Rui (Rick) Xie

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(Updated Jul. 2022)

EDUCATION

- **PhD Student, Rensselaer Polytechnic Institute** — Troy, NY, United States
  Department of Electrical, Computer and Systems Engineering, Advisor: Tong Zhang — *Aug. 2022-Present*

- **B. Eng (Honor), Southern University of Science and Technology** — Shenzhen, China
  School of Microelectronics, Advisor: Quan Chen — *Aug. 2018 – Jun. 2022*

EXPERIENCE

- **University of Oxford** — Oxford, United Kingdom
  Oxford International Study Abroad Programme — *Jul. 2019 – Aug. 2019*
  - **Big Data and Social Media**: R Programming and Data Analysis.
  - **University, Tutorial System and Interdisciplinary**: Research on Mass Psychology and Higher Education.

- **The University of Hong Kong** — Remote
  Summer Research Intern — *Jun. 2021 – Aug. 2021*
  - **Feedback States Convergence Adjustment of Memristor**: Adjust the device to I-V curve.
  - ***ARC One* Implementation**: Converge method of memristor device on *ArC ONE* and Keysights B1500A.

RESEARCH INTERESTS

- **EDA Circuits Simulation**
  Electronic Design Automation
  - **Steady-State Memristor Crossbar Array (MCA) Circuit Simulation**:
    1. Exploited the structural regularity of MCAs to develop preconditioner;
    2. Designed the inverse process by Kronecker product and block matrix formula;
    3. Tested the numerical verification of the flow;
  - **Surrogate Modeling of Electro-Thermal Simulation**:
    1. Used *Ansys Icepak* and simulated the process of SiC sandwich devices;
    2. Designed the surrogate model.
  - **RRAM (Resistive RAM) Non-Ideal Simulation**:
    1. Designed the multiply-add method;
    2. Developed the simulator by noise model and non-linearity.

HONORS AND AWARDS

Excellent Graduate *SUSTech*	Jun. 2022
Graduation with Honor: College Graduate Excellence Award *School of Microelectronics, SUSTech*	Jun. 2022
First Class of the Merit Student Scholarship *SUSTech*	Sep. 2021 < 3%
Outstanding Cadre Award of Zhicheng College *Zhicheng College, SUSTech*	May. 2021 3%
First Prize of College Student Innovation and Entrepreneurship Training Program *School of Microelectronics, SUSTech*	Mar. 2021 10%
Second Class of the Merit Student Scholarship *SUSTech*	Sep. 2020 < 7%
Third Prize of China College IC Competition in Southern China *Ministry of Industry and Information Technology*	Jul. 2020 < 10%
Third Class of the Merit Student Scholarship *SUSTech*	Sep. 2019 < 20%

SKILLS

- **Programming Languages**: Python, MATLAB, C, C++, Java, Verilog HDL, Scala

- **Software**: Virtuoso, Quartus, ModelSim, Icepack, Silvaco, LTSPICE, Comsol, SolidWorks, AutoCAD

- **Spoken Languages**: Mandarin, English, Cantonese, Japanese (Learning)

Publications

1. Yuan Ren, Wenyong Zhou, Ziyi Guan, **Rui Xie**, Quan Chen, Hao Yu, Ngai Wong, XMAS: An Efficient Customizable Flow for Crossbarred-Memristor Architecture Search, 59th Design Automation Conference Engineering Track

2. **Xie, R.**, Song, M., Zhou, J., Mei, J., & Chen, Q. (2021). A Fast Method for Steady-State Memristor Crossbar Array Circuit Simulation. IEEE ICTA 2021

Patents

1. Chen, Q. Fan, D. **Xie, R.** Song, M. Construction and optimization of neural networks for memristor arrays based on circuit simulation. CN 202110673101.5