

ZHAOYING LI

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📍 COM3-02-17, System and Networking Lab, 13 Computing Drive, Singapore 117417

WORK EXPERIENCE

- **National University of Singapore** Aug 2023 - Present
Research Fellow, Advisor: Tulika Mitra
- **EdgeCortix** Sept 2020 - Feb 2021
Intern

EDUCATION

- **National University of Singapore** July 2018 - Nov 2023
Ph.D. in Computer Science. Advisor: Tulika Mitra
- **Shandong University, China** Sept 2014 - June 2018
Bachelor of Software Engineering

RESEARCH INTERSETS

Reconfigurable architecture and compilation, machine learning compilation

PUBLICATIONS

- [1] **Rewire: Advancing CGRA Mapping Through a Consolidated Routing Paradigm.** DAC'25
Zhaoying Li, Dan Wu, Dhananjaya Wijerathne, Dan Chen, Huize Li, Cheng Tan, Tulika Mitra
62nd ACM/IEEE Design Automation Conference
- [2] **Enhancing CGRA Efficiency through Aligned Compute and Communication Provisioning.** ASPLOS'25
Zhaoying Li, Pranav Danggi*, Chengen Yin, Thilini K. Bandara, Rohan Juneja, Cheng Tan, Zhenyu Bai, Tulika Mitra*
Architectural Support for Programming Languages and Operating Systems
- [3] **InkStream: Real-time GNN Inference on Streaming Graphs via Incremental Update.** IPDPS'25
Dan Wu, Zhaoying Li, Tulika Mitra
International Parallel and Distributed Processing Symposium
- [4] **ASADI: Accelerating Sparse Attention using Diagonal-based In-situ Computing.** HPCA'24
Huize Li, Zhaoying Li, Zhenyu Bai, Tulika Mitra
30th IEEE International Symposium on High-Performance Computer Architecture
- [5] **ICED: An Integrated CGRA Framework Enabling DVFS-Aware Acceleration.** MICRO'24
Cheng Tan, Miaomiao Jiang, Deepak Patil, Yanghui Ou, Zhaoying Li, Lei Ju, Tulika Mitra, Hyunchul Park, Antonino Tumeo, Jeff Zhang
57th IEEE/ACM International Symposium on Microarchitecture
- [6] **PACE: A Scalable and Energy Efficient CGRA in a RISC-V SoC for Edge Computing Applications.** HotChips'24
Vishnu Nambiar, Yi Sheng Chong, Thilini Bandara, Dhananjaya Wijerathne, Zhaoying Li, Rohan Juneja, Li-Shiuan Peh, Tulika Mitra, Anh Tuan Do
HotChips
- [7] **Flip: Data-Centric Edge CGRA Accelerator.** TODAES'24
Dan Wu, Peng Chen, Thilini K. Bandara, Zhaoying Li, Tulika Mitra
ACM Transactions on Design Automation of Electronic Systems
- [8] **FHE-CGRA: Enable Efficient Acceleration of Fully Homomorphic Encryption on CGRAs.** DAC'24
Miaomiao Jiang, Yilan Zhu, Honghui You, Cheng Tan, Zhaoying Li, Jiming Xu, Lei Ju
61st ACM/IEEE Design Automation Conference
- [9] **LISA: Graph Neural Network based Portable Mapping on Spatial Accelerators.** HPCA'22
Zhaoying Li, Dan Wu, Dhananjaya Wijerathne, Tulika Mitra *Distinguished Artifact Award*
28th IEEE International Symposium on High-Performance Computer Architecture

- [10] **PANORAMA: Divide-and-Conquer Approach for Mapping Complex Loop Kernels on CGRA.** DAC'22
Dhananjaya Wijerathne, Zhaoying Li, Thilini Kaushalya Bandara, Tulika Mitra
 59th ACM/IEEE Design Automation Conference
- [11] **Power-Performance Characterization of TinyML Systems.** ICCD'22
Yujie Zhang, Dhananjaya Wijerathne, Zhaoying Li, Tulika Mitra
 40th IEEE International Conference on Computer Design
- [12] **HiMap: Fast and Scalable High-Quality Mapping on CGRA via Hierarchical Abstraction.** TCAD'22
Dhananjaya Wijerathne, Zhaoying Li, Anuj Pathania, Tulika Mitra, Lothar Thiele
 IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
- [13] **ChordMap: Automated Mapping of Streaming Applications onto CGRA.** TCAD'21
Zhaoying Li, Dhananjaya Wijerathne, Xianzhang Chen, Anuj Pathania, Tulika Mitra
 IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
- [14] **HiMap: Fast and Scalable High-Quality Mapping on CGRA via Hierarchical Abstraction.** DATE'21
Dhananjaya Wijerathne, Zhaoying Li, Anuj Pathania, Tulika Mitra, Lothar Thiele
 Design Automation and Test in Europe
- [15] **CASCADE: High Throughput Data Streaming via Decoupled Access/Execute CGRA.** TECS'19
Dhananjaya Wijerathne, Zhaoying Li, Manupa Karunaratne, Anuj Pathania, Tulika Mitra
 ACM Transactions on Embedded Computing Systems
- [16] **Set Variation-aware Shared LLC Management for CPU-GPU Heterogeneous Architecture.** DATE'18
Zhaoying Li, Lei Ju, Hongjun Dai, Xin Li, Mengying Zhao, Zhiping Jia
 Design, Automation & Test in Europe Conference & Exhibition

AWARD

- **Dean's Graduate Research Excellence Award** *AY 2021/2022*
- **HPCA Distinguished Artifact Award** *2022*
- **DAC research young fellow program** *2020*
- **Research Scholarship by NUS** *AY 2018*
- **Dean's Outstanding Student awarded by SDU** *2018*
- **First-class Student awarded by SDU** *AY 2017, 2018*

TEACHING ASSISTANT

- **[CS2100] Computer Organization, School of computing, NUS** *2019 Jan-May*
- **[CS5272] Embedded Software Design, School of computing, NUS** *2019 Aug-Nov*
- **[CS3237] Introduction to Internet of Things, School of computing, NUS** *2020 Jan-May*

INVITED TALKS

- **Morpher: an integrated compilation and simulated toolchain** *HPCA Tutorial 2023*
- **Education Class: Coarse-grained Reconfigurable Architecture** *ESWEEK 2023*
- **Portable and scalable compilation for CGRA accelerators** *Shandong University 2023*
- **LISA: Graph Neural Network based Portable Mapping on Spatial Accelerators.** *HPCA 2022*