ZHENG YUE

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EDUCATION

Doctor of Philosophy (PhD) **2015/08 – 2019/08**
Nanyang Technological University (NTU), Singapore
School of Electrical and Electronic Engineering (EEE)
Thesis: PUF-based Solutions to Unification of User, Device, Data Authentication
Supervisor: Chang Chip Hong (IEEE Fellow)
CGPA: 4.63/5

Bachelor of Engineering **2011/09 – 2015/07**
Shanghai University (SHU), Shanghai, China
School of Communication and Information Engineering
Major: Communication Engineering
CGPA: 3.88/4 (Ranking: 1/368)

SELECTED AWARDS

(Singapore) People's Choice Award, Three Minute Thesis (3MT) Competition 2017
Title: Give your device a fingerprint – the magic of physical unclonable function
(NTU) People's Choice Award, Three Minute Thesis (3MT) Competition 2017
Title: Give your device a fingerprint
NTU Research Scholarship 2015 – 2019
Outstanding Graduates of Shanghai 2015/07
National Scholarship of China 2013 – 2014
Grand Prize Scholarship 2013 – 2014
Grand Prize Scholarship 2012 – 2013
Grand Prize Scholarship 2011 – 2012
Outstanding Students of SHU 2013 – 2014
Outstanding Students of SHU 2012 – 2013
Outstanding Students of SHU 2011 – 2012

PROFESSIONAL EXPERIENCE

Research Fellow **2019/08 – Present**
NTU, Singapore
Lab: Centre for Integrated Circuits and Systems (CICS)
Supervisor: Associate Professor Chang Chip Hong

Project Officer **2019/08 – 2020/07**
NTU, Singapore
Lab: Centre for Integrated Circuits and Systems
Supervisor: Associate Professor Chang Chip Hong

Visiting Student **2019/03 – 2019/06**

Kyoto University, Japan
Lab: Processor Architecture and Systems Synthesis
Supervisor: Professor Takashi Sato

Teaching Assistant

Certificate: “Recommended to Teach” grade attained in NTU HWG702 University Teaching for Teaching Assistants Programme.

[1] 2017-2018 NTU EEE Escape Room Project “Xperience@ EEE”.
Assisted Prof. Ping Shum in designing EEE technologies (Electronics, artificial intelligence, electromagnetism, photonics, etc.) involved escape room.

[2] 2017-2018 NTU Undergraduate Course EE2006 “Engineering Mathematics”
Assisted Prof. Wong Jia Yiing, Patricia in designing questions for EE2006 assignments and quizzes, evaluating students’ participation and assignments.

Student Mentor

[1] 2020 CN Yang Scholars Programme: Dynamic Vision Sensor Based Conscious Event-Driven Physical Unclonable Function for Proactive Monitoring System.
[2] Final Year Project: Design of an Iris-based user recognition system.
[3] Final Year Project: Design of Vocal User-Device Physical Unclonable Function
[4] Final Year Project: A Text-independent Speaker Recognition System

ACADEMIC ACTIVITIES

Talks and Presentations

[1] Invited talk, “PUFs Based Solutions to Unification of User, Device, Data Authentication”, at International Young Scholar Forum of Zhejiang University, 22 Sept. 2020.
[2] Invited talk, “A Dynamic Vision Sensor Based Event-Driven PUF”, at CCF China Test Conference, Xian, Shanxi, 22 Aug 2020.
[3] YP Presentation, “Facial Biohashing Based User-Device PUF For Bring Your Own Device Security”, IEEE Young Professional (YP) Event, Las Vegas, USA, Jan 2018. https://www.nxtbook.com/nxtbooks/ieee/consumerelectronics_201807/index.php#/p/4
[4] Conference presentation, “Securing IoT monitoring device using PUF and physical layer authentication”, ISCAS 2018.
[5] Conference presentation, “Facial biohashing based User-Device physical unclonable function for bring your own device”, ICCE 2018.
[6] Conference presentation, “A new event-driven dynamic vision sensor based physical unclonable function for camera authentication in reactive monitoring system.” AsianHOST 2016.

Services:

I am an active member of IEEE and CAS society and have severed as a reviewer for ISCAS, AsianHOST, IEEE TVLSI, IEEE Access, IEEE TCAS-I and etc. since 2016.

Online Certificates

[1] Udemy, “Python – The Practical Guide”, June 7, 2020

SKILLS & LANGUAGE

Skills: Matlab, Python, Cadence (Spectre, OceanScript), Linux, Latex, FPGA
Languages: Chinese (Native), English (Fluent in both writing and oral)

PUBLICATIONS

Journals:

[1]. Y. Cao, X. Zhao, W. Zheng, **Y. Zheng**, and C.H. Chang, “A 5pJ/b 366 μm^2 true random number generator based on differential current starved inverter ring oscillators,” *IEEE Trans. Very Large Scale Integration Syst. (TVLSI)* (Major Revision).

[2]. **Y. Zheng**, X. Zhao, S. Takashi, Y. Cao, and C. H. Chang, “Event-driven dynamic vision sensor based physical unclonable function for camera authentication in reactive monitoring system,” *IEEE Trans. Inf. Forensics, Security (TIFS)*. Sept. 2019.

[3]. **Y. Zheng**, Y. Cao and C. H. Chang, "A PUF-based data-device hash for tampered image detection and source camera identification," *IEEE Trans. Inf. Forensics. Security (TIFS)*. vol 15, pp. 620-634, 2020.

[4]. **Y. Zheng**, Y. Cao and C.H. Chang, "UDhashing: Physical unclonable function based user-device hash for endpoint authentication," *IEEE Trans. Industrial Electronics (TIE)*, vol. 66, no. 12, pp. 9559-9570, Dec. 2019.

[5]. A. Cui, C.H. Chang, W. Zhou, **Y. Zheng**, “A New PUF Based Lock and Key Solution for Secure In-field Testing of Cryptographic Chips,” *IEEE Trans. Emerging Topics in Computing (TETC)*, Mar. 2019 (Currently Early Access).

[6]. C.H. Chang, **Y. Zheng**, and L. Zhang, “A retrospective and a look forward: Fifteen years of physical unclonable function advancement,” *IEEE Circuits and Syst. Magazine (CASM)*, vol. 17, no. 3, pp. 32–62, thirdquarter 2017.

Conferences:

[7] B. Wang, X. Zhao, **Y. Zheng**, C.H Chang, "An in-pixel gain amplifier based event-driven physical unclonable function for CMOS dynamic vision sensors," in *Proc. 2019 IEEE Int. Symp. Circuits and Syst. (ISCAS)*, Hokkaiddo, Japan, May. 2019.

[8] **Y. Zheng**, S. S. Dhabu, and C.H. Chang, “Securing IoT monitoring device using PUF and physical layer authentication,” in *Proc. 2018 IEEE Int. Symp. Circuits and Syst. (ISCAS)*, Florence, May. 2018.

[9] S. S. Dhabu, **Y. Zheng**, and C.H. Chang, “Active IC metering of digital signal processing subsystem with two-tier activation for secure split test,” in *Proc. 2018 IEEE Int. Symp. Circuits and Syst. (ISCAS)*, Florence, May. 2018.

[10] **Y. Zheng**, Y. Cao, and C.H. Chang, “Facial biohashing based User-Device physical unclonable function for bring your own device system (Invited Paper),” in *Proc. IEEE Int. Conf. Consumer Electronics (ICCE 2018),* Las Vegas, US, Jan. 2018.

[11] Y. Cao, C.H Chang, **Y. Zheng**, X Zhao. "An energy-efficient true random number generator based on current starved ring oscillators," in *Proc. IEEE Asian Hardware-Oriented Security and Trust (AsianHOST)*, Beijing, China, Oct. 2017.

[12] C. Q. Liu, **Y. Zheng**, C.H. Chang, “A new write-contention based dual-port SRAM PUF with multiple response bits per cell,” in *Proc. IEEE Int. Symp. Circuits and Systems. (ISCAS 2017)*, Baltimore, USA, May. 2017.

[13] **Y. Zheng**, Y. Cao, and C.H. Chang. "A new event-driven dynamic vision sensor based physical unclonable function for camera authentication in reactive monitoring system," in *Proc. IEEE Asian Hardware-Oriented Security and Trust (AsianHOST)*, Yilan, Taiwan, Dec. 2016.

Media Release

[1] “Can BYOD be as Secure as Company-Owned Devices?”, IEEE Xplore Innovation Spotlight, 6. Aug. 2018. [online] https://innovate.ieee.org/innovation-spotlight/biohashing-physical-unclonable-function-byod-authentication-scheme/