Chenglu Jin **Updated: July, 2022**

CONTACT INFORMATION
Science Park 123, 1098 XG
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CURRENT POSITION
Tenure-track Researcher at **Centrum Wiskunde & Informatica (CWI Amsterdam)**, the national research institute for mathematics and computer science in the Netherlands

EDUCATION

University of Connecticut Storrs, CT, USA

Ph.D., Electrical Engineering, GPA: 4.08/4.0 Aug'19

- Dissertation: *Cryptographic Solutions for Cyber-Physical System Security*
- Advisor: Prof. Marten van Dijk

New York University Brooklyn, NY, USA

M.S., Computer Engineering, GPA: 3.91/4.0 May'14

- Thesis: *NREPO: Normal Basis Recomputing with Permuted Operands*
- Advisor: Prof. Ramesh Karri

Xidian University Xi'an, China

B.S., Electronic Information Science and Technology, GPA: 85/100 Jun'12

WORK AND RESEARCH EXPERIENCES

Centrum Wiskunde & Informatica (CWI Amsterdam) Oct'20 to Present
Tenure-track Researcher in the Computer Security Group Amsterdam, Netherlands

New York University Mar'20 to Aug'20
Research Assistant Professor at CUSP and CCS Brooklyn, NY, USA

New York University Sep'19 to Feb'20
Smart Cities Postdoctoral Associate at CUSP and CCS Brooklyn, NY, USA
Advisers: Prof. Ramesh Karri and Prof. Daniel Neill

University of Connecticut Aug'14 to Aug'19
Research Assistant in the ECE Department Storrs, CT, USA
Adviser: Prof. Marten van Dijk

Singapore University of Technology and Design May'18 to Aug'18
Intern at iTrust Singapore
Mentor: Prof. Jianying Zhou

Open Security Research Jun'16 to Aug'16
Intern Shenzhen, China
Mentor: Dr. Junfeng Fan

Open Security Research Jun'15 to Aug'15
Intern Shenzhen, China
Mentor: Dr. Junfeng Fan

New York University Sep'13 to May'14
Research Assistant Brooklyn, NY, USA
Adviser: Prof. Ramesh Karri

FUNDING

New York University, Brooklyn, NY, USA

- **US ARMY** STTR: Fully-digital mmWave Lens-Antenna System for Resilient Tactical Communications (Phase I awarded: $166K. Role: **Co-PI**.)

Publications * denotes that the authors are in alphabetical order.

Book Chapters

1. R. S. Khan, N. Noor, **C. Jin**, J. Scoggin, Z. Woods, S. Muneer, A. Ciardullo, P. H. Nguyen, A. Gokirmak, M. van Dijk, and H. Silva. (2017) "Phase Change Memory and its Application in Hardware Security". In *Security Opportunities in Nano Devices and Emerging Technologies*. CRC Press.

Journals

2. **C. Jin**, W. Burleson, M. van Dijk, and U. Rührmair. (2022) "Programmable Access-Controlled and Generic Erasable PUF Design and Its Applications". In *Journal of Cryptographic Engineering (JCEN)*.

3. Z. Yang, Z. Bao, **C. Jin**, Z. Liu, and J. Zhou. (2021) "PLCrypto: A Symmetric Cryptographic Library for Programmable Logic Controllers". *In IACR Transactions on Symmetric Cryptology (ToSC, formerly known as Fast Software Encryption conference (FSE))*. (Acceptance rate of Issue 3: **7/44 = 15.9%**)

4. M. Linares, N. Aswani, G. Mac, **C. Jin**, F. Chen, N. Gupta, and R. Karri. (2021) "HACK3D: Crowdsourcing the Assessment of Cybersecurity in Digital Manufacturing". *In IEEE Computer*.

5. P. Mahesh, A. Tiwari, **C. Jin**, P. R. Kumar, A. L. N. Reddy, S. T. S. Bukkapatanam, N. Gupta, and R. Karri. (2021) "A Survey of Cybersecurity of Digital Manufacturing". In *Proceedings of the IEEE (PIEEE)*.

6. P. H. Nguyen, D. P. Sahoo, **C. Jin**, K. Mahmood, U. Rührmair, and M. van Dijk. (2019) "The Interpose PUF: Secure PUF Design against State-of-the-art Machine Learning Attacks". In *IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES)*. (Acceptance rate of Issue 4: **9/66 = 13.6%**. Overall acceptance rate of Volume 2019: **42/214 = 19.7%**)

7. **C. Jin** and M. van Dijk. (2019) "Secure and Efficient Initialization and Authentication Protocols for SHIELD". In *IEEE Transactions on Dependable and Secure Computing (TDSC)*.

8. S. K. Haider, **C. Jin**, M. Ahmad, D. M. Shila, O. Khan, and M. van Dijk. (2019) "Advancing the State-of-the-Art in Hardware Trojans Detection". In *IEEE Transactions on Dependable and Secure Computing (TDSC)*.
   - **Featured in the Jan/Feb 2019 Issue of IEEE TDSC**

9. **C. Jin**, C. Herder, L. Ren, P. H. Nguyen, B. Fuller, S. Devadas, and M. van Dijk. (2017). "FPGA Implementation of a Cryptographically-Secure PUF based on Learning Parity with Noise". In *Cryptography*.
   - **Demonstrated as "Practical Cryptographically-Secure PUFs based on Learning Parity with Noise" at IEEE HOST 2017**

10. X. Guo, **C. Jin**, C. Zhang, A. Papadimitriou, D. Hély, and R. Karri. (2016) "Can Algorithm Diversity in Stream Cipher Implementation Thwart (Natural and) Malicious Faults?". In *IEEE Transactions on Emerging Topics in Computing (TETC)*.

11. X. Guo, D. Mukhopadhyay, **C. Jin**, and R. Karri. (2015) "Security Analysis of Concurrent Error Detection against Differential Fault Analysis". In *Journal of Cryptographic Engineering (JCEN)*.

CONFERENCES

12. Z. Yang, **C. Jin**, J. Ning, Z. Li, T. T. A. Dihn, and J. Zhou. (2021, Dec) "Group Time-based One-time Passwords and its Application to Efficient Privacy-Preserving Proof of Location". In *2021 Annual Computer Security Applications Conference (ACSAC)*. (Acceptance rate: **80/326 = 24.5%**)

13. Z. Yang, **C. Jin**, Y. Tian, J. Lai, and J. Zhou. (2020, Oct) "LiS: Lightweight Signature Schemes for Continuous Message Authentication in Cyber-Physical Systems". In *2020 ACM Asia Conference on Computer and Communications Security (AsiaCCS)*. (Acceptance rate of the 1st deadline: **9/64 = 14.1%**. Overall acceptance rate in 2020: **67/308 = 21.8%**)

14. **C. Jin***, Z. Yang*, M. van Dijk, and J. Zhou. (2019, Dec) "Proof of Aliveness". In *2019 Annual Computer Security Applications Conference (ACSAC)*. (Acceptance rate: **60/266 = 22.6%**)
    - **Artifacts Evaluated Functional**

15. R. S. Khan, N. Noor, **C. Jin**, S. Muneer, F. Dirisaglik, A. Cywar, P. H. Nguyen, M. van Dijk, A. Gokirmak, and H. Silva. (2019, Jul) "Exploiting Lithography Limits for Hardware Security Applications". In *2019 IEEE Conference on Nanotechnology (IEEE-NANO)*.
    - **Best Paper Award Candidate**

16. **C. Jin**, S. Valizadeh, and M. van Dijk. (2018, May) "Snapshotter: Lightweight Intrusion Detection and Prevention System for Industrial Control Systems". In *2018 IEEE International Conference on Industrial Cyber-Physical Systems (ICPS)*.

17. M. van Dijk*, **C. Jin***, H. Maleki*, P. H. Nguyen*, and R. Rahaeimehr*. (2018, Feb) "Weak-Unforgeable Tags for Secure Supply Chain Management". In *2018 International Conference on Financial Cryptography and Data Security (FC)*. (Acceptance rate for full papers: **27/110 = 24.5%**)

18. W. Yan, **C. Jin**, F. Tehranipoor, and J. Chandy. (2017, Sep) "Phase Calibrated Ring Oscillator PUF Design and Implementation on FPGAs". In *2017 International Conference on Field-Programmable Logic and Applications (FPL)*. (Acceptance rate for full papers: **49/208 = 23.6%**)

19. S. K. Haider, **C. Jin**, and M. van Dijk. (2017, Aug) "Advancing the State-of-the-Art in Hardware Trojans Design". In *2017 IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*.

20. H. Maleki, R. Rahaeimehr, **C. Jin**, and M. van Dijk. (2017, May) "New Clone-Detection Approach for RFID-Based Supply Chains". In *2017 IEEE International Symposium on Hardware-Oriented Security and Trust (HOST)*. (Acceptance rate for full papers: **18/106 = 17.0%**)

21. X. Guo, N. Karimi, F. Regazzoni, **C. Jin**, and R. Karri. (2015, May) "Simulation and Analysis of Negative-Bias Temperature Instability Aging on Power Analysis Attacks". In *2015 IEEE International Symposium on Hardware Oriented Security and Trust (HOST)*. (Acceptance rate for full papers: **17/71 = 23.9%**)

22. X. Guo, D. Mukhopadhyay, **C. Jin**, and R. Karri. (2014, May) "NREPO: Normal Basis Recomputing with Permuted Operands". In *2014 IEEE International Symposium on Hardware-Oriented Security and Trust (HOST)*. (Acceptance rate for full papers: **18/65 = 27.7%**)

Workshops

23. Z. Yang, C. Yin, **C. Jin**, J. Ning, and J. Zhou. (2021, Jun) "Lightweight Delegated Authentication with Identity Fraud Detection for Cyber-physical Systems". In *2021 ACM Cyber-Physical System Security Workshop (CPSS@AsiaCCS)*.
24. **C. Jin**, W. Burleson, M. van Dijk, and U. Rührmair. (2020, Nov) "Erasable PUFs: Formal Treatment and Generic Design". In *2020 Workshop on Attacks and Solutions in Hardware Security (ASHES@CCS)*.
25. **C. Jin**, L. Ren, X. Liu, P. Zhang, and M. van Dijk. (2017, Apr) "Mitigating Synchronized Hardware Trojan Attacks in Smart Grids". In *2017 Workshop on Cyber-Physical Security and Resilience in Smart Grids (CPSR-SG@CPSWeek)*.

Pre-prints

26. D. Gurevin, **C. Jin**, P. H. Nguyen, O. Khan, and M. van Dijk. (2022) "Secure Remote Attestation with Strong Key Insulation Guarantees". *arXiv*.
27. M. van Dijk*, D. Gurevin*, **C. Jin***, O. Khan*, and P. H. Nguyen*. (2021) "Bilinear Map Based One-Time Signature Scheme with Secret Key Exposure". *Cryptography ePrint Archive*.
28. M. van Dijk*, D. Gurevin*, **C. Jin***, O. Khan*, and P. H. Nguyen*. (2021) "Autonomous Secure Remote Attestation even when all Used and to be Used Digital Keys Leak". *Cryptography ePrint Archive*.
29. **C. Jin**, V. Gohil, R. Karri, and J. Rajendran. (2020) "Security of Cloud FPGAs: A Survey". *arXiv*.
30. **C. Jin***, Z. Yang*, S. Adepu, and J. Zhou. (2019) "HMAKE: Legacy-Compliant Multi-factor Authenticated Key Exchange from Historical Data". *Cryptography ePrint Archive*.
31. **C. Jin**, M. van Dijk, M. Reiter, and H. Zhang. (2018) "PwoP: Intrusion-Tolerant and Privacy-Preserving Sensor Fusion". *Cryptography ePrint Archive*.

Awards

- Best Paper Award Candidate — IEEE-NANO 2019
- First Place Overall — MITRE eCTF 2017
- Iron Flag Award — MITRE eCTF 2017
- Doctoral Dissertation Fellowship — UConn Graduate School 2019
- Predoctoral Summer Research Fellowship — UConn ECE Dept. 2017
- Student Travel Award — CHES 2019
- Student Scholarship — BlackHat USA 2017
- Student Travel Award — HOST 2017
- Student Travel Award — Real World Crypto 2016

Teaching Experiences

King Abdullah University of Science and Technology — Thuwal, Saudi Arabia

Guest Lecturer (on Hardware Security):

- *Computer Systems Security* — April 2022

New York University — Brooklyn, NY, USA

Course Co-developer:

- *Cybersecurity in Additive Manufacturing* — Fall 2020

Master Capstone Project Mentor:

- *Urban Science Intensive* — Spring 2020, Summer 2020

Teaching Assistant:

- *Introduction to Hardware Security and Trust* — Spring 2020
- *Advanced Computer Hardware Design* — Fall 2019

University of Connecticut Storrs, CT, USA

Instructor and Course Developer:

- *Seminar on Cyber-Physical System Security* Spring 2019

Course Co-developer:

- *Advanced Microprocessor Application Lab* Spring 2017
- *Introduction to Hardware Security and Trust* Spring 2017

Teaching Assistant:

- *Microprocessor Applications Laboratory* Spring 2016, Fall 2016

Students

Wageningen University & Research Wageningen, Netherlands

Master Students:

- Yuchen Huang, 2022 (Co-advised with Dr. Qingzhi Liu)

New York University Brooklyn, NY, USA

Master Students:

- Shreeraman Arunachalam Karikalan, 2020
- Aparna Bhutani, 2020
- Siqi Huang, 2020
- Vivek Patel, 2020
- Guilherme Louzada, 2020
- Chenjie Su, 2020
- Akash Yadav, 2020
- Eric Zhuang, 2020

Competition Experiences

MITRE Embedded System CTF 2017 (**First Place Overall**, **Iron Flag Award**)
The goal of this competition was to build a secure bootloader for a microcontroller. Each team was required to design their own secure bootloader and attack the bootloaders designed by the other teams. Competitors are CMU, NEU, RPI, WPI, UMass, etc.

- Won **First Place Overall** counting all the points gained by attacks and defenses.
- Won **Iron Flag Award** for successfully designing a secure system that defended every flag from its attackers in the whole competition.

Professional Services

Guest Editor

- Wireless Communications and Mobile Computing (WCMC), Special Issue on "Intelligent and Flexible Security of Next-Generation Wireless Networks "

Program Committee Co-Chair & Co-Founder

- International Workshop on Critical Infrastructure and Manufacturing System Security (CIMSS'21, 22)

Publicity Chair

- EAI International Conference on Applied Cryptography in Computer and Communications (EAI AC3'22)

Program Committee Member

- International Workshop on Security and Trust Management (STM'21, 22)
- ACM Cloud Computing Security Workshop (CCSW'21, 22)
- Workshop on Attacks and Solutions in Hardware Security (ASHES'20 - 22)
- IEEE Conference on Communications and Network Security (CNS'22)
- IFIP International Internet of Things Conference (IFIP IoT'21, 22)
- International Conference on Information and Communications Security (ICICS'19 - 22)
- International Symposium on Quality Electronic Design (ISQED'20 - 22)
- Euromicro Conference on Digital Systems Design (DSD'21)
- Applied Research Competition in North American Region (CSAW'20)

- International Conference on Science of Cyber Security (SciSec'19)

Student Program Committee Member
- IEEE Symposium on Security and Privacy (S&P'16)

Reviewer

Journals
- IEEE Transactions on Information Forensics and Security (TIFS)
- IEEE Transactions on Dependable and Secure Computing (TDSC)
- IEEE Transactions on Power Systems (TPWRS)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- IEEE IEEE Transactions on Circuits and Systems I (TCAS-I)
- IEEE Internet of Things Journal (IOT-J)
- IEEE Consumer Electronics Magazine (CEM)
- ACM Computing Surveys (CSUR)
- ACM Transactions on Privacy and Security (TOPS)
- ACM Transactions on Reconfigurable Technology and Systems (TRETS)
- ACM Transactions on Design Automation of Electronic Systems (TODAES)
- ACM Journal on Emerging Technologies in Computing Systems (JETC)
- IOS Journal of Computer Security (JCS)
- Springer Journal of Cryptographic Engineering (JCEN)
- Springer Journal of Electronic Testing (JETTA)
- Springer Journal of Hardware and Systems Security (HASS)
- Springer Cybersecurity
- Springer Discover Internet of Things
- IET Circuits, Devices & Systems
- MDPI Cryptography
- MDPI Electronics
- MDPI Sensors
- MDPI Applied Sciences
- Journal of Internet Technology (JIT)

Conferences
- ACM/EDAC/IEEE Design Automation Conference (DAC'18, 19, 20)
- IEEE International Midwest Symposium on Circuits and Systems (MWSCAS'18)
- Cryptographers' Track at the RSA Conference (CT-RSA'17)

Sub-Reviewer

Journals
- IEEE Transaction on Computers (TC)
- Nature Communications
- Journal of Manufacturing Systems (JMS)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)

Conferences
- Design, Automation and Test in Europe Conference (DATE'22)
- International Test Conference (ITC'20)
- ACM/EDAC/IEEE Design Automation Conference (DAC'15, 16, 17, 20)
- ACM conference on Computer and Communications Security (CCS'17, 19)
- IEEE International Symposium on Hardware-Oriented Security and Trust (HOST'15, 16, 17, 18)
- IEEE International Conference on Computer Design (ICCD'16, 17)
- IEEE Symposium on Security and Privacy (S&P'17)
- ACM Great Lakes Symposium on VLSI (GLSVLSI'17)

- Theory of Implementation Security Workshop (TIs'16)

Talks

1. PwoP: Intrusion-Tolerant and Privacy-Preserving Sensor Fusion. *CWI Scientific Meeting.* Amsterdam, Netherlands, 2022/5.
2. Group Time-based One-time Passwords and its Application to Efficient Privacy-Preserving Proof of Location. *2021 Annual Computer Security Applications Conference (ACSAC).* Virtual, 2021/12.
3. Securing Critical Infrastructures in Smart Cities. *Cryptographic Engineering Research Forum.* Virtual, 2021/8.
4. PwoP: Intrusion-Tolerant and Privacy-Preserving Sensor Fusion. *The Amsterdam Coordination Group (ACG) Meeting.* Virtual, 2021/3.
5. Securing Critical Infrastructures in Smart Cities. *TU Delft ENS Seminar.* Virtual, 2021/3.
6. Lightweight Signature Schemes for Cyber-Physical Systems. *The Conference for Information and Communications Technology Research in the Netherlands (ICT.OPEN).* Virtual, 2021/2.
7. Erasable PUFs: Formal Treatment and Generic Design. *The Amsterdam Coordination Group (ACG) Meeting.* Virtual, 2020/12.
8. Erasable PUFs: Formal Treatment and Generic Design. *Workshop on Attacks and Solutions in Hardware Security (ASHES).* Virtual, 2020/11.
9. Enhancing Cyber-Physical Systems Security with Cryptography and Hardware Security Primitives. *ECE Department Seminar.* Iowa State University, Ames, IA, USA, 2020/2.
10. Securing the Infrastructures in Smart Cities with Cryptography and Hardware Primitives. *Seminar.* Virginia Commonwealth University, Richmond, VA, USA, 2020/2.
11. Securing the Infrastructures in Smart Cities using Cryptography and Hardware Primitives. *Research Seminar.* Villanova University, Villanova, PA, USA, 2020/2.
12. Securing the Infrastructures in Smart Cities. *Center for Urban Science and Progress (CUSP) Research Seminar.* New York University, Brooklyn, NY, USA, 2019/9.
13. The Interpose PUF: Secure PUF Design against State-of-the-art Machine Learning Attacks. *Conference on Cryptographic Hardware and Embedded Systems (CHES).* Atlanta, GA, USA, 2019/8.
14. Enhancing Cyber-Physical System Security with Cryptography and Hardware Security Primitives. *Seminar.* Tennessee State University, Nashville, TN, USA, 2019/3.
15. Efficient Erasable PUFs from Programmable Logic and Memristors. *Connecticut Microelectronics and Optoelectronics Consortium Symposium.* University of New Haven, Orange, CT, USA, 2019/3.
16. Enhancing Cyber-Physical System Security with Cryptography and Hardware Security Primitives. *Seminar.* California State University, Long Beach, CA, USA, 2019/3.

17. Enhancing Cyber-Physical System Security with Cryptographic Primitives. *Seminar*. DePaul University, Chicago, IL, USA, 2019/2.

18. Enhancing Cyber-Physical System Security with Cryptography and Hardware Security Primitives. *Graduate Seminar*. University of Utah, Salt Lake City, UT, USA, 2019/2.

19. Cryptographic Solutions for Cyber-Physical System Security. *Seminar*. United Technologies Research Center, East Hartford, CT, USA, 2018/9.

20. PwoP: Intrusion-Tolerant and Privacy-Preserving Sensor Fusion. *Security Seminar*. University of Connecticut, Storrs, CT, USA, 2018/9.

21. Secure Sensor Fusion. *Modular Approach to Cloud Security (MACS) Project Meeting*. Boston University, Boston, MA, USA, 2018/1.

22. Advancing the State-of-the-Art in Hardware Trojans Design. *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*. Medford, MA, USA, 2017/8.

23. Mitigating Synchronized Hardware Trojan Attacks in Smart Grids. *Workshop on Cyber-Physical Security and Resilience in Smart Grids (CPSR-SG)*. Pittsburgh, PA, USA, 2017/4.

24. Secure and Efficient Initialization and Authentication Protocols for SHIELD. *Security Seminar*. University of Connecticut, Storrs, CT, USA, 2016/9.

25. NREPO: Normal Basis Recomputing with Permuted Operands. *IEEE International Symposium on Hardware-Oriented Security and Trust (HOST)*. Washington, DC, USA, 2014/5.