

# HAORAN JIN

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## EDUCATION

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### University of Michigan

Sep. 2023 - present

**Ph.D** in Computer Engineering | Computer Architecture & EDA

Advisor: Prof. Nathaniel Bleier & Previous Advisor: Prof. George Tzimpragos

### Shanghai Jiao Tong University

Sep. 2019 - Aug. 2023

**B.Eng** in Electrical and Computer Engineering

## HONORS AND AWARDS

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- 2020,2021,2022 National Encouragement Scholarship
- 2019,2020,2021,2022 John Wu & Jane Sun Sunshine Scholarship
- 2020,2021,2022 SJTU Undergraduate Excellence Scholarship

## SELECTED PROJECTS

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### Mozart: An Ecosystem-Accelerator Codesign Framework for Composable, Heterogeneous Chiplet-based Neural Network Accelerators

Prof. Nathaniel Bleier at University of Michigan

Jan. 2025 – Aug. 2025

- Developed a chiplet ecosystem-accelerator codesign framework to increase chiplet reuse and hence reducing non-recurring engineering costs.
- Built hierarchical design space exploration methodology to systematically compose heterogeneous chiplet-based bespoke ASIC leveraging operator-level disaggregation insights.
- Implemented constraint-aware optimization for datacenter LLM serving and autonomous vehicle case studies.

### Minimum Area Retiming for xSFQ logic

Prof. George Tzimpragos at University of Michigan

Aug. 2024 – Dec. 2024

- Developed a linear programming formulation to simultaneously minimize the number of registers and duplication logic in xSFQ circuits for optimal area reduction while maintaining clock period constraints.

### Mixed Circuit of Binary & Stochastic Computing

Prof. Weikang Qian at SJTU

Jan. 2022 – Sep. 2023

- Defined a domain-specific language (DSL) for agile mixed circuit development.
- Implemented a Verilog code generation backend for the DSL to facilitate hardware synthesis.
- Evaluated mixed binary-stochastic circuits for image processing applications.

## PUBLICATION

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- Haoran Jin, Jirong Yang, Yunpeng Liu, Barry Lyu, Kangqi Zhang, Nathaniel Bleier, *Mozart: An Ecosystem-Accelerator Codesign Framework for Composable, Heterogeneous Chiplet-based Neural Network Accelerators*, ASPLOS 2025 (Under Submission)
- Zexi Li\*, Haoran Jin\*, Kuncai Zhong, Guojie Luo, Runsheng Wang, Weikang Qian, *SCGen: A Versatile Generator Framework for Agile Development of Stochastic Circuits*, DATE 2024
- Kuncai Zhong, Zexi Li, Haoran Jin, Weikang Qian, *Exploiting Uniform Spatial Distribution to Design Efficient Random Number Source for Stochastic Computing*, ICCAD 2022