# YUZHE MA

Ph.D. Student ⋄ Department of Computer Science & Engineering
Room 913, Ho Sin Hang Engineering Building ⋄ The Chinese University of Hong Kong
yzma@cse.cuhk.edu.hk

## 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** Aug. 2016 – Present
Ph.D. student, Department of Computer Science & Engineering.
Advisor: Prof. Bei Yu

**Sun Yat-sen University, Guangzhou, P.R. China** Sep. 2011 – Jul. 2016
B.Eng., Microelectronics.
(GPA 92/100, RANK 1/64)
Dissertation: "Methodologies for Standard Cell Layout Migration"

## EXPERIENCE

**NVIDIA Research, TX, USA** July 2018 – Nov. 2018
Research Intern, ASIC and VLSI research group

**Cadence Design Systems, Inc., CA, USA** May 2017 – Sep. 2017
Research Intern, Digital Design and Signoff Group

**The Chinese University of Hong Kong, NT, Hong Kong** Mar. 2016 – May 2016
Research Assistant, Department of Computer Science & Engineering

## 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", accepted by Neurocomputing.

[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", accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**).

[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, LaTeX |
| **Operating Systems** | Linux/UNIX, MacOS |
| **Toolkits** | PyTorch |