DONGNING MA

Email: dma2@villanova.edu

Department of Electrical and Computer Engineering, Villanova University

800 E. Lancaster Ave, Villanova, PA 19085

EDUCATION

Villanova University, PA   *Januarary 2019 - Present*
Doctor of Philosophy Student in Computer Engineering
Department of Electrical and Computer Engineering

University of Science and Technology Beijing, China   *September 2014 - June 2018*
Bachelor of Engineering in Automation
School of Advanced Engineering

RESEARCH FOCUS

- Energy-efficient and sustainable software/hardware co-design and testing

- Approximate computing, application and implementation

- Artificial Intelligence with embedded systems, IoT and edge computing

ACADEMIC RECORDS

Journals

2. Xun Jiao, Dongning Ma, Wanli Chang, Yu Jiang. "LEVAX: An Input-aware Learning-based Error Model of Voltage-Scaled Functional Units". IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2020

1. Dongning Ma, Xun Jiao, "WoMA: An Input-Based Learning Model to Predict Dynamic Workload of Embedded Applications". Embedded Systems Letters, 2019

Conferences

10. Dongning Ma, Jianmin Guo, Yu Jiang, Xun Jiao, "HDTest: Differential Fuzz Testing of Brain-Inspired Hyperdimensional Computing". 58th 2021 ACM/EDAC/IEEE Design Automation Conference (DAC), San Francisco, CA, 2021.

9. Dongning Ma, Rahul Thapa, Xingjian Wang, Cong Hao and Xun Jiao, "Workload-Aware Approximate Computing Configuration". 2021 Design, Automation & Test in Europe Conference & Exhibition (DATE), Grenoble, France, 2021.

8. Dongning Ma, Xun Jiao, "A Machine Learning-based Error Model of Voltage-Scaled Circuits". 50th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), Valencia, Spain, 2020.

7. Dongning Ma, Xun Jiao, "AxBy: Approximate Computation Bypass for Data-Intensive Applications". 2020 Euromicro Conference on Digital System Design (Euromicro DSD), Portoro, Slovenia, 2020. **(Outstanding Paper Award)**

6. Dongning Ma, Xunzhao Yin, Michael Niemier, X. Sharon Hu, Xun Jiao, "AxR-NN: Approximate Computation Reuse for Energy-Efficient Convolutional Neural Networks". 30th ACM Great Lakes Symposium on VLSI (GLSVLSI), Beijing, China, 2020.

5. Xun Jiao, Dongning Ma, Wanli Chang, Yu Jiang, "TEVoT: Timing Error Modeling of Functional Units under Dynamic Voltage and Temperature Variations". 57th 2019 ACM/EDAC/IEEE Design Automation Conference (DAC), San Francisco, CA, 2020.

4. Dongning Ma, Xun Jiao, "An Input-aware Learning-based Error Model of Voltage-Scaled Functional Units". The 16th IEEE Workshop on Silicon Errors in Logic - System Effects (SELSE), Stanford, CA, 2020. **(Best Paper Award)**

3. Dongning Ma, Siyu Shen, Xun Jiao, "Work-in-Progress: DeVos: A Learning-based Delay Model of Voltage-Scaled Circuits". International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), New York, USA, 2019.

2. Dongning Ma, Xun Jiao, "Detecting and Bypassing Trivial Computations in Convolutional Neural Networks", IEEE/ACM International Symposium on Nanoscale Architectures (NANOARCH), 2019

1. Dongning Ma, Xun Jiao, "Energy Efficient GPU Applications Through Computation Skip". in Proc. IEEE International Conference on Embedded Software and Systems (ICESS), Las Vegas, USA, 2019.

Honors and Grants

- International Green and Sustainable Computing Conference (IGSC 2020) - Student Support Grant ($400)

- Embedded System Week 2019 (ESWEEK'19) ACM SIGBED Student Research Competition - Student Travel Grant ($500) (Microsoft)

- 10th International Green and Sustainable Computing Conference (IGSC 2019) - Poster Presentation - Student Travel Grant ($1000) (NSF)

- IEEE VLSI Test Symposium 2020 (VTS'20) - Student Activities Program (NSF)

- 57th 2020 ACM/EDAC/IEEE Design Automation Conference (DAC 2020) A. Richard Newton Young Student Fellow

OTHER SERVICES

Teaching

- Teaching Assistant for EGR 1620 - Engineering Programming and Application (Spring 2021)

- Teaching Assistant for EGR 1200 - Engineering Interdisciplinary Project I (Fall 2020)

- Teaching Assistant for ECE 5450 - Microcontrollers & Applications (Fall 2020)

- Teaching Assistant for ECE 1620 - Engineering Programming and Application (Spring 2020) at Villanova University

- Teaching Assistant for ECE 2045 - Fundamentals of Computer Engineering II Lab (Spring 2020) at Villanova University

- Teaching Assistant for ECE 5400 - Applied Machine Learning (Fall 2019) at Villanova University

- Teaching Assistant for ECE 5450 - Microcontrollers & Applications (Fall 2019) at Villanova University

- Teaching Assistant for ECE 2431 - Embedded Systems I Lab (Spring 2019) at Villanova University

Professional Services

- Reviewer for IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)

Memberships

- Institute of Electrical and Electronics Engineers (IEEE), Student Member, 2019 - Present

- Association for Computing Machinery (ACM), Student Member, 2019 - Present

Last Update: 02/14/2021