

YUZHE MA

Ph.D. Student ◊ Department of Computer Science & Engineering
Room 913, Ho Sin Hang Engineering Building ◊ The Chinese University of Hong Kong
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RESEARCH INTERESTS

- Machine learning with applications in CAD
- Design for manufacturability
- Physical design in VLSI CAD

EDUCATION

The Chinese University of Hong Kong, NT, Hong Kong Ph.D. student, Department of Computer Science & Engineering. Advisor: Prof. Bei Yu	Aug. 2016 – Present
Sun Yat-sen University, Guangzhou, P.R. China B.Eng., Microelectronics. (GPA 92/100, RANK 1/64) Dissertation: “Methodologies for Standard Cell Layout Migration”	Sep. 2011 – Jul. 2016

EXPERIENCE

NVIDIA Research, TX, USA Research Intern, ASIC and VLSI research group Topic: Testability Analysis with Graph Neural Networks	July 2018 – Nov. 2018
Cadence Design Systems, Inc., CA, USA Research Intern, Digital Design and Signoff Group Topic: Deep Learning/Machine Learning in Placement	May 2017 – Sep. 2017
The Chinese University of Hong Kong, NT, Hong Kong Research Assistant, Department of Computer Science & Engineering Topic: Standard Cell Synthesis	Mar. 2016 – May 2016

PUBLICATIONS

Journal Papers

- [J4] **Yuzhe Ma**, Subhendu Roy, Jin Miao, Jiamin Chen, and Bei Yu, “Cross-layer Optimization for High Speed Adders: A Pareto Driven Machine Learning Approach”, accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**).
- [J3] Qianru Zhang, Meng Zhang, Tinghuan Chen, Zhifei Sun, **Yuzhe Ma**, and Bei Yu, “Recent Advances in Convolutional Neural Network Acceleration”, Neurocomputing, vol. 323, pp. 37-51, Jan., 2019.
- [J2] Haoyu Yang, Jing Su, Yi Zou, **Yuzhe Ma**, Bei Yu, and Evangeline F. Y. Young, “Layout Hotspot Detection with Feature Tensor Generation and Deep Biased Learning”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 38, no. 6, pp. 1175–1187, 2019.
- [J1] Jin Miao, Meng Li, Subhendu Roy, **Yuzhe Ma**, and Bei Yu, “SD-PUF: Spliced Digital Physical Unclonable Function”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 37, no. 5, pp. 927–940, 2018.

Conference Papers

- [C7] **Yuzhe Ma**, Haoxing Ren, Brucek Khailany, Harbinder Sikka, Karthikeyan Natarajan, and Bei Yu, “High Performance Graph Convolutional Networks with Applications in Testability Analysis”, ACM/IEEE Design Automation Conference (**DAC**), Las Vegas, NV, June 2–6, 2019.

- [C6] Hao Geng, Haoyu Yang, **Yuzhe Ma**, Joydeep Mitra, and Bei Yu, “SRAF Insertion via Supervised Dictionary Learning”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), Tokyo, Jan. 21–24, 2019.
- [C5] Haoyu Yang, Shuhe Li, **Yuzhe Ma**, Bei Yu, and Evangeline F. Y. Young, “GAN-OPC: Mask Optimization with Lithography-guided Generative Adversarial Nets”, ACM/IEEE Design Automation Conference (**DAC**), San Francisco, CA, June 24–28, 2018.
- [C4] **Yuzhe Ma**, Jhih-Rong Gao, Jian Kuang, Jin Miao, and Bei Yu, “A Unified Framework for Simultaneous Layout Decomposition and Mask Optimization”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), Irvine, CA, Nov. 13–16, 2017.
- [C3] Chak-Wa Pui, Gengjie Chen, **Yuzhe Ma**, Evangeline F. Y. Young, and Bei Yu, “Clock-Aware UltraScale FPGA Placement with Machine Learning Routability Prediction”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), Irvine, CA, Nov. 13–16, 2017.
- [C2] **Yuzhe Ma**, Xuan Zeng, and Bei Yu, “Methodologies for Layout Decomposition and Mask Optimization: A Systematic Review”, IFIP/IEEE International Conference on Very Large Scale Integration (**VLSI-SoC**), Abu Dhabi, UAE, Oct. 23–25, 2017.
- [C1] Subhendu Roy, **Yuzhe Ma**, Jin Miao, and Bei Yu, “A Learning Bridge from Architectural Synthesis to Physical Design for Exploring Power Efficient High-Performance Adders”, IEEE/ACM International Symposium on Low Power Electronics and Design (**ISLPED**), Taipei, Taiwan, July 24–26, 2017.

SELECTED AWARDS AND HONORS

Full Postgraduate Studentship	The Chinese University of Hong Kong	2016 –
National Encouragement Scholarship	Sun Yat-sen University	2013, 2014, 2015
First Class Outstanding Academic Scholarship	Sun Yat-sen University	2013, 2014, 2015
Merit Student of Sun Yat-sen University	Sun Yat-sen University	2013, 2014, 2015

GRADUATE LEVEL COURSES

ENGG5501: Foundations of Optimization
 ENGG5103: Data Mining
 SEEM5350: Numerical Optimization
 CSCI5580: Online Algorithms for Machine Learning and Optimization

TECHNICAL SKILLS

Languages	C/C++, Python, MATLAB, L ^A T _E X
Operating Systems	Linux/UNIX, MacOS
Toolkits	PyTorch, Caffe