HAOZE SONG

Email: hzsong@cs.hku.hk ◇ Phone: *+852* 59890695 ◇ Website: https://haozesong.github.io/
Room 414, Chow Yei Ching Building, The University of Hong Kong, Pokfulam, Hong Kong SAR

RESEARCH INTEREST

Distributed Transactions, Fault-tolerance Consensus, and High-Performance Cloud Computing

SUMMARY OF ACHIEVEMENTS

- Published 8 papers at top venues (including 4 first-author papers): ***SIGMOD'26, VLDB'25, SIGMOD'24, VLDBJ'24, SIGMOD'23, EuroSys'21, Performance'21, and TASE'19***.
- Another 5 papers are under submission, including 2 major revision: ***FAST'26 and TKDE'26.***
- Two system prototypes have been integrated into ***real-world industrial products***:
  - K2, a multi-region transaction protocol, has been adopted by the Global TKV team, steadily evolving into the data backbone for next-generation cloud-native root services.
  - METIS, an HTAP-native query processing engine, has been integrated into Alibaba Cloud's flagship database product, PolarDB, as a component of its HTAP optimizer.

EDUCATION

The University of Hong Kong (HKU) *Sep 2020 - Aug 2025 (Expected)*
Ph.D. in Computer Science *Advisor: Dr. Heming Cui*
Thesis: Achieving Efficient and Reliable Transactional/Analytical Processing for Geo-Distributed Clouds.

University of Science and Technology of China (USTC) *Aug 2016 - Jun 2020*
B.S. in Computer Science and Engineering
Huaxia Yingcai College (Special Elite Class)
GPA: 3.81/4.3 Rank: 7/153 (Top 5%) Outstanding Graduates Honor

Shanghai Jiao Tong University (SJTU) *Jun 2018 - Sept. 2018*
Exchange Student in Computer Science
GPA: 4.3/4.3

EXPERIENCE

DAMO Academy, Alibaba *June 2022 - Sept. 2023*
Database Group on System and Kernel Research *Advisor: Wenchao Zhou and Feifei Li*
Research Internship

· Project: Cloud-native HTAP, which achieves 100× speed up for TPC-H queries and $\leq 5ms$ visibility delays for data replication. The new technologies (i.e., efficient data replication and hybrid query plans) have been integrated into PolarDB (the core database product) in Alibaba Cloud.

PUBLICATIONS

[**C1**] *Haoze Song, Xusheng Chen, Ruijie Gong, Tianxiang Shen, Cheng Li, Hao Feng, Sen Wang, Heming Cui. Perseus: Achieving Strong Consistency and High Data Freshness for Scalable Geo-distributed HTAP. ACM International Conference on Management of Data (**SIGMOD**), **2026***

[**C2**] *Haoze Song, Yongqi Wang, Xusheng Chen, Hao Feng, Yazhi Feng, Xieyun Fang, Heming Cui,* and *Linghe Kong. K2: On Optimizing Distributed Transactions in a Multi-region Data Store with True-Time Clock. International Conference on Very Large Data Bases (**PVLDB**), **2025***

[**C3**] *Haoze Song, Wenchao Zhou, Feifei Li, Xiang Peng, Heming Cui. Rethink Query Optimization in HTAP Databases. ACM International Conference on Management of Data (**SIGMOD**), **2024***

[**J1**] *Haoze Song, Wenchao Zhou, Heming Cui, Xiang Peng, Feifei Li. A Survey on Hybrid Transactional and Analytical Processing. International Journal on Very Large Databases (**VLDBJ**), **2024***

[**C4**] *Jianying Wang, TongLiang Li, Haoze Song, Xinjun Yang, Wenchao Zhou, Feifei Li, et al. PolarDB-IMCI: A Cloud-Native HTAP Database System at Alibaba. ACM International Conference on Management of Data (**SIGMOD**), **2023***

[**C5**] *Xusheng Chen, Haoze Song, Jianyu Jiang, Chaoyi Ruan, Cheng Li, Seng Wang, Gong Zhang, Reynold Cheng, Heming Cui. Achieving Low Tail-latency and High Scalability for Serializable Transactions in Edge Computing. The European Conference on Computer Systems (**EuroSys**), **2021***

[**C6**] *Xusheng Chen, Shixiong Zhao, Ji Qi, Jianyu Jiang, Haoze Song, Cheng Wang, Tsz On Li, Hubert Chan, Fengwei Zhang, Xiapu Luo, Sen Wang, Gong Zhang, Heming Cui. Efficient and DoS-resistant Consensus for Permissioned Blockchains. ACM **SIGMETRICS Performance**, **2021***

[**C7**] *Yu Zhang, Haowei Deng, Quanxi Li, Haoze Song* and *Leihai Nie, Optimizing quantum programs against decoherence: delaying qubits into quantum superposition. International Symposium on Theoretical Aspects of Software Engineering (**TASE**), **2019***

PAPERS IN SUBMISSION (PREPRINTS)

[**S1**] *Haoze Song, Ruijie Gong, Xusheng Chen, Tianxiang Shen, Yuhao Qing, Sen Wang, Gong Zhang, Hao Feng,* and *Heming Cui.* RELAY*: High-performance Transactions in Heterogeneous Networks via Consistency Tiering. Submitted to Transactions on Computer Systems **(TOCS)***

[**S2**] *Tianxiang Shen, Ji Qi, Haoze Song, Gong Zhang, Xiaopu Luo,* and *Heming Cui. Achieving Efficient and Compressible Indexing on Encrypted Databases. **Major Revision in TKDE***

[**S3**] *Guoli Wei, YongKun Li, Haoze Song, Lulu Yao, Yinglong Xu, Bokang Zhang, Liu Tang,* and *Qiu Cui, DMTree: Resolving the Performance Tradeoffs of Tree Indexing on Disaggregated Memory. **Major Revision in USENIX Conference on File and Storage Technologies (FAST), 2026***

[**S4**] *Zheng Liu, Haoze Song, YongKun Li, Yinglong Xu, Patrick P.C. Lee, Xusheng Chen, Yazhi Feng,* and *Hao Feng. PartialKV: On Optimizing Partial Access for Persistent Key-Value Store in Modern Memory Hierarchy.*

[**S5**] *Zekai Sun, Xiuxian Guan, Haoze Song, Yuhao Qing, Tianxiang Shen, Dong Huang, Fangming Liu, Heming Cui. Hybrid-Parallel: Achieving High Performance and Energy Efficient Distributed Inference on Edge Computing. Submitted to International Conference on Mobile Computing and Networking (MobiCom), 2025*

TECHNOLOGY TRANSFER (PATENTS)

[**P1**] *Haoze Song, Xusheng Chen, Yazhi Feng, Xieyun Fang, A scalable high-performance and high-precision timestamp batching framework. Ref.92083535*

[**P2**] *Haoze Song, Yongqi Wang, Xusheng Chen, Yazhi Feng, An efficient, strongly consistent, and decentralized visibility control method based on high-precision clocks. Ref. 92076896*

[**P3**] *Xusheng Chen, Haoze Song, Jianyu Jiang, Heming Cui, Sen Wang, Peng Wang,* and *Gong Zhang. A system in achieving low tail-latency and high scalability for serializable transactions in edge computing. CN 2021101523346.3*

PROFESSIONAL SERVICE

External/Artifact reviewers in system conference: *OSDI, NSDI, ATC, EuroSys, and DSN*

External reviewers in system journals: *IEEE Transactions on Parallel and Distributed Systems (TPDS)*

TEACHING EXPERIENCE

COMP-3358 Distributed and Parallel Computing, HKU, Teaching Assistant 2023 Spring, 2024 Spring

COMP-7305 Cluster and cloud computing, HKU, Teaching Assistant 2021 Summer, 2022 Spring

SELECTED AWARDS

Outstanding Research Intern, Alibaba Group, Top 5% 2023

Postgraduate Scholarships, The University of Hong Kong 2020∼2025

Outstanding Graduates Honour, University of Science and Technology of China, Top 10% 2020

Elite Class Honor, University of Science and Technology of China, Top 10% 2018, 2019, 2020

Second Class scholarship, University of Science and Technology of China, Top 20% 2019, 2020