FANGZHOU WANG

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RESEARCH INTERESTS

- Physical Design in VLSI CAD
- SAT with Applications in CAD
- VLSI Routing (Global Routing and Detailed Routing)
- Security Closure in Physical Design

EDUCATION

The Chinese University of Hong Kong, NT, Hong Kong Aug. 2019 – Present
Ph.D. Student, Department of Computer Science and Engineering
Advisor: Prof. Evangeline F.Y. Young

City University of Hong Kong, KLN, Hong Kong Aug. 2015 – Jul. 2019
B.S., Computer Science (First Class Honours) – GPA 3.94/4.30, RANK 2/91
Advisor: Prof. Hong Xu, Henry
Dissertation: "Faster Video Super-Resolution System"

Tsinghua University, Beijing, P. R. China Sep. 2016 – Jan. 2017
Exchange Student, Department of Computer Science and Technology

EXPERIENCE

Cadence Design Systems, Austin, Texas Sep. 2022 – Feb. 2023
Software Engineering Intern, NanoRoute Team

Huawei Noah's Ark Lab, NT, Hong Kong Sep. 2021 – Jan. 2022
Research Intern, Decision Making & Reasoning Lab

City University of Hong Kong, KLN, Hong Kong Jun. 2018 – Aug. 2018
Full-time Research Assistant, Department of Computer Science
Topic: Scheduling for distributed DNN training
Advisor: Prof. Hong Xu, Henry

Hong Kong Exchanges and Clearing Limited, NT, Hong Kong Aug. 2017 – May 2018
Assistant Analyst Programmer, Cash Satellite Systems Regular Team

RESEARCH AND PROJECT EXPERIENCE

- Floorplanning
  - Fixed-outline floorplanning with analytical approaches
- Global Routing
  - LEF/DEF-based detailed routability-driven global routing
  - Routing with cell movement for efficient P&R co-optimization
- Detailed Routing
  - Pin access analysis with fast design rule checking and SAT solving
- Security Closure of Physical Layouts
  - Logic locking against machine learning-based attacks
  - Layout-level defense against trojan insertion attacks
- Wafer-Scale Deep Learning Accelerator Placement
  - Placing DNNs on wafer-scale AI accelerator with optimal kernel sizing

PUBLICATIONS

Journal Papers

[J2] Bentian Jiang, Jingsong Chen, Jinwei Liu, Lixin Liu, **Fangzhou Wang**, Xiaopeng Zhang, Evangeline F.Y. Young, "CU.POKer: Placing DNNs on WSE with Optimal Kernel Sizing and Efficient Protocol Optimization", accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**).

[J1] Itai Feigenbaum, Minming Li, Jay Sethuraman, **Fangzhou Wang**, Shaokun Zou, "Strategic facility location problems with linear single-dipped and single-peaked preferences", Autonomous Agents and Multi-Agent Systems 34, no. 2 (2020): 1-47.

Conference Papers

[C8] Wei Li, **Fangzhou Wang**, Jose Moura, Shawn Blanton, "Global floorplanning via semidefinite programming", ACM/IEEE Design Automation Conference (**DAC**), San Francisco, July 9-13, 2023.

[C7] Shixiong Kai, Chak-Wa Pui, **Fangzhou Wang**, Jiang Shougao, Bin Wang, Yu Huang and Jianye Hao, "TOFU: A Two-Step Floorplan Refinement Framework for Whitespace Reduction", IEEE/ACM Proceedings Design, Automation and Test in Europe (**DATE**), Antwerp, Belgium, April 17 - 19, 2023.

[C6] **Fangzhou Wang**, Qijing Wang, Bangqi Fu, Shui Jiang, Xiaopeng Zhang, Lilas Alrahis, Ozgur Sinanoglu, Johann Knechtel, Tsung-Yi Ho, Evangeline F.Y. Young, "Security Closure of IC Layouts Against Hardware Trojans", ACM International Symposium on Physical Design (**ISPD**), Virtual Event, USA, March 26-29, 2023.

[C5] **Fangzhou Wang**, Jinwei Liu, Evangeline F.Y. Young, "FastPass: Fast Pin Access Analysis with Incremental SAT Solving", ACM International Symposium on Physical Design (**ISPD**), Virtual Event, USA, March 26-29, 2023. **(Best Paper Award)**

[C4] Xinshi Zang, **Fangzhou Wang**, Jinwei Liu, Martin D.F. Wong, "ATLAS: A Two-Level Layer-Aware Scheme for Routing with Cell Movement", The 41th IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), San Diego, CA, USA, Oct. 30 - Nov. 3, 2022.

[C3] **Fangzhou Wang**, Lixin Liu, Jingsong Chen, Jinwei Liu, Xinshi Zang, Martin D.F. Wong, "Starfish: An Efficient P&R Co-Optimization Engine with A*-based Partial Rerouting", The 40th IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), Munich, Germany, Nov. 1-4, 2021.

[C2] Bentian Jiang, Jingsong Chen, Jinwei Liu, Lixin Liu, **Fangzhou Wang**, Xiaopeng Zhang, Evangeline F.Y. Young, "CU.POKer: Placing DNNs on Wafer-Scale AI Accelerator with Optimal Kernel Sizing", The 39th IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), San Diego, CA, USA, Nov. 2-5, 2020.

[C1] Jinwei Liu, Chak-Wa Pui, **Fangzhou Wang**, Evangeline F.Y. Young, "CUGR: Detailed-Routability-Driven 3D Global Routing with Probabilistic Resource Model", ACM/IEEE Design Automation Conference (**DAC**), San Francisco, July 19-23, 2020.

SELECTED AWARDS AND HONORS

Best Paper Award	ISPD	2023
3rd Place Award in CAD Contest on Advanced Security Closure of Physical Layouts	ISPD	2023
Li Po Chun Charitable Trust Fund Postgraduate Scholarship	CUHK	2023
2nd Place Award in CAD Contest on Microarchitecture Design Space Exploration	ICCAD	2022
3rd Place Award in CAD Contest on Security Closure of Physical Layouts (Leader)	ISPD	2022
The Hong Kong, China – Asia-Pacific Economic Cooperation Scholarship	HKSAR	2021 – 2022
2nd Place Award in CAD Contest on Routing with Cell Movement Advanced	ICCAD	2021
1st Place Award in CAD Contest on Routing with Cell Movement (Leader)	ICCAD	2020
1st Place Award in CAD Contest on Wafer-Scale Deep Learning Accelerator Placement	ISPD	2020
DAC Young Fellow Award	DAC	2020
1st Place Award in CAD Contest on LEF/DEF Based Open-Source Global Router	ICCAD	2019
Full Postgraduate Studentship	CUHK	2019 – 2023

The Department of Computer Science Outstanding Student Scholarship	CityU	2019
The College of Engineering Dean's Scholarship (no more than 5 granted each year)	CityU	2019
HKSAR Government Scholarship Fund – Talent Development Scholarship	HKSAR	2019 – 2022
Bronze Medal in the ACM-ICPC Asia Regional Contest (Xuzhou)	ACM	2018
Silver Medal in the ACM-ICPC Chinese Collegiate Programming Contest	ACM	2018
CityU Full Tuition Entrance Scholarship	CityU	2015 – 2019
Dean's List (College of Engineering)	CityU	2015 – 2019

PROFESSIONAL SERVICE

Reviewer / External Reviewer

- ACM Transactions on Design Automation of Electronic Systems (TODAES)
- Integration, the VLSI Journal
- Design Automation Conference (DAC)
- International Conference on Computer-Aided Design (ICCAD)
- Design Automation and Test in Europe (DATE)
- International Symposium on Physical Design (ISPD)
- IEEE International Conference on Computer Design (ICCD)
- ACM Great Lakes Symposium on VLSI (GLSVLSI)

CONFERENCE PRESENTATIONS

- ACM International Symposium on Physical Design (ISPD) 2023
- IEEE/ACM International Conference on Computer-Aided Design (ICCAD) 2021

TECHNICAL SKILLS

Programming	C/C++, Python, Tcl,
Toolkits	PyTorch, Git, LaTeX, Perforce
Languages	Mandarin (Native), English (Fluent), Cantonese (Fluent), Japanese (Beginner)