

YIBO WANG

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≡ EDUCATION

Sichuan University, College of Computer Science

Aug. 2021 - Jun. 2025

B.Eng in Computer Science (Yuzhang Honors Class, awarded for Top 3%)

Sichuan, China

- Major GPA: 3.85/4
- IELTS: 6.5
- Advisor: Prof. Mingjie Tang

≡ PUBLICATIONS

GPTuner: A Manual-Reading Database Tuning System via GPT-Guided Bayesian Optimization 🔗

- Jiale Lao, **Yibo Wang**, Yufei Li, Jianping Wang, Yunjia Zhang, Zhiyuan Chen, Wanghu Chen, Mingjie Tang, Jianguo Wang
- Accepted at **VLDB 2024**

A Demonstration of GPTuner: A GPT-Based Manual-Reading Database Tuning System 🔗

- Jiale Lao, **Yibo Wang**, Yufei Li, Jianping Wang, Yunjia Zhang, Zhiyuan Chen, Wanghu Chen, Yuanchun Zhou, Mingjie Tang, Jianguo Wang
- In submission, **SIGMOD 2024**

≡ RESEARCH EXPERIENCE

Automatic Optimization of Database with Large Language Model

Sept. 2023 – Jan. 2024

Advisors: Prof. Jianguo Wang (Purdue); Prof. Mingjie Tang (SCU)

Research Assistant

- Designed and implemented GPTUNER, a novel manual-reading database tuning system that automatically exploits domain knowledge to enhance the knob tuning process.
- Developed a LLM-based data pipeline, a prompt ensemble algorithm, a workload-aware and training-free knob selection strategy, and a Coarse-to-Fine Bayesian Optimization Framework.
- Evaluated GPTUNER under different benchmarks, metrics and DBMS. It identifies better configurations **16x** faster and achieves **30%** performance improvement over the **best-performing** alternative.
- Outcomes: a research paper accepted at **VLDB 2024**.

LLM-Powered Interactive Tool to Explore and Exploit Domain Insights

Dec. 2023 – Jan. 2024

Advisors: Prof. Jianguo Wang (Purdue); Prof. Mingjie Tang (SCU)

Research Assistant

- Engaged users to probe into the ingenious LLM-powered pipeline which refines and unifies heterogeneous knowledge to guide system optimization.
- Unleashed the potential of everyday users, enabling them to delve into the nuances of knob features and maximize the efficiency of their tailored DBMS seamlessly.
- Empowered DBAs to supercharge GPTuner with their priceless tuning expertise expressed in natural language and witness how it can be customized to the Coarse-to-Fine Optimization Framework.
- Outcomes: a demo paper submitted to **SIGMOD 2024**, and an open-source project with more than **3000 views**, **200 clones** and **50 stars** on GitHub.

Automatic Optimization for Stream Processing Systems

Aug. 2023 – Sept. 2023

Advisors: Prof. Mingjie Tang (SCU); Dr. Xiaojun Zhan (AntGroup)

Research Asistant

- Collaborated with AntGroup to develop an automated optimization system for Flink, reducing resource consumption to cope with tight budget while maintaining SLA adherence.
- Proposed a rule-based method to get pod features based on the degree of parallelism of vertexes.
- Implemented an ML-based evaluator to estimate resource utilization of a pod given its features.

≡ SERVICES

Subreviewer of VLDB 2024 and ICDE 2024