

# ZHUOYUE ZHAO

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## RESEARCH INTEREST

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My current research interest is in database management systems. Specifically, my current focus is on traditional and approximate query processing and query optimization, database on modern hardware, transaction processing, indexing and storage.

## EDUCATION

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**University of Utah** August 2016 - August, 2021

Ph.D. in Computer Science

School of Computing

Advisor: Prof. Feifei Li and Prof. Jeff Phillips

Thesis research: Approximate Query Processing via Random Sampling

**Shanghai Jiao Tong University** Sept. 2012 - July 2016

B.S.E. in Computer Science and Technology (SJTU ACM Class)

Zhiyuan College

## PROFESSIONAL EXPERIENCE

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1. Assistant Professor, Department of Computer Science and Engineering, University at Buffalo, Buffalo, NY. 8/2021 - present.
2. PhD student & Research Assistant, School of Computing, University of Utah, 8/2016-2021.
3. Research Intern, SysInfra Performance, Google, 5/2020 - 8/2020.
4. Research Intern, Database department, Alibaba Group, 5/2019-8/2019.
5. Research Intern, DMX Group, Microsoft Research, 5/2018 - 8/2018 and 5/2017-8/2017.
6. Resaerch Assistant, Department of Computing, The Hong Kong Polytechnic University, 8/2015-1/2016.
7. Research Assistant, ADAPT lab, Shanghai Jiao Tong University, 8/2014-5/2016.

## AWARDS AND HONORS

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1. NSF CAREER Award, 2024
2. IEEE ICDE Outstanding Reviewer, 2024
3. VLDB Distinguished Reviewer, 2023
4. Google PhD Fellowship 2019
5. Best Paper Award, ACM SIGMOD 2016, 2025
6. Zhiyuan Scholarship, Zhiyuan College, Shanghai Jiao Tong University 2016
7. Kaiyuan Scholarship, Zhiyuan College, Shanghai Jiao Tong University 2014
8. First Prize, National Olympiad in Informatics in Province (NOIP) 2011

## GRANTS

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1. CAREER: Speedy and Reliable Approximate Queries in Hybrid Transactional/Analytical Systems. Single PI, NSF IIS/III, 5/15/2024 - 04/30/2029, \$599,977.
2. Unrestricted Google Gift. Single PI, November 2021, \$30,000.

## PUBLICATIONS

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\*: Authors in alphabetic ordering

1. Low-Latency Transaction Scheduling via Userspace Interrupts: Why Wait or Yield When You Can Preempt? by K. Huang, J. Zhou, **Z. Zhao**, D. Xie, T. Wang. In Proceedings of the ACM on Management of Data (**SIGMOD 2025, Best Paper Award**, to appear), Volume TBD, Issue TBD, Pages TBD, Berlin, Germany, June 2025.
2. FastPDB: Towards Bag-Probabilistic Queries at Interactive Speeds, by A. Huber, O. Kennedy, A. Rudra, **Z. Zhao**, S. Feng, B. Glavic. In Proceedings of the ACM on Management of Data (**SIGMOD 2025**), Volume 3, Issue 1, Pages 1 - 25, Berlin, Germany, June 2025.
3. Towards Systematic Index Dynamization, by D. Rumbaugh, D. Xie, **Z. Zhao**. In Proceedings of VLDB Endowment, Volume 17, Issue 11 (**VLDB 2024**), Pages 2867-2879, Guangzhou, China, August 2024.
4. GLIN: A Generic Learned Indexing Mechanism for Complex Geometries, by C. Wang, J. Yu, **Z. Zhao**. In Proceedings of the 11th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data (**BigSpatial '23**), Pages 1-12, Hamburg, Germany, November 2023.
5. Approximate Queries over Concurrent Updates, by C. Wang, N. Tellapuri, S. Keshannagari, D. Zinsley, **Z. Zhao**, D. Xie. In Proceedings of VLDB Endowment, Volume 16, Issue 12 (**VLDB 2023**), Demo Paper, Pages 3986-3989, Vancouver, Canada, August 2023.
6. AB-tree: index for concurrent random sampling and updates, by **Z. Zhao**, D. Xie, F. Li. In Proceedings of VLDB Endowment, Volume 15, Issue 9 (**VLDB 2022**), Pages 1835-1847, Sydney, Australia, Sept 2022.
7. At-the-time and Back-in-time Persistent Sketches, by B. Shi, **Z. Zhao**, Y. Peng, F. Li, J. Phillips. In Proceedings of 40th ACM SIGMOD International Conference on Management of Data (**SIGMOD 2021**), Pages 1623-1636, Xi'an, Shaanxi, China, June 2021.
8. Efficient Join Synopsis Maintenance for Data Warehouse, by **Z. Zhao**, F. Li, Y. Liu. In Proceedings of 39th ACM SIGMOD International Conference on Management of Data (**SIGMOD 2020**), Pages 2027-2042, Portland, USA, June 2020.
9. SolarDB: Towards a Shared-Everything Database on Distributed Log-Structured Storage, by T. Zhu, **Z. Zhao**, F. Li, W. Qian, A. Zhou, D. Xie, R. Stutsman, H. Li, H. Hu. In ACM Transactions on Storage (**TOS**), Volume 15, Issue 2, June 2019.
10. \*Wander Join and XDB: Online Aggregation via Random Walks, by F. Li, B. Wu, K. Yi, **Z. Zhao**. In ACM Transactions on Database Systems (**TODS**), Volume 44, Issue 1, Article No. 2, January 2019.
11. InferSpark: Statistical Inference at Scale, by **Z. Zhao**, J. Pei, K. Zhu, E. Lo, C. Liu. In 2019 IEEE International Conference on Big Data and Smart Computing (**BigComp 2019**), Pages 1-8, Kyoto, Japan, February 2019.
12. Solar: Towards a Shared-Everything Database on Distributed Log-Structured Storage, by T. Zhu, **Z. Zhao**, F. Li, W. Qian, A. Zhou, D. Xie, R. Stutsman, H. Li, H. Hu. In Proceedings of the 2018 USENIX Annual Technical Conference (**ATC 2018**), Pages 795-807, Boston, USA, July 2018.

13. Random Sampling over Joins Revisited, by **Z. Zhao**, R. Christensen, F. Li, X. Hu, K. Yi. In Proceedings of 37th ACM SIGMOD International Conference on Management of Data (**SIGMOD 2018**), Pages 1525-1539, Houston, USA, June 2018.
14. \*Wander Join and XDB: Online Aggregation via Random Walks, by F. Li, B. Wu, K. Yi, **Z. Zhao**. In **SIGMOD Record**, Volume 44, Number 1, Pages 33-40, May 2017.
15. \*Wander Join: Online Aggregation via Random Walks, by F. Li, B. Wu, K. Yi, **Z. Zhao**. In Proceedings of 35th ACM SIGMOD International Conference on Management of Data (**SIGMOD 2016, Best Paper Award**), Pages 615-629, San Francisco, USA, June 2016.
16. \*Wander Join: Online Aggregation for Joins, by F. Li, B. Wu, K. Yi, **Z. Zhao**. In Proceedings of 35th ACM SIGMOD International Conference on Management of Data, Demo Paper, (**SIGMOD 2016**), Pages 2121-2124, San Francisco, USA, June 2016.

## PROFESSIONAL SERVICES

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1. PC member, ACM SIGMOD 2023, 2024, 2025, 2026
2. PC member, VLDB 2023, 2024, 2025, 2026
3. Panelist, Two NSF Review Panels, 2024.
4. PC member, IEEE ICDE 2022 (research + demo), 2023 (demo), 2024 (research), 2025 (research).
5. Review Board member, VLDB Journal, 2025
6. Invited Reviewer for VLDB Journal, 2022, 2024, 2025.
7. Proceedings Chair, ACM SIGMOD 2023.
8. PC member, IEEE ICPADS 2022, 2023.
9. Invited reviewer for ACM Transactions on Database Systems (TODS), 2021, 2023.
10. PC member, International Workshop on Big Data in Emergent Distributed Environments (BiD-EDE), 2021 2022, 2023, 2024.
11. Invited reviewer for IEEE Transactions on Knowledge and Data Engineering (TKDE), 2017.

## TEACHING

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1. Instructor, CSE 350: Advanced Data Structures and Indexes, Spring 2026.
2. Instructor, CSE 199: UB Seminar, Fall 2025.
3. Instructor, CSE 302/303/402: Experiential Learning/Research, University at Buffalo, Fall 2025.
4. Instructor, CSE 462/562: Database Systems, Univeristy at Buffalo, Spring 2022, Spring 2023, Spring 2024, Fall 2024
5. Instructor, CSE 662: Languages and Runtimes for Big Data, University at Buffalo, Fall 2023, Fall 2024, Spring 2026.
6. Instructor, CSE 707: Seminar on Modern Database Systems, University at Buffalo, Fall 2021, Fall 2022
7. Instructor, CS 6530: Database Systems, University of Utah, Fall 2018
8. Teaching Assistant, CS6530 Database Systems, Univesrity of Utah, Fall 2017
9. Teaching Assistant, Database Systems, Shanghai Jiao Tong University, Spring 2016

10. Teaching Assistant, Introduction to Computer Science (Logic and Combinatorics), Shanghai Jiao Tong University, Fall 2015
11. Teaching Assistant, Principle and Practice of Computer Algorithms, Shanghai Jiao Tong University, Summer 2014

## **DEPARTMENTAL AND UNIVERSITY SERVICES**

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1. Member of Community Education Outreach (CSExplore) Committee, 2023 - present
2. Vice Chair of CSE graduate admission committee, 2024 - present
3. Member of CSE graduate admission committee, 2021 - 2024
4. Chair of CSE UpBeat and Colloquium committee, 2022 - 2023
5. Member of CSE UpBeat and Colloquium committee, 2021 - 2022, 2024 - present