

Shizhe Liu

Ph.D. student

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Education

Ph.D. Computer Science, Nanjing University, 2021.09 - present
Supervisors: Guihai Chen (IEEE Fellow) and Haipeng Dai (IET Fellow).
B.E. Software Engineering, Jilin University, GPA: 3.80, Rank: 3/353. 2017.09 - 2021.06

Internship

Visiting Ph.D. student at the School of Software, Tsinghua University, 2025.09 - 2026.01
Supervisor: Shaoxu Song (<https://sxsong.github.io/>).

Research Interests

Complex Event Processing, Time Series Data Mining, LLM4DB, Data Agent

Researcher Profile

Shizhe Liu's prior work focused on complex event processing and query optimization for cloud-native systems, with results published in KDD, ICDE, and TKDE. He is currently pursuing two main research directions: (1) optimizing Row Pattern Recognition (introduced by the SQL standard in 2016) on LSM-Tree-based database systems (*e.g.*, IoTDB) and (2) exploring how to leverage LLMs' powerful semantic understanding and reasoning to optimize and accelerate complex or multi-modal data processing, querying, and analytics.

Awards

- 2024 Nanjing University Ph.D. Scholarship (First Class)
- 2022 Nanjing University Excellent Graduate Student
- 2021 Nanjing University Presidential Ph.D. Scholarship
- 2019 Jilin University Undergraduate Scholarship (First Class)

Refereed Publication

- Shizhe Liu**, Haipeng Dai, Meng Li, Yuemeng Zhang, Shaoxu Song, Zhifeng Bao, Hancheng Wang, Xiaofeng Gao, Guihai Chen. When Complex Event Recognition Meets Cloud-Native Architectures. In *Proceedings of 42nd IEEE International Conference on Data Engineering (ICDE'26)*, 2026.
- Shizhe Liu**, Haipeng Dai, Shaoxu Song, Meng Li, Yuemeng Zhang, Hancheng Wang, Du Zhang, Rong Gu, Guihai Chen. Accelerating Complex Event Recognition via Range Bitmap-

- based Indexes with Window-wise Filtering. *IEEE Transactions on Knowledge and Data Engineering*, 2026.
3. **Shizhe Liu**, Haipeng Dai, Shaoxu Song, Meng Li, Jingsong Dai, Rong Gu, Guihai Chen. ACER: Accelerating Complex Event Recognition via Two-Phase Filtering under Range Bitmap-Based Indexes. In *Proceedings of the 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'24)*, 2024.
 4. Lihao Wang, Wei Wang, Haipeng Dai, **Shizhe Liu**. MagSound: Magnetic Field Assisted Wireless Earphone Tracking. In *Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'23)*, 2023.

Service

1. **Assistant Reviewer**: VLDB 2026, KDD 2026/2025 (Outstanding Reviewer), ICDM 2023.
2. **Teaching Assistant**
 - Fundamentals of Computer Systems (For undergraduate students, Fall 2021)
 - Distributed Networks (For graduate students, Fall 2022)
 - Introduction to Databases (For undergraduate students, Fall 2023 & 2024)