

# Bizhao Shi

✉ bshi@pku.edu.cn    ☁ shibizhao.github.io    📄 shibizhao

Peking University, No. 5 Yiheyuan Road, Haidian District, Beijing 100871, China

## Personal Profile

---

I am a fourth-year Ph.D. student in the School of Computer Science at Peking University associated with the Center for Energy-Efficient Computing and Applications (CECA). I am a member of the PKU-DASYS Lab, advised by Prof. Guojie Luo. Previously, I received my B.S. degree in Computer Science and Technology from Peking University in 2021. My current research area mainly focuses on reconfigurable computing. I also have broad research interests including computer architecture, computer system, and neuromorphic computing.

## Education

---

### Ph.D. in Computer Science

School of Computer Science, Peking University

Advisor: Prof. Guojie Luo

Sep. 2021 – Present

Beijing, China

### B.S. in Computer Science and Technology

School of Electronics Engineering and Computer Science (EECS), Peking University

Sep. 2017 – Jul. 2021

Beijing, China

## Publications

---

### Conference Papers

- [C13] Sunan Zou, **Bizhao Shi**, Ziyun Zhang, and Guojie Luo. “MuSA: Multi-Sketch Accelerator with Hybrid Parallelism and Coalesced Memory Organization”. 42<sup>nd</sup> *International Conference on Computer Design (ICCD)*, 2024.
- [C12] **Bizhao Shi**, Tuo Dai, Sunan Zou, Xinming Wei, and Guojie Luo. “ImageMap: Enabling Efficient Mapping from Image Processing DSL to CGRA”. 30<sup>th</sup> *International European Conference on Parallel and Distributed Computing (Euro-Par)*, 2024.
- [C11] Tuo Dai, **Bizhao Shi**, and Guojie Luo. “G<sup>2</sup>PM: Performance Modeling for ACAP Architecture with Dual-Tiered Graph Representation Learning”. 61<sup>st</sup> *Design Automation Conference (DAC)*, 2024.
- [C10] **Bizhao Shi**, Tuo Dai, Jiaxi Zhang, Xuechao Wei, and Guojie Luo. “PT-Map: Efficient Program Transformation Optimization for CGRA Mapping”. 61<sup>st</sup> *Design Automation Conference (DAC)*, 2024.
- [C9] Sunan Zou, Jiaxi Zhang, **Bizhao Shi**, and Guojie Luo. “BESWAC: Boosting Exact Synthesis via Wiser SAT Solver Call”, 27<sup>th</sup> *Design Automation and Test in Europe (DATE)*, 2024.
- [C8] Tuo Dai, **Bizhao Shi**, and Guojie Luo. “WideSA: A High Array Utilization Mapping Scheme for Uniform Recurrences on the Versal ACAP Architecture”, 27<sup>th</sup> *Design Automation and Test in Europe (DATE)*, 2024.
- [C7] **Bizhao Shi**, Jieran Zhang, and Guojie Luo. “F-TFM: Accelerating Total Focusing Method for Ultrasonic Array Imaging on FPGA”, *International Conference on Field-Programmable Technology (ICFPT)*, 2023.
- [C6] Xiong Wang, Jun Huang, **Bizhao Shi**, Zhe Ou, Guojie Luo, Linghe Kong, Daqing Zhang, and Chenren Xu. “RF-SIFTER: Sifting Signals at Layer-0.5 to Mitigate Wideband Cross-Technology Interference for IoT”, 29<sup>th</sup> *Annual International Conference on Mobile Computing and Networking (MobiCom)*, 2023.
- [C5] Tuo Dai, **Bizhao Shi**, and Guojie Luo. “Weave: Abstraction for Accelerator Integration of Generated Modules”, *International Symposium on Field Programmable Gate Arrays (FPGA)*, 2023.
- [C4] Sicheng Li, Chen Bai, Xuechao Wei, **Bizhao Shi**, Yen-Kuang Chen, and Yuan Xie. “2022 ICCAD CAD Contest Problem C: Microarchitecture Design Space Exploration”, 41<sup>st</sup> *International Conference on Computer-Aided Design (ICCAD)*, 2022.

- [C3] Jiayi Zhang, Qiuyang Gao, Yijiang Guo, **Bizhao Shi**, and Guojie Luo. “EasyMAC: Design Exploration-Enabled Multiplier-Accumulator Generator Using a Canonical Architectural Representation”, 27<sup>th</sup> Asia and South Pacific Design Automation Conference (**ASP-DAC**), 2022.
- [C2] Zhe Zhou, **Bizhao Shi**, Zhe Zhang, Yijin Guan, Guangyu Sun, and Guojie Luo. “BlockGNN: Towards Efficient GNN Acceleration Using Block-Circulant Weight Matrices”, 58<sup>th</sup> Design Automation Conference (**DAC**), 2021.
- [C1] **Bizhao Shi**, Zhucheng Tang, Guojie Luo, and Ming Jiang. “Winograd-Based Real-Time Super-Resolution System on FPGA”, International Conference on Field-Programmable Technology (**ICFPT**), 2019.

## Journal Papers

- [J4] Yujie Wu\*, **Bizhao Shi**\* (\* denotes the equal contributions), Zhong Zheng, Hanle Zheng, Fangwen Yu, Xue Liu, Guojie Luo, and Lei Deng. “Adaptive Spatiotemporal Neural Networks through Complementary Hybridization”, *Nature Communications* (**NatComm**), 2024. **[Selected as Editors' Highlights]**
- [J3] Sunan Zou, Jiayi Zhang, **Bizhao Shi**, and Guojie Luo. “PowerSyn: A Logic Synthesis Framework with Early Power Optimization”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (**TCAD**), 2023.
- [J2] Tuo Dai, **Bizhao Shi**, and Guojie Luo. “Weave: Abstraction and Integration Flow for Accelerators of Generated Modules”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (**TCAD**), 2023.
- [J1] **Bizhao Shi**, Jiayi Zhang, Zhuolun He, Xuechao Wei, Sicheng Li, Guojie Luo, Hongzhong Zheng, and Yuan Xie. “Efficient Super-Resolution System with Block-Wise Hybridization and Quantized Winograd on FPGA”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (**TCAD**), 2023.

## Research Experience

<b>DAMO Academy, Alibaba Group</b>	<b>July 2020 - Feb 2024</b>
<i>Research Intern at Computing Technology Lab, co-advised by Dr. Yen-kuang Chen and Dr. Yuan Xie.</i>	
<i>Beijing, China</i>	
Topics: Compiler for Spatial Accelerators, Agile Hardware Design Methodology, and Design Space Exploration	
<b>University of California, Santa Barbara (UCSB)</b>	<b>Jan 2020 - July 2020</b>
<i>Research Intern at Scalable Energy-efficient Architecture Lab, co-advised by Prof. Lei Deng and Prof. Yuan Xie.</i>	
<i>Remote</i>	
Topics: Hybrid Spatiotemporal Neural Network	
<b>Electronics Engineering and Computer Science, Peking University</b>	<b>Apr 2019 - July 2019</b>
<i>Research Intern at MPSoC-sCNN Group, advised by Prof. Quansheng Ren.</i>	
<i>Beijing, China</i>	
Topics: Spiking Neural Network Deployment on FPGA	
<b>Institute of Physics, Chinese Academy of Sciences</b>	<b>Feb 2015 - Dec 2016</b>
<i>Research Intern at Group M07, State Key Laboratory of Magnetism, advised by Prof. Jianwang Cai.</i>	
<i>Beijing, China</i>	
Topics: Measurements of Magnetic Transport	

## Honors

• Qingyun Shi Outstanding Paper Award (石青云院士优秀论文奖), Peking University	Dec 2024
• Xiaomi Top Ten Academic Awards (小米杯“学术十杰”称号), Peking University	Dec 2024
• China Association for Science and Technology (CAST) Young Elite Scientist Sponsorship (YESS) Doctoral Special Program (中国科协青年人才托举工程博士生专项), CAST	Oct 2024
• National Scholarship (国家奖学金), Peking University	Sep 2024
• Honors for Academic Innovation (学术创新奖), Peking University	Sep 2024
• President Scholarship (校长奖学金), Peking University	Sep 2024
• Honors for Outstanding Academic Performance (优秀科研奖), Peking University	Sep 2024

- Honors for Merit Student (三好学生), Peking University Sep 2023
- Huatai Securities Technology Scholarship (华泰证券奖学金), Peking University Sep 2023
- Honors for Outstanding Undergraduate Graduates in Beijing (北京市优秀毕业生) Jul 2021
- Honors for Outstanding Undergraduate Graduates in Peking University (北京大学优秀毕业生) Jul 2021
- The Second Class Scholarship (北京大学二等奖学金), Peking University Oct 2020
- Honors for Merit Student (三好学生), Peking University Oct 2020
- The May 4th Scholarship (五四奖学金), Peking University Oct 2018
- Honors for Outstanding Academic Performance (优秀科研奖), Peking University Oct 2018

## Awards

---

- CEDA EDathon 2021, Second Place Aug 2021
- IBM OpenCAPI Heterogeneous Computing Competition, Third Place Apr 2020

## Teaching Experience

---

- **Teaching Assistant** – Introduction to Parallel and Distributed Computing, Peking University 2020, 2022

## Services

---

- **Official Reviewer: IEEE JETCAS**
- **Artifact Reviewer: FPGA 2023**

## Skills

---

### Programming Languages and Software

C/C++, Python, Pytorch, LATEX, Git, CUDA, HLS, Chisel, Verilog, MATLAB, Javascript.

### Languages

Mandarin (Chinese) and English.

### Hobbies

Table Tennis and Hiking.

[Last updated on January 24, 2025]