Shibo Hao / Zhoujun Cheng**

Jun. 2025 – Now

La Jolla, CA

- Research Topics: Reasoning Model, Supervised Fine-Tuning, RL.
- Performed Supervised Fine-Tuning of Qwen2.5-32B and LLaMA-3.1-70B models using LLaMA Factory on AM-Thinking-v1-Distilled dataset.

Constructing Benchmarks on LLMs' Long Context Understanding Ability

CSE 298 Research Course, Advised by **Prof. Julian McAuley** and **PhDs. Yu Wang**

Oct. 2024 – May. 2025

La Jolla, CA

- Research Topics: Long Context LLM, Memory Agent.
- Designed a long context modeling benchmark focused on global temporal reasoning for novel-length texts, and validated the benchmark's effectiveness across the LLMs like LLaMA-3.1-8B and MemoryLLM. (**ICML 2025**)
- Established a comprehensive long context language understanding benchmark for memory agents by summarizing and reformulating existing benchmarks and datasets. Implemented our benchmark to evaluate current memory agent systems such as Letta, Mem0 and Cognition. (**Submitted to NeurIPS 2025**)

Model Diagnosis Based on Random Matrix Theory

Research Intern, Advised by **Prof. Yaoqing Yang**

Jul. 2023 – May. 2025

Hanover, NH

- Research Topics: LLM Supervised Fine-Tuning, LLM Pruning, Scientific ML, Random Matrix Theory.
- Modified a model weight matrices analysis method based on Marchenko–Pastur distribution and evaluated our method on downstream tasks like layer-wise LLM Pruning and SciML Fine-tuning. (**ICML 2025**)
- Researched a modified layer-wise optimization algorithm for low-data training and supervised fine-tuning in domains such as SciML and NLP. For example, it improves the performance for language models such as LLaMA-7B or RoBERTa-Base by about 2% - 10% in various tasks and low data source settings. (**EMNLP 2024**)
- Contributed to the rebuttal phase of the TempBalance paper by supplementing additional experimental data, validating the method's effectiveness across downstream tasks including object detection (YOLO-v8) and language modeling.

SKILLS, INTERESTS, AWARD

Programming Language: Python, C/C++, SQL, MATLAB

Field of Interest: Random Matrix Theory, Model Diagnosis, SciML, Long Context LLM

Service: Reviewer for ICML 2025 / ICLR 2025 / NeurIPS 2024 Workshop