

YIBO WANG

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≡ EDUCATION

Sichuan University, College of Computer Science

Sept. 2021 - Jun. 2025

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

Sichuan, China

- GPA: 3.83/4
- TOEFL: 104 (23)
- Advisor: Prof. Jianguo Wang (Purdue); Prof. Mingjie Tang (SCU)

≡ 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
- VLDB 2024, [📄Paper](#), [📄Project](#)
- **Selected as SIGMOD Research Highlight**

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

- Jiale Lao, **Yibo Wang (Co-first)**, Yufei Li, Jianping Wang, Yunjia Zhang, Zhiyuan Chen, Wanghu Chen, Yuanchun Zhou, Mingjie Tang, Jianguo Wang
- SIGMOD 2024 Demo, [📄Paper](#), [📄Video](#)

WATER: A Workload-Adaptive Knob Tuning System (Under Review)

- **Yibo Wang**, Jiale Lao, Chen Zhang, Cehua Yang, Yuanchun Zhou, Jianguo Wang, Mingjie Tang
- Submitted to SIGMOD 2025, [📄Paper](#), [📄Project](#)

≡ RESEARCH EXPERIENCE

Runtime-Efficient Adaptive Knob Tuning System

Mar. 2024 – Present

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

Project Leader

- Developed WATER, an adaptive knob tuning framework that uses runtime-profile to significantly reduce benchmark evaluation costs by only selecting SQL subsets to evaluate at different time slices.
- Proposed a runtime-statistics-based *representativity* metric to continually refine subset, a history reuse method to achieve efficient subset tuning, and a hybrid scoring mechanism to choose the most promising configurations to evaluate.
- Evaluated WATER under four OLAP workloads, it identifies better configurations with up to **73.5%** less tuning time, achieving up to **16.2%** better performance than the **best-performing** alternative.
- Outcomes: a research paper submitted to SIGMOD 2025, and an open-source project.

Automatic Optimization of Database with Large Language Model

Sept. 2023 – Present

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 an 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.
- Developed an LLM-powered interactive tool to engage users to probe into the ingenious pipeline which refines and unifies heterogeneous knowledge to guide system optimization.
- Outcomes: a research paper accepted by VLDB 2024, a demo paper accepted by SIGMOD 2024, and an open-source project with more than **70 stars** on GitHub.

≡ SERVICES

Subreviewer of VLDB 2024, VLDB 2025, and ICDE 2024