

M. Tauhidur Rahman

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Research Interests	<ul style="list-style-type: none">• Cyber Security: Developing techniques to protect critical infrastructure from cyberattacks, threats and vulnerabilities in UAV systems• IoT Security: Information flow security verification and control flow integrity in IoT devices• Hardware Security and Trust: Security primitives, counterfeit electronic component detection and avoidance, hardware trojan, physical attacks, design vulnerabilities, authentication, identification, hardware health, cryptographic algorithm and protocol• SoC Security: Analysis for vulnerabilities in SoC, security aware SoC design flow• Reliability: Design and algorithm for robust security primitives	
Professional Experience	<ul style="list-style-type: none">• Assistant Professor, University of Alabama in Huntsville, AL• Research Assistant, University of Florida, FL• Research Assistant, University of Connecticut, CT• Lecturer, American International University Bangladesh, Dhaka• Research Engineer, Dept. of Transport Net. Planning, Robi BD	August'17-present July'15-July'17 July'12-June'15 August'10-July'11 July'09-July'10
Education	University of Florida , Gainesville, FL Ph.D. , Electrical and Computer Engineering Dissertation: <i>Hardware-based Security Primitives and their Applications to Supply Chain Integrity</i>	August'17
	University of Connecticut , Storrs, CT M.S. , Electrical and Computer Engineering	July'15
	Bangladesh University of Engineering and Technology , Dhaka, Bangladesh B.S. , Electrical and Electronic Engineering	May'09
Honors & Awards	<ol style="list-style-type: none">1. Best Paper Award, IEEE AsianHost Conference, 20172. Best in Session Award, TECHCON, Semiconductor Research Corporation (SRC), 20163. Richard Newton Young Student Fellow, Design Automation Conference (DAC), 20144. Outstanding Academic Achievement, University of Florida, Fall'165. Merit Dean List, Bangladesh University of Engineering and Technology, 2005-2011	
Peer-reviewed Journal Articles	<ol style="list-style-type: none">1. Z. Guo, X. Xu, M.T. Rahman, M. Tehranipoor, D. Forte, "SCARe: An SRAM-based Countermeasure Against IC Recycling," IEEE Transactions on Very Large Scale Integration Systems, 2017 (in press). (impact factor 1.7)2. M.T. Rahman, A. Hosey, Z. Guo, D. Forte, M. Tehranipoor, "Systematic Correlation and Cell Neighborhood Analysis of SRAM-PUF for Robust and Unique Key Generation," in Journal of Hardware and Systems Security, 2017.3. M.T. Rahman, F. Rahman, D. Forte, M. Tehranipoor, "An Aging-Resistant RO-PUF for Reliable Key Generation." in IEEE Transactions on Emerging Topics in Computing, vol. 4, no. 3, pp. 335-348, July-Sept., 2016. (impact factor 3.83)4. A. Mazady. M.T. Rahman, D. Forte, and M. Anwar, "Memristor Nano-PUF - A Security Primitive: Theory and Experiment", IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2015. (impact factor 2.54)	
Peer-reviewed Conferences Proceedings	<ol style="list-style-type: none">1. P. Kumari, B. S. Talukder, S. Sakib, B. Ray, and M.T. Rahman, "Independent Detection of Recycled Flash Memory: Challenges and Solutions, IEEE International Symposium on Hardware Oriented Security and Trust, 2018. (acceptance rate 12%).	

2. X. Wang, Y. Guo, **M.T. Rahman**, D. Zhang, and M. Tehranipoor, "DOST: Dynamically Obfuscated Wrapper for Split Test against IC Piracy," IEEE Asian Hardware-Oriented Security and Trust Symposium (AsianHOST), 2017. (Received best paper award)
3. **M.T. Rahman**, D. Forte, X. Wang, and M. Tehranipoor, "Enhancing Noise Sensitivity of Embedded SRAMs for Robust True Random Number Generation in SoCs" in Asian Hardware-Oriented Security and Trust, 2016.
4. Z. Guo, M. **M.T. Rahman**, M. Tehranipoor, D. Forte, "A Zero-cost Approach to Detect Recycled SoCs Using Embedded SRAM", Hardware-Oriented Security and Trust (HOST), 2016.
5. **M.T. Rahman**, D. Forte, and M. Tehranipoor, "SRAM Inspired Design and Optimization for Developing Robust Security Primitives," SRC TECHCON, 2016. (received best in session award)
6. **M.T. Rahman**, F. Rahman, D. Forte, M. Tehranipoor, "A Pair Selection Algorithm for Robust RO-PUF against Environmental Variations and Aging", in IEEE International Conference on Computer Design (ICCD), 2015. (acceptance rate 31%)
7. **M.T. Rahman**, D. Forte, and M. Tehranipoor, "Robust SRAM-PUF: Cell Stability Analysis and Novel Bit-Selection Algorithm," TECHCON, 2015.
8. **M.T. Rahman**, A. Hosey, K. Xiao, D. Forte, and M. Tehranipoor, "Cell Stability Analysis and Novel Bit-Selection Algorithm for Robust SRAM-PUF," Connecticut Micro-electronic Symposium (CMOC), 2015.
9. **M.T. Rahman**, A. Hosey, F. Rahman, D. Forte, and M. Tehranipoor, "RePa: A Pair Selection Algorithm for Reliable KeMys from RO-based PUF," GOMACTech, 2015.
10. A. Hosey, **M.T. Rahman**, K. Xiao, D. Forte, and M. Tehranipoor, "Advanced Analysis of Cell Stability for Reliable SRAM PUFs," IEEE Asian Test Symposium (ATS), 2014.
11. **M.T. Rahman**, D. Forte, Q. Shi, G. Contreras, and M. Tehranipoor, "CSST: Preventing Distribution of Unlicensed and Rejected ICs by Untrusted Foundry and Assembly," IEEE Int. Symposium on Defect and Fault Tolerance Symposium (DFTS), 2014.
12. **M.T. Rahman**, D. Forte, Q. Shi, G. Contreras, and M. Tehranipoor, "CSST: An Efficient Secure Split-Test for Preventing IC Piracy," IEEE North Atlantic Test Workshop (NATW), 2014.
13. K. Xiao, **M.T. Rahman**, D. Forte, M. Tehranipoor, M. Su, and Y. Huang, "Bit Selection Algorithm Suitable for High Volume Production of SRAM PUF," IEEE Int. Symposium on Hardware-Oriented Security and Trust, 2014. (acceptance rate 29.3%)
14. **M.T. Rahman**, K. Xiao, D. Forte, X. Zhang, Z. Shi, and M. Tehranipoor, "TI-TRNG: Technology Independent True Random Number Generator," Design Automation Conference (DAC), 2014. (acceptance rate 21.7%)
15. **M.T. Rahman**, D. Forte, M. Tehranipoor, and J. Fahrny, "ARO-PUF: An Aging-Resistant Ring-Oscillator PUF Design," Design, Automation, and Test in Europe (DATE), 2014. (acceptance rate 24%)
16. K. Xiao, **M.T. Rahman**, D. Forte, M. Tehranipoor, Y. Huang, and M. Su, "Low-cost Analysis of SRAM PUFs for Identification of Mass-Produced Electronic Devices," GOMACTech, 2014.
17. G. Contreras, **M.T. Rahman**, and M. Tehranipoor, "Secure Split-Test for Preventing IC Piracy by Untrusted Foundry and Assembly," Int. Symposium on Defect and Fault Tolerance in VLSI Systems, 2013.

Book Chapter

1. **M.T. Rahman**, D. Forte, M. Tehranipoor, "Protection of Assets from Scan Chain Vulnerabilities through Obfuscation." in Hardware Protection through Obfuscation, Springer, 2017.
2. Chapter 11 is contributed to "Counterfeit Integrated Circuits: Detection and Avoidance" in Springer 2015 by M Tehranipoor, D. Forte, and U. Guin.

Patents

- M.T. Rahman**, D. Forte, and M. Tehranipoor, "CSST: An Efficient Secure Split-Test for Preventing IC Piracy." (pending).

Talks and Presentations

1. Seminar: "Electronic Component Supply Chain Security: Threats, Challenges, and Solution," Utah State University, UT, 2017.
2. Seminar: "Electronic Component Supply Chain Security: Threats, Challenges, and Solution," Wichita State University, KS, 2017.
3. Seminar: "Electronic Component Supply Chain Security: Threats, Challenges, and Solution," Fordham University, NY, 2017.
4. "Design of Novel True Random Number Generators," CHASE Workshop on Secure/Trustworthy Systems and Supply Chain Assurance, 2014.
5. "Cell Stability Analysis and Novel Bit-Selection Algorithm for Robust SRAM-PUF," in Connecticut Microelectronic Symposium (CMOC), 2015.
6. Design of Low-Cost Memory-Based Security Primitives and Techniques for High-Volume Products, FICS Annual Conference on Cybersecurity, 2016, Gainesville, FL.
7. Secure split-test for Preventing Distribution of Unlicensed and Rejected ICs by Untrusted Foundry and Assembly, FICS Annual Conference on Cybersecurity, 2016, FL.
8. Techniques to Improve RO-PUF Robustness Against Environmental Variations and Aging, FICS Annual Conference on Cybersecurity, 2016, Gainesville, FL.
9. Technology Independent RO-based True Random Number Generation, CHASE Workshop on Secure/Trustworthy Systems and Supply Chain Assurance, 2014.

Teaching Experience

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| 1. Hardware Security and Trust, Uni. of Alabama in Huntsville | Fall'17 |
| 2. Intro. to Hardware Security and Trust, Uni. of Florida | Spring'17 |
| 3. Hardware Security Lab, Uni. of Florida | Fall'16 |
| 4. Electronic Devices, American International University Bangladesh | Fall'10 |
| 5. Electronic Devices Lab, American International University Bangladesh | Fall'10 |
| 6. Electrical Circuits 2 Lab, American International University Bangladesh | Spring'11 |
| 7. Signal and Linear System, American International University Bangladesh | Spring'11 |
| 8. Digital Signal Processing, American International University Bangladesh | Spring'11 |

Professional Activities & Services

Program Committee

1. IEEE International Conference on Consumer Electronics, 2018 (ICCE-18) in Las Vegas

Session Moderator

1. International Conference On Computer Aided Design, 2017 (ICCAD) in Irvine, CA

Organizing Committee:

1. CHASE Workshop on Secure/Trustworthy Systems and Supply Chain Assurance, 2014, Storrs, CT
2. CHASE Workshop on Secure/Trustworthy Systems and Supply Chain Assurance, 2015, Storrs, CT
3. FICS Annual Conference on Cybersecurity, 2016, Gainesville, FL
4. Member, IEEE

Peer Reviewing:

1. IEEE Transactions on Dependable and Secure Computing (1/2017-present)
2. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (3/2016-present)
3. IEEE Transactions on Very Large Scale Integration (5/2013-present)
4. ACM Transactions on Design Automation of Electronic Systems (4/2013-present)
5. IEEE Design & Test (3/2013-present)
6. Journal of Hardware and Systems Security (2/2016-present)
7. IEEE International Symposium on Hardware Oriented Security and Trust (HOST) (15/2013-present)
8. Design Automation Conference (9/2013-present)
9. Design, Automation and Test in Europe (7/2013-present)
10. IEEE International Conference on Computer Design (8/2013-present)
11. Defect and Fault Tolerance in VLSI and Nanotechnology Systems Symposium (6/2013-present)

Advising

1. Bashir Talukder, UAH, (ECE, PhD Student, Advisor)
2. SueAnne Griffith, UAH, (ECE, PhD Student, Committee Member)
3. Ahmed Khourshed, UAB, (ECE, PhD Student, Committee Member)
4. Alison Hosey, University of Connecticut, Storrs, CT
5. Sommy Okwuosah, University of Connecticut, Storrs, CT
6. Jackson Carroll, University of Florida, Gainesville, FL
7. Huanyu Wang, University of Florida, Gainesville, FL
8. Risham Sidhu, University of Florida, Gainesville, FL

Collaborators

1. Dr. Biswajit Ray, University of Alabama in Huntsville
2. Dr. Tommy Morris, University of Alabama in Huntsville
3. Dr. Mark Tehranipoor, University of Florida (PhD advisor)
4. Dr. Domenic Forte, University of Florida (PhD co-advisor)
5. Dr. Swarup Bhunia, University of Florida
6. Dr. Karthik Lingasubramanian, University of Alabama at Birmingham

Research Grants

1. NSF 1813269 SaTC: STARSS: Small: Camouflaging Data to Protect Sensitive Information. **Principal Investigator:** M. Tauhidur Rahman. (**under review**)