QIJING WANG

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Department of Computer Science and Engineering ◇ The Chinese University of Hong Kong

RESEARCH INTERESTS

- VLSI Physical Design & Design for Manufacturability & Design Space Exploration
- AI & Machine Learning

EDUCATION

The Chinese University of Hong Kong, NT, Hong Kong SAR Aug. 2021 – Present
Ph.D., Computer Science and Engineering
Advisor: Prof. Evangeline F.Y. Young & Prof. Martin D.F. Wong

South China University of Technology, Guangzhou, P. R. China Sept. 2017 – Jun. 2021
B.Eng., Automation
Advisor: Prof. Yuxiang Wu
Thesis: "Research on Deep Learning-Based Bearing Fault Recognition and Remaining Useful Life Prediction"

EXPERIENCE

Cadence Design Systems, San Jose, CA, USA May. 2023 – Nov. 2023
Graduate Intern in Machine Learning
Advisor: Narender Hanchate
Research on design space exploration for the *Cerebrus* Chip Explorer

Guangzhou Zhiding Digital Technology Co., Ltd, Guangzhou, China Mar. 2020 – Jun. 2020
Software Intern

Biometrics And Intelligence Perception Lab, SCUT, Guangzhou, China Sept. 2018 – May. 2020
Advisor: Prof. Wenxiong Kang
Principal leader of the project "Non-cooperative Intelligent Examination Personnel Management System Based on Deep Learning" (patent applied)

RESEARCH AND PROJECT EXPERIENCE

- Optical Proximity Correction
  - GPU-accelerated inverse lithography technology based on attention mechanism and reinforcement learning
- Security Closure of Physical Layouts
  - Layout-level defense against trojan insertion and probing, fault injection attacks
- Wafer Failure Pattern Classification
  - Human-like staged learning pipeline for classification model training, coping with real-world scenario in the early manufacturing stage of new products
- Microarchitecture Design Space Exploration
  - Design a learning and heuristic-based algorithm to find the pareto optimal set in a large design space within a short time
- Generative Models for EDA
  - Leverage generative models (e.g., diffusion models) to assist/solve EDA tasks

PUBLICATIONS

Conference Papers

[C3] F. Wang, **Q. Wang**, B. Fu, S. Jiang, X. Zhang, L. Alrahis, O. Sinanoglu, J. Knechtel, T.Y. Ho, and E. F.Y. Young, "Security closure of IC layouts against hardware Trojans," in ACM International Symposium on Physical Design (**ISPD**), Virtual Conference, Mar. 26-29, 2023.

[C2] **Q. Wang**, M. D.F. Wong, "WaferHSL: Wafer Failure Pattern Classification with Efficient Human-Like Staged Learning", in IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), San Diego, CA, USA, Oct. 30-Nov. 3, 2022.

[C1] **Q. Wang**, B. Jiang, M. D.F. Wong and E. F.Y. Young, "A2-ILT: GPU Accelerated ILT with Spatial Attention Mechanism", in ACM/IEEE Design Automation Conference (**DAC**), San Francisco, CA, USA, Jul. 10-14, 2022.

SELECTED AWARDS AND HONORS

3rd Place Award in CAD Contest on FPGA Macro-Placement	MLCAD	2023
3rd Place Award in CAD Contest on Advanced Security Closure of Physical Layouts	ISPD	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	ISPD	2022
Full Postgraduate Studentship	CUHK	2021 – 2025
Outstanding Graduate	SCUT	2021
F(Finalist) Award in Mathematical Contest In Modeling (leader)	COMAP	2020
South China University of Technology Scholarship	SCUT	2019 & 2020

GRADUATE LEVEL COURSES

ENGG 5501: Foundations of Optimization
CSCI 5350: Advanced Topics in Game Theory
CENG 4120: Computer-aided Design for Very Large Scale Integrated Circuits
CSCI 5320: Topics in Graph Algorithms
CSCI 5390: Advanced GPU Programming
ENGG 5103: Techniques for Data Mining
ENGG 5104: Image Processing and Computer Vision

TEACHING ASSISTANT

Spring 2023	CSCI 1020: Hands-on Introduction to C++
Fall 2022	CSCI 3190: Introduction to Discrete Mathematics and Algorithms
Spring 2022	ENGG 2780A: Statistics for Engineers
Fall 2021	CSCI 3190: Introduction to Discrete Mathematics and Algorithms

PROFESSIONAL SERVICE

Reviewer / External Reviewer

- IEEE/ACM Design Automation Conference (DAC)
- IEEE/ACM International Conference on Computer-Aided Design (ICCAD)

TECHNICAL SKILLS

Programming Skills Python, PyTorch, Tcl, C++, Matlab