

# Rui (Rick) Xie

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(Updated Jul. 2022)

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## EDUCATION

- **Ph.D. Student, Computer System Engineering** Troy, NY, United States  
*Rensselaer Polytechnic Institute, Advisor: Tong Zhang* Aug. 2022 – Present
- **B.Eng (Honor), Microelectronics Science and Engineering** Shenzhen, China  
*Southern University of Science and Technology, Advisor: Quan Chen* Aug. 2018 – Jun. 2022

## EXPERIENCE

- **Engineer Intern** Shenzhen, China  
*BTD Technologies* Dec. 2021 – Jun. 2022
- **Summer Research Intern** Remote  
*The University of Hong Kong* Jun. 2021 – Aug. 2021
- **Visiting Student, Oxford International Study Abroad Programme** Oxford, United Kingdom  
*University of Oxford* Jul. 2019 – Aug. 2019

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

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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, 2021 IEEE International Conference on Integrated Circuits Technologies and Applications

## PATENTS

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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