

Education

- Sept 2023 **School of Intelligence Science and Technology, Peking University**
– Jul 2028 Ph.D. Student in Machine Learning
Advisor: Prof. Jianzhu Ma and Prof. Yitao Liang
- Aug 2019 **Yuanpei College, Peking University**
– Jul 2023 Candidate for B.E. in Artificial Intelligence (Honor Track)
GPA: 3.85/4.00 (rank 1-st in Major) top 5% in Yuanpei College (among all Majors, 12/305)
Bachelor Thesis: *IneqGPT: A Neural-Symbolic Approach towards Automated Inequality Proving*
Research advisor: Prof. Bing Liu (Distinguished Professor of UIC)

Research Interests

Developing approaches to steering large **foundation models** across different architectures (diffusion models, transformers) for different modalities (text, vision, audio, decision-making, molecules...).

Selected Publication

(* denotes equal contribution)

- [1] **TFG: Unified Training-Free Guidance for Diffusion Models**
Haotian Ye*, **Haowei Lin***, Jiaqi Han*, Minkai Xu, Sheng Liu, Yitao Liang, Jianzhu Ma, James Zou, Stefano Ermon
The Thirty-Eighth Annual Conference on Neural Information Processing Systems (**NeurIPS 2024**).
- [2] **Selecting Large Language Models to Fine-tune via Rectified Scaling Law**
Haowei Lin*, Baizhou Huang*, Haotian Ye*, Qinyu Chen, Zihao Wang, Sujian Li, Jianzhu Ma, Xiaojun Wan, James Zou, Yitao Liang
The Forty-first International Conference on Machine Learning (**ICML 2024**).
- [3] **Class Incremental Learning via Likelihood Ratio Based Task Prediction**
Haowei Lin, Yijia Shao, Ningxin Pan, Weinan Qian, Yiduo Guo, Bing Liu.
The Eleventh International Conference on Learning Representations (**ICLR 2024**).
- [4] **FLatS: Principled Out-of-Distribution Detection with Feature-Based Likelihood Ratio Score**
Haowei Lin, Yuntian Gu.
The 2023 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2023**).
- [5] **Continual Pre-training of Language Models**
Zixuan Ke*, Yijia Shao*, **Haowei Lin***, Tatsuya Konishi, Gyuhak Kim, Bing Liu.
The Eleventh International Conference on Learning Representations (**ICLR 2023**).
- [6] **Group retrosynthetic planning as neurosymbolic programming**
Xuefeng Zhang, **Haowei Lin**, Muhan Zhang, Yuan Zhou, and Jianzhu Ma.
Nature Communications 2024.
- [7] **Continual Training of Language Models for Few-Shot Learning**
Zixuan Ke, **Haowei Lin**, Yijia Shao, Hu Xu, Lei Shu, and Bing Liu.
The 2022 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2022**).
- [8] **Adapting a Language Model While Preserving its General Knowledge**
Zixuan Ke, Yijia Shao, **Haowei Lin**, Hu Xu, Lei Shu, and Bing Liu.
The 2022 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2022**).
- [9] **CMG: A Class-Mixed Generation Approach to Out-of-Distribution Detection**
Mengyu Wang*, Yijia Shao*, **Haowei Lin**, Wenpeng Hu, Bing Liu.
The 33th European Conference on Machine Learning (**ECML-PKDD 2022**).

Professional Experience

Search Group, ByteDance, 2022 Summer Intern

- Research and Development Engineer Intern mentored by Bingzhen Wei, Shini Chen, and Junyang Su.
- Design and launch a set of intent analysis models for Douyin Search Engine.

Teaching Assistant

- Spring 2024, Introduction to Artificial Intelligence, Peking University.
- Spring 2023, Mathematical Foundation for Artificial Intelligence, Peking University.
- Fall 2022 & 2023 & 2024, Natural Language Processing with Deep Learning, Peking University.
- Fall 2022, Introduction to Theoretical Computer Science, Peking University.
- Fall 2021, A Preliminary Seminar on Artificial Intelligence, Peking University.

Conference Reviewer

- ICML: 2022 (Outstanding Reviewer Award), 2023, 2024; NeurIPS: 2022, 2023, 2024; ICLR: 2024, 2025; ACL, EMNLP(Arr): 2024; COLM: 2024; CVPR: 2024; AISTATS: 2025.

Skills, Interest & Others

Programming Languages: Python, C/C++, \LaTeX , Bash, SQL, HTML, CSS, JavaScript

Frameworks & Tools: PyTorch, Scikit-learn, Django, Git, CUDA, Spark, Bootstrap4

Languages: Mandarin (native), English (proficient, TOEFL 105), Hokkien (native)

Interests: Guitar, Painting, Piano, Badminton, Movies