

BINGNAN CHEN

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HKUST, Hong Kong, China

ABOUT ME

A Ph.D. student in Computer Science and Engineering at the Hong Kong University of Science and Technology (HKUST), where I also completed my MPhil degree. Prior to that, I received my bachelor's degree from the University of Science and Technology of China (USTC).

My research interests focus on database optimization algorithms, query processing and query optimization under the supervision of Prof. Ke Yi.

EDUCATION

- **The Hong Kong University of Science and Technology** Sept.
Doctor of Philosophy (PhD) Hong Kong, China
- **The Hong Kong University of Science and Technology** Sept., 2021
Master of Philosophy (MPhil) Hong Kong, China
- **University Of Science and Technology of China** Sept., 2017
Computer Science Bachelor Hefei, China

RESEARCH

- **Yannakakis⁺: An optimization algorithm for SPJA queries** Sept. 2023 - Sept. 2024
Tools: Python, Java & Scala 
 - Design and implement the Yannakakis⁺ algorithm, which is an improved version of Yannakakis algorithm with theoretical guarantees and better practical performance.
- **Oblivious Sort: Oblivious sorting algorithm under TEE.** Aug. 2022 - May. 2023
Tools: C++ 
 - Implement oqsort, bucketOSort, bitonic sort, etc in TEE's secure execution environment.

EXPERIENCE

- **Alibaba Cloud**  Aug. 2023 - Feb. 2024
Research Intern Hangzhou, China
 - Design and implement the Yannakakis⁺ algorithm, which is an improved version of Yannakakis algorithm with theoretical guarantees and better practical performance.
- **SenseTime**  Jan. 2021 - Jul. 2021
Research Intern Beijing, China
 - Design operators and compilation optimizations in deep learning frameworks.

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION, T=THESIS

- [C.1] Qichen Wang*, Bingnan Chen*, Binyang Dai, Ke Yi, Feifei Li, and Liang Lin. **Yannakakis⁺: Practical Acyclic Query Evaluation with Theoretical Guarantees**. In Proceedings of the 2025 International Conference on Management of Data (Berlin, Germany) (SIGMOD '25). (* equal contribution)
- [C.2] Tianyao Gu, Yilei Wang, Afonso Tinoco, Bingnan Chen, Ke Yi, and Elaine Shi. **Flexway O-Sort: Enclave-Friendly and Optimal Oblivious Sorting**. The 34th USENIX Security Symposium (USENIX Security 2025).

SKILLS

- **Programming Languages:** C++ & C, Python, Java, Scala, SQL, HTML & CSS & JSP, Verilog & System Verilog
- **Web Technologies:** Git, OOP, Django, Vue, Flask
- **Database Systems:** DuckDB, MySQL, PostgreSQL, SparkSQL
- **Data Science & Machine Learning:** PyTorch