Qiaochu Zhang[1]

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EDUCATION

University of Southern California Aug. 2017-Present

PhD Graduate Student in Electrical Engineering, GPA: 3.93/4.00

Obtained M.S. in 2019

Fudan University Sept. 2013-Jun. 2017

Bachelor of Science in Physics, Ranking: 2/121, Total GPA: 3.72/4.0, Major Course GPA: 3.87/4.0

PEER REVIEWED PUBLICATIONS

- **Qiaochu Zhang***, Shiyu Su*, and Mike Shuo-Wei Chen, "A Cost-Efficient Fully Synthesizable Stochastic Time-to-Digital Converter Design Based on Integral Nonlinearity Scrambling", in *2022 59th IEEE/ACM Design Automation Conference (DAC)*, Jul. 2022 (* equal contribution)
- **Qiaochu Zhang**, Shiyu Su, Cheng-Ru Ho, and Mike Shuo-Wei Chen, "A Fractional-N Digital MDLL with Background Two-Point DTC Calibration", *IEEE Journal of Solid-State Circuits*, Jan. 2022
- **Qiaochu Zhang**, Shiyu Su, Cheng-Ru Ho, and Mike Shuo-Wei Chen, "A Fractional-N Digital MDLL with Background Two-Point DTC Calibration Achieving -60dBc Fractional Spur", in *IEEE International Solid-State Circuits Conference (ISSCC)*, Feb. 2021
- **Qiaochu Zhang**, Shiyu Su, Juzheng Liu, and Mike Shuo-Wei Chen, "CEPA: CNN-based Early Performance Assertion Scheme for Analog and Mixed-Signal Circuit Simulation", in *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, Nov. 2020
- Shiyu Su, **Qiaochu Zhang**, Juzheng Liu, Mohsen Hassanpourghadi, Rezwan Rasul, and Mike Shuo-Wei Chen, "TAFA: Design Automation of Analog Mixed-Signal FIR Filters Using Time Approximation Architecture", in *IEEE/ACM 27th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2022
- Shiyu Su, **Qiaochu Zhang**, Mohsen Hassanpourghadi, Juzheng Liu, Rezwan Rasul, and Mike Shuo-Wei Chen, "Analog/Mixed-Signal Circuit Synthesis Enabled by the Advancements of Circuit Architectures and Machine Learning Algorithms", in *IEEE/ACM 27th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jan. 2022
- Juzheng Liu, Mohsen Hassanpourghadi, **Qiaochu Zhang**, Shiyu Su, and Mike Shuo-Wei Chen, "Transfer Learning with Bayesian Optimization-Aided Sampling for Efficient AMS Circuit Modeling", in *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, Nov. 2020
- Mohsen Hassanpourghadi, Shiyu Su, Rezwan Rasul, Juzheng Liu, **Qiaochu Zhang**, and Mike Shuo-Wei Chen, "Circuit Connectivity Inspired Neural Network for Analog Mixed-Signal Functional Modeling", in *2021 58th IEEE/ACM Design Automation Conference (DAC)*, Dec. 2021
- Juzheng Liu, Shiyu Su, Meghna Madhusudan, Mohsen Hassanpourghadi, Samuel Saunders, **Qiaochu Zhang**, Rezwan Rasul, Yaguang Li, Jiang Hu, Arvind Kumar Sharma, Sachin S. Sapatnekar, Ramesh Harjani, Anthony Levi, Sandeep Gupta, and Mike Shuo-Wei Chen, "From Specification to Silicon: Towards Analog/Mixed-Signal Design Automation using Surrogate NN Models with Transfer Learning", in *IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, Nov. 2021
- Mohsen Hassanpourghadi, **Qiaochu Zhang,** Praveen Sharma, Jaewon Nam, Shiyu Su, Subhajit Chowdhury, Jagannathan Sathyamoorthy, Walter Unglaub, Fangzhou Wang, Mike Shuo-Wei Chen, Sandeep Gupta, Anthony Levi, Wes Hansford, William Taylor, "Automated Analog Mixed Signal IP Generator for CMOS Technologies", in *Government Microcircuit Applications and Critical Technology Conference (GOMACTECH)*, 2019.

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- Wu Zan, **Qiaochu Zhang**, Hu Xu, Fuyou Liao, Jing Wan, Jianan Deng, Hao Zhu, Lin Chen, Qingqing Sun, Shijin Ding, Peng Zhou, Wenzhong Bao and David Wei Zhang, "Large Capacitance and Fast Polarization Response of Thin Polymer Electrolyte Dielectrics by Spin-Coating for Two Dimensional MoS_2 Devices", *Nano Research*, Dec. 2017
- Xiongfei Song, Zhongxun Guo, **Qiaochu Zhang**, Peng Zhou, Wenzhong Bao and David Wei Zhang, "Progress of Large-Scale Synthesis and Electronic Device Application of Two-Dimensional Transition Metal Dichalcogenides", *Small*, Jul. 2017

RESEARCH EXPERIENCE

Research Assistant, Dept. of ECE- Electrophysics, USC. Advisor: Dr. Mike Shuo-Wei Chen

- Low jitter and low spur digital phase-locked loop design
- Fully synthesizable time-based analog-to-digital converter design
- DSP-assisted and reconfigurable integrated mixed-signal systems
- Machine-learning based design automation algorithms/tools for analog and mixed signal circuits, including circuit simulation, performance verification, design parameter optimization, and physical layout

Research Assistant, State Key Lab of ASIC & Systems, Fudan University. Advisor: Dr. Wenzhong Bao

- High performance MoS_2 transistor fabrication with ionic thin film electrolyte
- Device physics theory of MoS_2 transistor

WORK EXPERIENCE

4+ years' experience of integrated circuits/systems design and test. 4+ years' experience of analog CAD tool development. Projects are sponsored by

- Defense Advanced Research Projects Agency (DARPA), POSH project, 2018-present
- National Science Foundation (NSF), SpecEES project, 2018-present
- The Intelligence Advanced Research Projects Activity (IARPA), MicroE4AI project, 2021-present

HONORS AND AWARDS

- 2021-2022 Ming Hsieh Institute PhD Scholar, University of Southern California
- Provost's Fellowship (2017-2020), University of Southern California
- Top Student in National Talented Student Training Program in Basic Disciplines, Ministry of Education, People's Republic of China
- Outstanding Graduate in the class of 2017, Fudan University
- Honor Student, 2015-2017, Fudan University
- Hong Kong Caring Sponsored Scholarship, Fudan University

TEACHING EXPERIENCE

- Teaching Assistant, EE536B Advanced Mixed-Signal Circuit Design, Dept. of ECE, USC
- Teaching Assistant, EE631 Mixed-Signal Integrated Circuits, Dept. of ECE, USC

ACADEMIC SERVICE

- Reviewer, IEEE Journal of Solid-State Circuits
- Reviewer, IEEE Transaction on Circuits and Systems I: Regular Papers
- Reviewer, IEEE Transaction on Circuits and Systems II: Express Briefs
- Reviewer, IEEE Solid-State Circuits Letters
- Reviewer, IEEE Access.

- Student Host and Organizer, Ming Hsieh Institute Seminar Series on Integrated Systems, USC, Fall 2021
- Organizer, Ming Hsieh Institute Research Festival, USC, Fall 2021
- Mentor, USC-Tsinghua undergraduate researcher program, Summer 2019
- Major contributor, USC POSH open-source IP and CAD tool repository on GitHub

SELECTED TALKS

- "Towards more efficient analog and mixed-signal circuits: architecture and optimization innovations", Ming Hsieh Institute, USC
- "Analog and mixed-signal parameter search engine", EE536B class, USC