

Mingjie Liu

3524 Greystone Dr Apt 114, Austin, TX, 78731

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Education Information

Ph.D. in Electrical and Computer Engineering - The University of Texas at Austin

◆ In Progress

◆ VLSI CAD and Optimization A ◆ Integer Programming A

M.S. in Electrical and Computer Engineering - University of Michigan

◆ GPA: 4.0/4.0

◆ Machine Learning A+ ◆ VLSI Design I A

◆ Computer Architecture A ◆ A/D Interfaces A

B.S. in Microelectronics - Peking University

◆ GPA: 89.8/100(cumulative) 91.7/100 (major)

Related Experience

Research Assistant at UTDA, The University of Texas at Austin Sep 2018 - Present

- ◆ Analog layout design automation
- ◆ Analog placement quality prediction with convolutional neural networks
- ◆ Graph heuristic algorithms for analog placement constraint generation
- ◆ Guided analog routing with generative neural networks

Design Engineer Intern, Micron Technology May 2017 - Aug 2017

- ◆ Output buffer design and delay optimization for critical logic paths

Multidisciplinary Design Project with Texas Instruments Sep 2017 - May 2018

- ◆ X-band radar front end design with state-of-the-art RF chips from TI
- ◆ Matched filter signal processing back end for improved SNR performance

Course Project for A/D Interfaces Jan 2018 - May 2018

- ◆ Third order continuous time $\Delta\Sigma$ ADC with chopping and FIR noise filtering

Course Project for Computer Architecture Jan 2017 – May 2017

- ◆ 64-bit P6 based 2-way superscalar RISC processor design in synthesizable Verilog

Course Project for VLSI Design I Sep 2016 - Jan 2017

- ◆ 16-bit 300MHz fully custom designed RISC processor
- ◆ Custom designed 0.37V 8T SRAM with leakage compensation

Publications

Mingjie Liu, Keren Zhu, Jiaqi Gu, Linxiao Shen, Xiyuan Tang, Nan Sun and David Z. Pan, "Towards Decrypting the Art of Analog Layout: Placement Quality Prediction via Transfer Learning, " IEEE Design, Automation & Test in Europe Conference & Exhibition (DATE), Grenoble, France, Mar. 09-13, 2020

Mingjie Liu, Wuxi Li, Keren Zhu, Biying Xu, Yibo Lin, Linxiao Shen, Xiyuan Tang, Nan Sun and David Z. Pan, "S3DET: Detecting System Symmetry Constraints for Analog Circuits with Graph Similarity, " IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), Beijing, China, Jan. 13-16, 2020

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Publications

Jiaqi Gu, Zheng Zhao, Chenghao Feng, **Mingjie Liu**, Ray T. Chen, David Z. Pan, "Towards Area-Efficient Optical Neural Networks: An FFT-based Architecture, " IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), Beijing, China, Jan. 13-16, 2020

Keren Zhu, **Mingjie Liu**, Yibo Lin, Biying Xu, Shaolan Li, Xiyuan Tang, Nan Sun and David Z. Pan, "GeniusRoute: A New Analog Routing Paradigm Using Generative Neural Network Guidance, " IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov. 4-7, 2019

Biying Xu, Keren Zhu, **Mingjie Liu**, Yibo Lin, Shaolan Li, Xiyuan Tang, Nan Sun and David Z. Pan, "MAGICAL: Toward Fully Automated Analog IC Layout Leveraging Human and Machine Intelligence " IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov. 4-7, 2019 (**Invited Paper**)

Relevant Skills

- ◆ Hand on experience with machine learning platforms, such as TensorFlow and PyTorch
- ◆ Understanding of EDA algorithms in placement and routing
- ◆ Experience with using commercial EDA software
- ◆ Experience with digital design flow and VLSI implementations
- ◆ Experience with custom analog circuit and layout design flow
- ◆ Knowledge of IC fabrication process and device physics
- ◆ Knowledge of circuit analysis and signal processing
- ◆ Familiar with analog circuit and system designs, including data converters and PLLs

Teaching Experience

- ◆ Graduate Teaching Assistant, The University of Texas at Austin Fall 2018
 - ◆ EE 411 Circuit Theory
- ◆ Graduate Teaching Assistant, University of Michigan Fall 2017
 - ◆ EECS 427 VLSI Design I

Scholarships and Awards

- ◆ The University of Texas Graduate School Fellowship 2018
- ◆ Graduation of Honor: College Graduate Excellence Award of Beijing 2016
- ◆ Fangzheng Scholarship 2015
- ◆ Samsung Scholarship 2014
- ◆ EECS Departmental Fellowship (No. 8508) 2013