

# XIN XIN

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## RESEARCH INTERESTS

My research interests primarily lie in the field of computer architecture with a focus on memory subsystems, e.g., main memory performance/power/reliability, processing-in-memory (PIM)/near-data-processing (NDP), hybrid DRAM-NVM system, and memory-based accelerators. I also have broad research/working experiences spanning from computer architecture to integrated circuit design to semiconductor devices.

## EDUCATION

### University of Pittsburgh

Ph.D. in Electrical and Computer Engineering  
Advisor: Jun Yang

Pittsburgh, PA

Jan. 2018 - Jun. 2023

### Tsinghua University

M.E. in Electrical Engineering  
Advisors: Tianling Ren and Yi Yang

Beijing, China

Sep. 2013 - Jul. 2016

### Lanzhou University

B.S. in Electrical Engineering

Lanzhou, China

Sep. 2009 - Jul. 2013

## PROFESSIONAL EXPERIENCES

### University of Central Florida

Tenure-Track Assistant Professor

Orlando, FL

Aug. 2023 - *present*

### Alibaba Group

Research Intern

Sunnyvale, CA

Aug. 2021 - Dec. 2021

### Huada Electronic Design Co., Ltd.

Digital Design Engineer

Beijing, China

Aug. 2016 - Aug. 2017

## RESEARCH

*Student(\*), Collaborator(†), Advisor(‡)*

### Published

- C1 Fan Li\*, Mayank Kumar, Ruizhi Zhu\*, Mengxin Zheng<sup>†</sup>, Qian Lou<sup>†</sup>, and **Xin Xin**, “ReliaFHE: Resilient Design for Fully Homomorphic Encryption Accelerators,” in Proceedings of the 31st ACM International Conference on Architectural Support for Programming Languages and Operating Systems. (**ASPLOS 2026, Top-Tier, Accepted**)
- C2 Fan Li\*, Qiufeng Li, Yanan Guo<sup>†</sup>, Weidong Cao<sup>†</sup>, and **Xin Xin**, “ASPA: Reassigning DDR5 Parity Bandwidth,” in Proceedings of the 32nd IEEE International Symposium on High-Performance Computer Architecture. (**HPCA 2026, Top-Tier, Accepted**)
- C3 Fan Li\*, Mimi Xie<sup>†</sup>, Yanan Guo<sup>†</sup>, Huize Li, and **Xin Xin**, “SCREME: A Scalable Framework for Resilient Memory Design,” in Proceedings of the 34th ACM/IEEE International Conference on Parallel Architectures and Compilation Techniques. (**PACT 2025**)
- C4 Fan Li\*, Ruizhi Zhu\*, Huize Li, Di Wu<sup>†</sup>, and **Xin Xin**, “PIM-SUM: Fast and Reliable In-Memory Summation for Recommendation Systems ,” in Proceedings of the 43rd IEEE International Conference on Computer Design. (**ICCD 2025**)

- C5 Liang Liu, Sadra Rahimi Kari, **Xin Xin**, Nathan Youngblood<sup>†</sup>, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “LightML: A Photonic Accelerator for Efficient General Purpose Machine Learning,” in Proceedings of the 52nd ACM Annual International Symposium on Computer Architecture. (**ISCA 2025, Top-Tier**)
- C6 Weidong Cao<sup>†</sup>, Jian Gao, **Xin Xin**, and Xuan Zhang<sup>†</sup>, “Addition is Most You Need: Efficient Floating-Point SRAM Compute-in-Memory by Harnessing Mantissa Addition,” in Proceedings of the 61st ACM/IEEE Design Automation Conference. (**DAC 2024**)
- C7 Yanan Guo<sup>†</sup>, Dingyuan Cao, **Xin Xin**, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “Uncore Encore: Covert Channels Exploiting Uncore Frequency Scaling,” in Proceedings of the 56th ACM/IEEE International Symposium on Microarchitecture. (**MICRO 2023, Top-Tier**)
- C8 Yanan Guo<sup>†</sup>, **Xin Xin**, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “Leaky Way: A Conflict-Based Cache Covert Channel Bypassing Set Associativity,” in Proceedings of the 55th ACM/IEEE International Symposium on Microarchitecture. (**MICRO 2022, Top-Tier**)
- C9 **Xin Xin**, Wanyi Zhu<sup>†</sup>, and Li Zhao<sup>†</sup>, “Architecting DDR5 DRAM Caches for Non-Volatile Memory Systems,” in Proceedings of the 59th ACM/IEEE Design Automation Conference. (**DAC 2022**)
- C10 **Xin Xin**, Yanan Guo<sup>†</sup>, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “SAM: Accelerating Strided Memory Accesses,” in Proceedings of the 54th ACM/IEEE International Symposium on Microarchitecture. (**MICRO 2021, Top-Tier**)
- C11 Congming Gao<sup>†</sup>, **Xin Xin**, Youyou Lu, Youtao Zhang<sup>†</sup>, Jun Yang<sup>‡</sup>, and Jiwu Shu, “ParaBit: Processing Parallel Bitwise Operations in NAND Flash Memory based SSDs,” in Proceedings of the 54th ACM/IEEE International Symposium on Microarchitecture. (**MICRO 2021, Top-Tier**)
- C12 **Xin Xin**, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “Reducing DRAM Access Latency via Helper Rows,” in Proceedings of the 57th ACM/IEEE Design Automation Conference. (**DAC 2020**)
- C13 **Xin Xin**, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “ELP2IM: Efficient and Low Power Bitwise Operation Processing in DRAM,” in Proceedings of the 26th IEEE International Symposium on High-Performance Computer Architecture. (**HPCA 2020, Top-Tier**)
- C14 **Xin Xin**, Youtao Zhang<sup>†</sup>, and Jun Yang<sup>‡</sup>, “ROC: DRAM-based Processing with Reduced Operation Cycles,” in Proceedings of the 56th ACM/IEEE Design Automation Conference. (**DAC 2019**)
- J1 **Xin Xin**, Haiming Zhao, Huiwen Cao, He Tian, Yi Yang<sup>‡</sup>, and Tianling Ren<sup>‡</sup>, “In situ observation of electrical property of thin-layer black phosphorus based on dry transfer method,” Applied Physics Express, 2016, 9(4): 45202.
- J2 Ziming Zhang<sup>§</sup>, **Xin Xin**<sup>§</sup>, Qingfeng Yan, Qiang Li, Yi Yang<sup>‡</sup>, and Tianling Ren<sup>‡</sup>, “Two-step heating synthesis of sub-3 millimeter-sized orthorhombic black phosphorus single crystal by chemical vapor transport reaction method,” Science China Materials, 2016, 59(2): 122-134. (<sup>§ equal contribution</sup>)

## TEACHING AND SUPERVISION ACTIVITIES

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### Courses

- EEL 4781 - Computer Communication Networks (*SPI: 4.36/5.0*)  
EEL 5706 - Resilient Computer System Design  
EEL 4781 - Computer Communication Networks (*SPI: 4.36/5.0*)  
EEL 5706 - Resilient Computer System Design (*SPI: 5.0/5.0*)  
EEL 4781 - Computer Communication Networks (*SPI: 3.6/5.0*)

Orlando, FL  
Jan. 2026 - *present*  
Aug. 2025 - Dec. 2025  
Jan. 2025 - May 2025  
Aug. 2024 - Dec. 2024  
Jan. 2024 - May 2024

### Supervision

- Postdoc: Huize Li  
PhD students: Ruizhi Zhu  
PhD students: Fan Li

Orlando, FL  
Feb. 2025 - *present*  
Aug. 2025 - *present*  
Jan. 2025 - *present*

## PROFESSIONAL SERVICES

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### Reviewer

- 2026 International Symposium on High-Performance Computer Architecture (HPCA’26)  
2026 Special Interest Group on Measurement and Evaluation (SIGMETRICS’26)  
2025 International Symposium on Microarchitecture (MICRO’25)  
2025 International Symposium on Computer Architecture (ISCA’25)

2025 International Symposium on High-Performance Computer Architecture (HPCA'25)  
2025 Special Interest Group on Measurement and Evaluation (SIGMETRICS'25)  
2024 Special Interest Group on Measurement and Evaluation (SIGMETRICS'24)  
2024 Computer Society Annual Symposium on VLSI (ISVLSI'24)  
IEEE Transactions on Computers  
IEEE Computer Architecture Letters  
ACM Transactions on Embedded Computing Systems  
Journal of Systems Architecture

#### **Services**

2026 International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'26): Artifact Evaluation Chair  
2025 NSF Panel: Reviewer  
2024 International Symposium on Secure and Private Execution Environment Design (SEED'24): Local Chair  
2020 International Symposium on Microarchitecture (MICRO'20): Student Assistant