

XIAOXIAO LIANG

✉ xliang603@connect.hkust-gz.edu.cn · ☎ (+86) 131-2519-9937 ·

EDUCATION

Hong Kong University of Science and Technology (Guangzhou) 2022 – Present

Ph.D. in Microelectronics, supervised by Prof. Yuzhe MA

Core Grade: 3.87/4.3

Hong Kong University of Science and Technology 2020 – 2021

M.S. in Electronic Engineering, supervised by Prof. Xiaomeng LI

Core Grade: 4.0/4.3

Huazhong University of Science and Technology 2016 – 2020

B.Eng. in Automation

Core Grade: 3.4/4.0

WORK EXPERIENCE

Shenzhen GWX Technology Mar. 2024 – Feb. 2025

Research Intern

Source-mask optimization for VLSI fabrication

Hong Kong University of Science and Technology (Guangzhou) Jan. 2022 – Jul. 2022

Research Assistant Advisor: Prof. Yuzhe MA

Photomask optimization for VLSI fabrication

Hong Kong University of Science and Technology Jul. 2021 – Dec. 2021

Research Assistant Advisor: Prof. Xiaomeng LI

Privacy-preserving federated framework building for medical image analysis

PUBLICATIONS

Xiaoxiao Liang, Yang Luo, Bei Yu, Yuzhe Ma, “BEAM: Bidirectional MEEF-Driven Mask Optimization for Photonic Integrated Circuits”. *Asia and South Pacific Design Automation Conference (ASP-DAC)*, 2026.

Xiaoxiao Liang, Benjamin C. He, Yuzhe Ma, “A Diffusion Model-enhanced Source Optimization for Fab Productivity”. *SPIE Optics + Photonics*, 2025.

Xiaoxiao Liang, Haoyu Yang, Kang Liu, Bei Yu, Yuzhe Ma, “CAMO: Correlation-Aware Mask Optimization with Modulated Reinforcement Learning”. *Design Automation Conference (DAC)*, 2024.

Xiaoxiao Liang, Yikang Ouyang, Haoyu Yang, Bei Yu, Yuzhe Ma, “RL-OPC: Mask Optimization With Deep Reinforcement Learning”. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2024.

Xiaoxiao Liang, Yiqun Lin, Huazhu Fu, Lei Zhu, Xiaomeng Li, “RSCFed: Random Sampling Consensus Federated Semi-supervised Learning”. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.

Su Zheng, **Xiaoxiao Liang**, Ziyang Yu, Yuzhe Ma, Bei Yu, Martin Wong, “Curvilinear Optical Proximity Correction via Cardinal Spline”. *Design Automation Conference (DAC)*, 2025.

Yang Luo, **Xiaoxiao Liang**, Yuzhe Ma, “Enabling Robust Inverse Lithography with Rigorous Multi-Objective Optimization”, *International Conference on Computer-Aided Design (ICCAD)*, 2024.

Ziyang Yu, Su Zheng, Wenqian Zhao, Shuo Yin, **Xiaoxiao Liang**, Guojin Chen, Yuzhe Ma, Bei Yu, Martin DF Wong, “RuleLearner: OPC Rule Extraction From Inverse Lithography Technique Engine”. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2024.

NOTABLE PROJECTS

Lithography Mask Optimization for Photonic IC Designs

Jan. 2025 – Present

- Developed a novel mask optimization method targeting curvilinear PIC layouts in photonic chip fabrication
- Built a customized optimization framework with efficient curvilinear layout and mask representations
- Designed a white-box optimization algorithm leveraging a surrogate model for EPE sensitivity, enabling flexible corrections with reduced computational cost
- Efficiently produces manufacturing-friendly photomasks with high fidelity

Latent Diffusion Pipeline for Accelerated Lithography Source Optimization

Apr. 2024 – Feb. 2025

- Developed a diffusion-based framework for advanced-node photolithography source optimization
- Built a user-friendly latent diffusion pipeline conditioned on layout and process parameters
- Designed a batching and superposition strategy to handle complex layouts
- Efficiently generated high-quality source initializations, accelerating SMO workflows.

Reinforcement Learning-based Lithography Mask Optimization for VLSI Fabrication

Jan. 2022 – Present

- Developed advanced OPC techniques at the layout level for VLSI manufacturing
- Introduced RL for automated OPC, enabling efficient layout pattern transferring
- Customized intelligent agent to efficiently capture layout spatial correlations and accelerate convergence
- Led the workflow of layout data collection with EDA tools, framework design, and implementation
- Published two first-authored papers in top-tier EDA venues including *TCAD'24* and *DAC'24*

Privacy-Preserving Federated Framework for Medical Image Analysis

Jul. 2021 – Dec. 2021

- Focus on the data heterogeneity problem in federated semi-supervised learning
- Presented a novel FSSL method to model the uneven reliability among non-IID clients
- Independently implemented the proposed framework and completed the experiments
- Published a first-authored paper in *CVPR'22*

HONORS AND AWARDS

ICCAD Student Scholar Program Grant	2024
DAC Young Fellow	2024
Full Postgraduate Scholarship, HKUST(GZ)	2022-present
Excellent Student Scholarship, HKUST	2021
Outstanding Graduate, HUST	2020
<i>Honorable Mentioned</i> in the Mathematical Contest in Modeling	2019
Academic Scholarship, HUST	2016-2017

SKILLS

- Languages
English, Chinese
- Programming Language
Python, C/C++
- Deep Learning Framework
PyTorch, TensorFlow
- EDA Tools
Calibre, Innovus