YUTONG YIN

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EDUCATION

Northwestern University   Evanston, US
PhD *in Industrial Engineering and Management Sciences* | GPA: 3.75/4.0   *Sept 2023 – July 2028*

Peking University   Beijing, China
B.E. *in Artificial Intelligence, Yuanpei College* | GPA: 3.65/4.0   *Sept 2019 – July 2023*

ABOUT ME

I am a third-year PhD student at Northwestern University under the supervision of Professor Zhaoran Wang. Prior to this, I earned my bachelor's degree in Artificial Intelligence from Peking University. During my undergraduate studies, I served as a research assistant to Professor Xiaotie Deng at Peking University and collaborated with Dr. Zhijian Duan. In my senior year, I had the privilege of interning with Professor Zhuoran Yang at Yale University and Professor Zhaoran Wang at Northwestern University.

My research primarily focuses on machine learning theory, deep learning, large language models, and their interpretability. I am particularly dedicated to unraveling the mechanisms that contribute to the exceptional performance of machine learning models and algorithms, and leveraging this understanding to enhance their effectiveness.

PUBLICATIONS

Yin, Yutong, and Zhaoran Wang. "Are Transformers Able to Reason by Connecting Separated Knowledge in Training Data?". In *The Thirteenth International Conference on Learning Representations, 2025.*

Zhong H, Yin Y, Zhang S, et al. "BRiTE: Bootstrapping Reinforced Thinking Process to Enhance Language Model Reasoning." In *Proceedings of the 42nd International Conference on Machine Learning, 2025.*

Z Duan, J Tang, Y Yin, Z Feng, X Yan, M Zaheer, X Deng. "A Context-Integrated Transformer-Based Neural Network for Auction Design". In *Proceedings of the 39th International Conference on Machine Learning, 2022.*

RESEARCH EXPERIENCE

Northwestern University (Department of Industrial Engineering and Management Sciences)   Evanston, USA
Advised by Professor Zhaoran Wang   *Oct 2022 – May 2023*
Are Transformers Able to Reason By Connecting Separated Knowledge in Training Data?
- Explained the mechanism of the emergence of Transformers' compositional reasoning ability.
- Submitted to ICLR 2025.

Peking University (Center on Frontiers of Computing Studies)   Beijing, China
Research Assistant to Professor Xiaotie Deng   *Sept 2021 – March 2022*
CITransNet for Auction Design
- Proposed a context-integrated transformer-based neural network for optimal auction design. Our model maintained permutation-equivariance over bids and contexts while being able to find asymmetric solutions.
- Accepted by the ICML in 2022.

SKILLS & OTHERS

Computer Skills & Advanced knowledge
- C++, Python, Latex | Pytorch, TensorFlow.
- Statistics and Opmization Theory | Machine Learning Theory | LLM Fine-tuning | Deep Learning Interpretability

English Skills
- GRE 324 | TOEFL 107.