

Juzheng Liu

Curriculum Vitae

PERSONAL DETAILS

Address 3737 Watt Way, room 424; Los Angeles, California, USA
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EDUCATION

Bachelor of Science 2015-2019
Department of Physics, Tsinghua University; Major: Mathematics and Physics; GPA:3.62(4.0); Rank:10/51

PhD of Electrical Engineering 2019-now
Ming Hsieh Department of Electrical and Computer Engineering, University of Southern California; GPA:4.0/4.0

RESEARCH EXPERIENCE

Activity Recognition in Wearable ECG Monitoring 2017
Institute of Microelectronics, Tsinghua University

- Collected three-axis accelerometer data through a wearable Electrocardiography (ECG) device.
- Automated human activity classification process through decision tree model to be applied to motion artifact removal in ECG signal.

Bowel Sound Detection 2018
Institute of Microelectronics, Tsinghua University

- Collected bowel sound through a wireless recording device and a blue tooth gateway
- MFCC feature extracted from audio pieces for LSTM training
- Achieved the state of the art detection accuracy

Image morphing for distributed learning 2018
ECE, Duke University

- Morph training image for private learning task
- Proved privacy of the method

POSH: Circuit modeling and automatic sizing

2019-now

EE, USC

- AMPSE: Analog mixed signal parameter search engine
- BOAS: Bayesian optimization aided sampling for efficient circuit modeling
- Transfer learning of circuit regression models between different technology nodes. Improve the modeling efficiency.
- CEPA: CNN-based early performance assertion scheme for AMS circuits

High Speed Time-based ADC design

2020-now

EE, USC

- 5GS/s 8 bit single channel ADC in 12nm FinFet CMOS
- 40GS/S 8 bit TI Time-Based ADC in 12nm FinFet CMOS

PUBLICATIONS

Activity Recognition in Wearable ECG Monitoring Aided by Accelerometer Data

Juzheng Liu, Jing Chen, Hanjun Jiang, Wen Jia, Qingliang Lin, Zhihua Wang. IEEE International Symposium on Circuits and Systems (ISCAS), 2018

Bowel Sound Detection Based on MFCC Feature and LSTM Neural Network

Juzheng Liu, Yue Yin, Hanjun Jiang, Huili Kan, Zongwang Zhang, Ping Chen, Binjie Zhu, Zhihua Wang. IEEE Biomedical Circuits and Systems (BioCAS), 2018

Bowel sound recognition using SVM classification in a wearable health monitoring system

Yin, Yue; Jiang, Hanjun; Feng, Shulin; Liu, Juzheng; Chen, Ping; Zhu, Binjie; Wang, Zhihua. Sci China Inf Sci, 2018, 61: 084301

Transfer Learning with Bayesian Optimization-Aided Sampling for Efficient AMS Circuit Modeling

J. Liu, M. Hassanpourghadi, Q. Zhang, S. Su and M.S.-W. Chen, 2020 IEEE/ACM International Conference on Computer-Aided Design (ICCAD), November 2020.

CEPA: CNN-based Early Performance Assertion Scheme for Analog and Mixed-Signal Circuit Simulation

Q. Zhang, S. Su, J. Liu and M. S.-W. Chen, 2020 IEEE/ACM International Conference on Computer-Aided Design (ICCAD), November 2020.

Circuit Connectivity Inspired Neural Network for Analog Mixed-Signal Functional Modeling

M. Hassanpourghadi, S. Su, R.A. Rasul, J. Liu, Q. Zhang, and M. S.-W. Chen, 2021 58th ACM/EDAC/IEEE Design Automation Conference (DAC), Dec. 2021.(to appear)

From Specification to Silicon: Towards Analog/Mixed-Signal Design Automation using Surrogate NN Models with Transfer Learning

Juzheng Liu, et al, 2021, IEEE/ACM ICCAD(to appear)

A 10GS/s 8b 25fJ/c-s 2850um² Two-Step Time-domain ADC Using Delay-Tracking Pipelined-SAR TDC with 500fs Time Step in 14nm CMOS Technology

Juzheng Liu, Mohsen Hassanpourghadi, and Mike Shuo-Wei Chen, 2022, IEEE ISSCC(to appear)

AWARD

3rd Place of Low-Power Image Recognition Challenge(LPIRC) 2018
IEEE Rebooting Computing

Summer Internship Scholarship 2018
Department of Physics, Tsinghua University

First Prize of Province, Chinese Physics Olympiad(CPhO) 2014
Chinese Physical Society