

# Yiwei ZHAO | 赵奕炜

## Curriculum Vitae

Department of Electrical and Computer Engineering, Carnegie Mellon University

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## RESEARCH INTERESTS

Parallel Computing, Databases, Cloud Computing, Computer Architecture, Graph Processing, Distributed Systems.

## EDUCATION

**Carnegie Mellon University**, Pittsburgh, Pennsylvania, 2021-present.

- Ph.D. student in Electrical and Computer Engineering.
- Primary Advisor: Prof. Phillip B. Gibbons.

**Tsinghua University**, Beijing, China, 2017-2021.

- B.E. in Electronic Engineering. Graduated summa cum laude.
- Double major in Economics & Finance.
- **Overall GPA:** 3.9/4.0                      **Ranking:** 12/241 (top 5%)

## HONORS & AWARDS

- Best Paper Runner-up, VLDB (2023).
- Excellence Honor for Undergraduate, Tsinghua University & Ministry of Education of Beijing (2021).
- Top Prize in Shuping Scholarship for College Students, Shuping Foundation (2020)
- China National Scholarship, Ministry of Education of China (2018 & 2019).
- Scholarship of Excellent Comprehensive Performance, Tsinghua University (2018 & 2019).
- Advanced Individual of Social Practice, Tsinghua University (2018 & 2020).
- Advanced Individual of Academic Excellence, Tsinghua University (2018).
- First Prize in Shuping Scholarship for College Students, Shuping Foundation (2018 & 2019).
- Second Prize in the 35th China Regional College Student Physics Contest, Beijing Physical Society (2018).
- Shuping Scholarship for College Freshmen, Shuping Foundation (2017).

## RESEARCH EXPERIENCE

**Carnegie Mellon University (Graduate Research Assistant)**, Pittsburgh, PA, August 2021 – present.

- Advisor: Phillip B. Gibbons.
- Research Topics: Ordered Indexes for Processing-In-Memory; Parallel Graph Processing; Parallel Algorithms and Data Structures; Matrix Multiplication, Computation Geometry and Graph Processing on Novel Architecture.

**University of Maryland (Research Collaborator)**, College Park, MD, October 2022 – present.

- Advisor: Laxman Dhulipala.
- Research Topic: Time-evolving Graph Processing.

**Meta Reality Lab (Research Scientist Intern)**, Redmond, WA, May 2023 – August 2023.

- Host: Ziyun Li.
- Research Topic: Architecture & System Design for Edge Devices; Compute-in-memory.

**Massachusetts Institute of Technology (Research Assistant)**, Cambridge, MA, June 2020 – November 2020.

- Advisor: Julian Shun.
- Research Topic: Parallel Spatial Clustering Algorithms & Unsupervised Learning.

**Tsinghua University (Undergraduate Research Assistant)**, Beijing, China, September 2020 – June 2021.

- Advisor: Yongpan Liu.
- Research Topic: Error Tolerant Designs for ReRAM based Compute-In-Memory Neural Network Accelerators.

**Tsinghua University (Research Assistant)**, Beijing, China, January 2019 – Oct 2019.

- Advisor: Dan Pei.
- Research Topic: Fault Localization and Data Mining in Multi-dimensional Data.

**Tsinghua University (SRT Research Assistant)**, Beijing, China, October 2018 – June 2019.

- Advisor: Yuntao Gu.
- Research Topics: Optimization, Statistical Learning, Graph Filtering, Sparse recovery, and NLP.

## PUBLICATIONS

### Full Publications

[1] Hongbo Kang, **Yiwei Zhao**, Guy E. Blelloch, Laxman Dhulipala, Yan Gu, Charles McGuffey, and Phillip B. Gibbons. 2023. “**PIM-trie: A Skew-Resistant Trie for Processing-in-Memory**”. In Proceedings of the 35th ACM Symposium on Parallelism in Algorithms and Architectures (**SPAA '23**). Association for Computing Machinery, New York, NY, USA, pp. 1–14. [doi:10.1145/3558481.3591070](https://doi.org/10.1145/3558481.3591070).

[2] Zeyan Li, Junjie Chen, Yihao Chen, Chengyang Luo, **Yiwei Zhao**, Yongqian Sun, Kaixin Sui, Xiping Wang, Dapeng Liu, Xing Jin, Qi Wang, and Dan Pei. 2023. “**Generic and Robust Root Cause Localization for Multi-Dimensional Data in Online Service Systems**”. In Journal of Systems and Software (**JSS**), Vol. 203, (2023), 111748. [doi:10.1016/j.jss.2023.111748](https://doi.org/10.1016/j.jss.2023.111748).

[3] Hongbo Kang, **Yiwei Zhao**, Guy E. Blelloch, Laxman Dhulipala, Yan Gu, Charles McGuffey, and Phillip B. Gibbons. 2022. “**PIM-tree: A Skew-resistant Index for Processing-in-Memory**”. In Proceedings of the VLDB Endowment (**PVLDB**), 16(4): 946-958, December 2022. [doi:10.14778/3574245.3574275](https://doi.org/10.14778/3574245.3574275). [arXiv:2211.10516](https://arxiv.org/abs/2211.10516). *Best Research Paper Runner-up in VLDB 2023*.

[4] Zeyan Li, Chengyang Luo, **Yiwei Zhao**, Yongqian Sun, Kaixin Sui, Xiping Wang, Dapeng Liu, Xing Jin, Qi Wang, and Dan Pei. 2019. “**Generic and Robust Localization of Multi-Dimensional Root Cause**”. In the 30th International Symposium on Software Reliability Engineering (**ISSRE**). Oct. 28-31, 2019, Berlin. [doi:10.1109/ISSRE.2019.00015](https://doi.org/10.1109/ISSRE.2019.00015).

### Short Publications

[5] Hongbo Kang, **Yiwei Zhao**, Guy E. Blelloch, Laxman Dhulipala, Yan Gu, Charles McGuffey, and Phillip B. Gibbons. 2023. “**PIM-tree: A Skew-resistant Index for Processing-in-Memory (Abstract)**”. In Proceedings of the 2023 ACM Workshop on Highlights of Parallel Computing (**HOPC '23**), June 16, 2023, Orlando, FL, USA. [doi:10.1145/3597635.3598029](https://doi.org/10.1145/3597635.3598029).

## SERVICES

- **Student Council for Faculty Hiring:** Member, Jan 2023 – present, Dept. ECE, CMU.

## SKILLS

- **Programming Languages:** C/C++, Java, Python, Shell Scripting, and Assembly.
- **Software Development Tools:** GCC, MATLAB, Git, SQL, and RStudio.
- **Hardware Design Tools:** Verilog HDL, Gem5, McPAT, Multisim, and ADS.
- **Machine Learning Frameworks:** TensorFlow, and PyTorch.
- **Other Software Tools:** Mathematica, Latex, AutoCAD, and Stata.