

# Zhuolun (Leon) HE

The Chinese University of Hong Kong  
zleonhe@gmail.com ♦ <https://zleonhe.github.io>

## RESEARCH INTEREST

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Acceleration of EDA tools via parallel programming

## EDUCATION

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### The Chinese University of Hong Kong

Ph.D. candidate in Computer Science and Engineering  
Supervisor: Prof. Bei Yu

Hong Kong  
Aug. 2019 - Present

### Peking University

Ph.D. student in Computer Architecture  
Supervisor: Prof. Guojie Luo

Beijing  
Sept. 2017 - Sept. 2018

### Peking University

B.S. in Computer Science and Technology

Thesis: Architecture Support for Monadic Serial Dynamic Programming Algorithm

Beijing  
Sept. 2013 - Jul. 2017

## PUBLICATION

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1. **Zhuolun He**, Yuzhe Ma, and Bei Yu. "X-Check: GPU-Accelerated Design Rule Checking via Parallel Sweepline Algorithms". *IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, San Diego, CA, 2022.
2. Ziyi Wang, Chen Bai, **Zhuolun He**, Guangliang Zhang, Qiang Xu, Tsung-Yi Ho, Bei Yu, and Yu Huang. "Functionality Matters in Netlist Representation Learning". *ACM/IEEE Design Automation Conference (DAC)*, San Francisco, CA, 2022.
3. **Zhuolun He**, Ziyi Wang, Chen Bai, Haoyu Yang, and Bei Yu. "Graph Learning-Based Arithmetic Block Identification". *IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, Munich, 2021.
4. **Zhuolun He**, Peiyu Liao, Siting Liu, Yuzhe Ma, and Bei Yu. "Physical Synthesis for Advanced Neural Network Processors". *IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC)*, Tokyo, 2021. (Invited Paper)
5. **Zhuolun He**, Lu Zhang, Peiyu Liao, Yuzhe Ma, and Bei Yu. "Reinforcement Learning Driven Physical Synthesis". *IEEE International Conference on Solid-State and Integrated Circuit Technology (ICSICT)*, Kunming, 2020. (Invited Paper)
6. Rui Lin, Ching-Yun Ko, **Zhuolun He**, Cong Chen, Yuan Cheng, Hao Yu, Graziano Chesi, and Ngai Wong. "Hotcake: Higher order tucker articulated kernels for deeper CNN compression". *IEEE International Conference on Solid-State and Integrated Circuit Technology (ICSICT)*, Kunming, 2020. (Invited Paper)
7. **Zhuolun He**, Yuzhe Ma, Lu Zhang, Peiyu Liao, Ngai Wong, Bei Yu, and Martin D.F. Wong. "Learn to Floorplan through Acquisition of Effective Local Search Heuristics". *IEEE International Conference on Computer Design (ICCD)*, Hartford, CT, 2020.
8. Yuzhe Ma, **Zhuolun He**, Wei Li, Tinghuan Chen, Lu Zhang, and Bei Yu. "Understanding Graphs in EDA: From Shallow to Deep Learning". *ACM International Symposium on Physical Design (ISPD)*, Taipei, 2020. (Invited Paper)

9. Ching-Yun Ko, Cong Chen, **Zhuolun He**, Yuke Zhang, Kim Batselier, and Ngai Wong. "Deep Model Compression and Inference Speedup of Sum-Product Networks on Tensor Trains". *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2019.
10. **Zhuolun He**, Hanxian Huang, Ming Jiang, Yuanchao Bai, and Guojie Luo. "FPGA-based Real-time Super-resolution System for Ultra High Definition Videos". *IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM)*, Boulder, CO, 2018.
11. **Zhuolun He** and Guojie Luo. "FPGA Acceleration for Computational Glass-Free Displays". *ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA)*, Monterey, CA, 2017.

## WORK EXPERIENCE

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### SmartMore

Research Intern

Hong Kong

Jun. 2020 - Apr. 2022

### The University of Hong Kong

Research Assistant

Hong Kong

Nov. 2018 - Jul. 2019

## AWARDS

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- 3rd Place in ISPD Contest 2020
- Champion of EDathon 2018 2018
- Outstanding Dissertation Award at EECS, Peking University 2017

## SKILL SET

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### Programming

Proficient in C/C++, Python

### Framework/Tool

Experienced with CUDA, HLS-C, Javascript/Typescript, MATLAB, Rust  
Bash, Bootstrap,  $\LaTeX$ , PyTorch, Taskflow