AN YAN

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EDUCATION

Institute for Interdisciplinary Information Sciences (IIIS), Tsinghua University
Beijing, China
2024.08 - Present
B.E. in Computer Science and Technology

- Overall GPA: 3.8/4.0.
- Selected Coursework: Machine Learning (A), Natural Language Processing (A), AI Principles & Techniques (A), Algorithm Design (A+), Operating Systems & Distributed Systems (A), Mathematics for CS & AI (A).

PUBLICATIONS

1. Huigen Ye, Hua Xu, **An Yan**, Yaoyang Cheng. Large Language Model-driven Large Neighborhood Search for Large-Scale MILP Problems. In *Proceedings of the 42nd International Conference on Machine Learning* (**ICML 2025**), **Spotlight**.

2. Huigen Ye, Hua Xu, **An Yan**. LLM-driven Streamlining Optimizer for Large-scale Mixed Integer Linear Programming Problems. *Submitted to Nature Communications* (Under Review).

RESEARCH EXPERIENCE

Research on Applications of LLMs in Mixed Integer Linear Programming and Combinatorial Optimization
Research Assistant, Supervised by Prof. Hua Xu, Tsinghua University
2024.06 - Present

- Scale neighborhood selection for MILP by evolving heuristic code via a dual-layer LLM agent, enabling zero-shot transfer from small training samples to ultra-large problems with 10^6 variables, generalizing to diverse combinatorial problems.
- Explored RAG-augmented LLMs for tool-using and long-horizon decision-making in complex optimization pipelines, optimizing branch-and-bound via RAG-initialized code synthesis and iterative Bayesian refinement.
- (*Ongoing*) Unify MILP encoding with LLM token spaces through learnable graph tokenizers, leveraging SFT for priority score prediction and GRPO RL with greedy construction to directly optimize solution quality.

SELECTED AWARDS

- **Scholarship for Outstanding Scientific and Technological Innovation**, Tsinghua University — 2025.10
- **Champion**, Huawei Algorithm Competition (University Track) — 2025.09
- **Gold Medal**, 2025 Beijing Collegiate Programming Contest — 2025.04
- **Gold Medal**, 10th China Collegiate Programming Contest (CCPC), Jinan Site — 2024.11
- **Gold Medal**, 40th National Olympiad in Informatics (NOI), China — 2023.07

SKILLS

Languages: C++, Python (Proficient); Go, Scala, Bash (Familiar).
Mathematics: Probability Theory, Stochastic Processes, Abstract Algebra, Combinatorics.
Tools: PyTorch, LaTeX, Git, Docker.