Yeqi Wei

Personal Information

Ph.D. Candidate
Department of Electrical and Computer Engineering
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Education

University of Illinois Chicago — Chicago, IL, USA
Department of Electrical and Computer Engineering — *Aug. 2018 - Dec. 2023 (expected)*
Ph.D. in Electrical & Computer Engineering
Advisor : Natasha Devroye

University of Illinois Chicago — Chicago, IL, USA
Department of Electrical and Computer Engineering — *Aug. 2016 - May 2018*
M.S. in Electrical & Computer Engineering

Northeastern University — Shenyang, China
School of Computer Science and Engineering — *Sept. 2013 - June 2017*
B.E. in Telecommunications

Appointments

University of Illinois Chicago — Chicago, IL, USA
Research Assistant — *Aug. 2018 - Present*

- ***Hardware Security*** : Proposed two statistic fault models for the arbiter-based Physical Unclonable Function (APUF) production line. Proposed one statistic fault model for APUF instance. Addressed a defect in a widely-used metrics. Proposed a modified metrics as an alternative. Designed test and diagnosis methodologies for detecting and pinpointing faults in production lines and instances.
- ***Interpreting Deep-learned Codes*** : Developed post-hoc interpretability techniques (mixed-integer linear programming and influence heatmaps) to analyze the deep-learned encoder. Constructed an approximation code for a deep-learned encoder. Applied model reduction technique for compressing recurrent neural network.

Teaching Assistant — *Jan. 2023 - May 2023*

- ECE469 : Hardware Description Language (HDL) Based System Design
  Collaborating with the professor to design the coursework. Supporting and evaluating students' performance on coursework.

Skills

Experience : hardware security, circuit design, ModelSim, Quartus, statistics, machine learning, channel coding, interpretability, information theory, optimization
Programming : Python/PyTorch/TensorFlow, MATLAB, C, SystemVerilog

Publications

[1] **Yeqi Wei**, Wenjing Rao, and Natasha Devroye. "APUF production line faults : uniqueness and testing." In *Design, Automation Test in Europe Conference Exhibition (DATE)*, 2023.

[2] **Yeqi Wei**, Tim Fox, Vincent Dumoulin, Wenjing Rao, and Natasha Devroye. "APUF faults : impact, testing, and diagnosis." In *Design, Automation Test in Europe Conference Exhibition (DATE)*, 2022.

[3] N. Devroye, N. Mohammadi, A. Mulgund, H. Naik, R. Shekhar, Gy Turan, **Y. Wei**, and M. Zefran.**(alphabetic order)** "Interpreting deep-learned error-correcting codes." In *IEEE International Symposium on Information Theory (ISIT)*, 2022.

Awards

- Exceptional Research Promise Award, University of Illinois Chicago, 2023

Service

- Reviewer for IEEE International Symposium on Information Theory (ISIT)

Language

- English, Chinese (Mandarin), Chinese (Cantonese)