Fangzhou Ye

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EDUCATION

Ph.D. in Computer Engineering August 2023 – Present
Department of Electrical and Computer Engineering, University of Central Florida, Orlando, FL, USA.
Thesis advisor: *Dr. Hao Zheng*

Bachelor's in Electronic Science and Engineering September 2019 – June 2023
College of Information Science and Electronic Engineering, Zhejiang University, Hangzhou, Zhejiang, China.

RESEARCH INTEREST

- Computer Architecture, Machine Learning, Software/Hardware Co-design, AI/ML systems, Efficient AI.

SKILLS

- Programming languages: C, C++, Python, PyTorch, MATLAB, and Verilog.

MAJOR PROFESSIONAL EXPERIENCE

Teaching/Research Graduate Assistant, University of Central Florida August 2023 – Present
Research Graduate Assistant (Leading Projects)

- Designed a **specific hardware accelerator** with **a novel scheduling policy** for GNN training/inference. Verified the design with the **clock-accurate simulator** in Python. Submitted a paper to DAC 2024 Conference and have been accepted.
- Designed a **generative model** in Python to deal with the **communication issues in GNN training**. Submitted a paper to the HPCA 2026 Conference and have been accepted.
- Designed a **Parallel strategy with CUDA** to deal with the **Multi-hop GNN in GPU acceleration**.
- Designed a **specific hardware accelerator** to deal with the **redundancy issues in Higher-order GNNs**. Submitted a paper to the MICRO 2026 Conference and have been accepted.
- Designed **a holistic computer system for the GraphRAG system** to create an efficient pipeline for redundancy-free retrieval.
- Designed a **specific hardware accelerator** to deal with the computation and memory issues in high-order tensor contraction. Submitted a paper to the ISCA 2026 Conference and have been accepted.
- Working on irregular sparse issues in scientific computing problems. Designed an accelerator for **non-linear solvers**. Submitted a paper to the MICRO 2026 Conference and have been accepted.

Teaching Graduate Assistant

- EGN 3211 Eng Analysis & Computation in Fall 2024 and Spring 2025. Assisted in teaching students Engineering Analysis and Computation, focusing on structured programming constructs in C/C++.
- EEL 3552 Signal Analysis & Analog Communication in Fall 2024. Assisted in teaching students concepts about the signal theorem.
- EEE 3442 Digital Design in Spring 2025. This course provides an introduction to logic design and the basic building blocks of digital computers.

Student Research Training Program (at national level), Zhejiang University June 2021 – May 2022

- Conducted research on **model segmentation** methods for wireless **federated learning**.
- Designed and implemented **a distributed communication system** using PyTorch in Python.

Internship, Office of Global Engagement, Zhejiang University September 2021 – December 2021

- Handled general affairs as a student assistant.

SELECTED PUBLICATION

Conference Proceedings

[1] **Fangzhou Ye**, Amir Ghazizadeh Ahsaei, Hao Zheng. "Argus: An Efficient Accelerator Design for Sparse Nonlinear Solver", in Proceedings of IEEE/ACM International Symposium on Microarchitecture (MICRO) **(Top-tier Conference)**, Athens, Greece, October 31–November 4, 2026.

[2] **Fangzhou Ye**, Wei Zhang, Ahmed Louri, Hao Zheng. "MOSAIC: An Accelerator Design for Heterophilic Graph Learning", in Proceedings of IEEE/ACM International Symposium on Microarchitecture (MICRO) **(Top-tier Conference)**, Athens, Greece, October 31–November 4, 2026.

[3] **Fangzhou Ye**, Shilin Tian, Amir Ghazizadeh Ahsaei, Hao Zheng. "TensorPrism: Rethinking Sparse High-order Tensor Acceleration via Co-occurrence Graph", in Proceedings of the 53rd International Symposium on Computer Architecture (ISCA) **(Top-tier Conference)**, Raleigh, NC, June 27–July 1, 2026.

[4] Shilin Tian, **Fangzhou Ye**, Amir Ghazizadeh Ahsaei, Wei Zhang, Hao Zheng. "PanGaea: A Unified Memory-Efficient Accelerator for Pangenome Chaining and Alignment", in Proceedings of the 63rd Design Automation Conference (DAC) **(Top-tier Conference)**, Long Beach, CA, July 26–29, 2026.

[5] **Fangzhou Ye**, Lingxiang Yin, and Hao Zheng. "Scaling Graph Neural Network Training via Geometric Optimization", in Proceedings of IEEE International Symposium on High-Performance Computer Architecture (HPCA) **(Top-tier Conference)**, Sydney, Australia, January 31–February 4, 2026.

[6] Amir Ghazizadeh Ahsaei*, Lingxiang Yin*, Shilin Tian, **Fangzhou Ye**, Fan Yao, Hao Zheng. "Rethinking Tiling and Dataflow for SpMM Acceleration: A Graph Transformation Framework", in Proceedings of IEEE/ACM International Symposium on Microarchitecture (MICRO) **(Top-tier Conference)**, Seoul, South Korea, October 18–22, 2025. **[*Equal contribution]**

[7] **Fangzhou Ye**, Lingxiang Yin, Amir Ghazizadeh Ahsaei, Hao Zheng. "EGMA: Enhancing Data Reuse and Workload Balancing in Message Passing GNN Acceleration via Gram Matrix Optimization", in Proceedings of the 61st Design Automation Conference (DAC) **(Top-tier Conference)**, San Francisco, CA, June 23–27, 2024.

Patents

[8] Shi Binpu, **Ye Fangzhou**, Liu Shengli, Chen Haoyang, Yu Guanding. "A distributed communication and method", submitted to China National Intellectual Property Administration (CNIPA), 2022.

AWARDS

- Outstanding Graduate Researcher Award, UCF, 2026.
- Future Faculty Laureates (FFLs) Program for Doctoral Students, UCF, 2024–2026.
- ISCA Student Travel Grant, ISCA, 2026.
- Best Reviewer Certificate, TSUSC, 2025.
- MICRO Student Travel Grant, MICRO, 2025.
- ORCGS Doctoral Fellowship, UCF, 2023–2024.
- DAC Young Fellows, DAC, 2024.

PROFESSIONAL ACTIVITIES

Conference Review

- DAC'24–26, IPDPS'24, ICCAD'24–26, ISPASS'25–26, MLSys'26, ICS'26

Journal Reviewer

- IEEE Transactions on Sustainable Computing (TSUSC); IEEE Transactions on Computers (TC); Future Generation Computer Systems; IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD); IEEE Transactions on Circuits and Systems I (TCAS-I); Computing in Springer Nature

Artifact Evaluation Committee

- MICRO'26 Artifact Evaluation PC Member