

Ye, Haojie

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EDUCATION

Ph.D. Candidate in Computer Science and Engineering

Expected Spring 2024

Thesis Advisor: Prof. Trevor Mudge

University of Michigan, Ann Arbor

- **Overall GPA:** 4.0/4.0
- **Area Focus:** Computer Architecture, Algorithm, and System Design for emerging applications such as Recommendation Systems, Graph-based Machine Learning, and Graph Mining

M.S.E. in Computer Science and Engineering

Sept 2019 – May 2021

Thesis Advisor: Prof. Trevor Mudge

University of Michigan, Ann Arbor

- **Overall GPA:** 4.0/4.0

B.S.E. in Computer Engineering

Sept 2017 – May 2019

University of Michigan, Ann Arbor

PUBLICATION

1. **H. Ye**, S. Vedula, Y. Chen, Y. Yang, A. Bronstein, R. Dreslinski, T. Mudge, N. Talati, "GRACE: A Scalable Graph-Based Approach To Accelerating Recommendation Model Inference" (ASPLOS'23)
2. H. Kim, **H. Ye**, T. Mudge, R. Dreslinski, N. Talati, "RecPIM: A PIM-Enabled DRAM-RRAM Hybrid Memory System To Accelerate Recommendation Models" (DAC'23 under review)
3. N. Talati, **H. Ye**, S. Vedula, K. Chen, Y. Chen, D. Liu, D. Blaauw, A. Bronstein, T. Mudge, R. Dreslinski, "Mint: An Accelerator For Mining Temporal Motifs" (MICRO'22)
4. L. Belayneh, **H. Ye**, K. Chen, D. Blaauw, T. Mudge, R. Dreslinski, N. Talati, "Locality-aware Optimizations for Improving Remote Memory Latency in Multi-GPU Systems" (PACT'22)
5. N. Talati, **H. Ye**, Y. Yang, L. Belayneh, K. Chen, D. Blaauw, T. Mudge, R. Dreslinski, "NDMiner: Accelerating Graph Pattern Mining Using Near Data Processing" (ISCA'22)
6. A. Khadem, **H. Ye**, T. Mudge, "CoDR: Computation and Data Reuse Aware CNN Accelerator" (DAC'21 poster)
7. N. Talati, D. Jin, Di, **H. Ye**, A. Brahmakshatriya, G. Dasika, S. Amarasinghe, T. Mudge, D. Koutra, R. Dreslinski, "A Deep Dive Into Understanding The Random Walk-Based Temporal Graph Learning" (IISWC'21)
8. Y. Yang, **H. Ye**, Y. Chen, X. Liu, N. Talati, X. He, T. Mudge, R. Dreslinski, "CoPTA: Contiguous Pattern Speculating TLB Architecture," International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation (SAMOS'20)
9. X. He, S. Pal, A. Amarnath, S. Feng, D. Park, A. Rovinski, **H. Ye**, Y. Chen, R. Dreslinski, T. Mudge, "Sparse-tpu: Adapting systolic arrays for sparse matrices" (ICS'20)

INTERNSHIP

Micron Technology - Advanced Hardware Development Intern

May 2022 – Aug 2022

Enhanced in-memory function research at Micron

Allen, Texas

- Independent research on enhanced in-memory functions of Micron's next generation memory module
- Published 1 Micron internal journal and 2 U.S. patents with Micron

SELECTED PROJECTS

Transmuter - Software-defined Hardware Algorithm Part

Jan 2020 – Current

Dataflow Simulation on Accelerator using gem5 simulator

University of Michigan, Ann Arbor

- **Abstract:** Novel sparse matrix dataflow exploration and simulation on Transmuter
- Simulated different sparse matrix operation dataflows on Transmuter using gem5
- Implemented row-wise dataflow and outperformed the previous state-of-the-art outer-product dataflow
- Proposed cooperative systolic mode to further improve the performance and energy efficiency

TECHINICAL SKILLS

- **Programming Languages:** C/C++, Python, CUDA, Verilog HDL, System Verilog, HTML, Matlab
- **Software and Design Tools:** Git, Murphi, Cadence, Design Compiler, Latex
- **Architecture Simulators:** Gem5, Gem5-gpu, DRAMSim, Ramulator, CACTI, Zsim

TEACHING EXPERIENCE

Graduate Student Instructor

Sept 2020 – Jan 2021

EECS 598 Applied Parallel Programming with GPUs

University of Michigan, Ann Arbor

- Teaching with Prof. Reetuparna Das, preparing lecture slides, homework, and exams on GPU micro-architecture and CUDA programming language to graduate students

AWARDS & HONORS

- Graduate Student Research Assistant (GSRA) at University of Michigan (2020)
- Outstanding Undergraduate Research Award (2019)
- James B. Angell Scholar (2019)

REFERENCES

- Prof. Trevor Mudge, Bredt Family Professor, Computer Science and Engineering, University of Michigan, Ann Arbor, MI. E-mail: tnm@umich.edu
- Prof. Ronald Dreslinski, Associate Professor, Computer Science and Engineering, University of Michigan, Ann Arbor, MI. E-mail: rdreslin@umich.edu
- Dr. Nishil Talati, Assistant Research Scientist, Computer Science and Engineering, University of Michigan, Ann Arbor, MI. E-mail: talatin@umich.edu