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Mohammad Ashiqur Rahman

EDUCATION

Degree	Institution	Field	Dates
PhD	The University of North Carolina at Charlotte	Computing and Information Systems	April 2015
MS	Bangladesh University of Engineering and Technology, Dhaka	Computer Science and Engineering	March 2007
BS	Bangladesh University of Engineering and Technology, Dhaka	Computer Science and Engineering	February 2004

FULL-TIME ACADEMIC EXPERIENCE

Institution	Rank	Department	Dates
Florida International University, Miami	Associate Professor	Electrical and Computer Engineering	August 2023 – Present
Florida International University, Miami	Associate Professor [Secondary Appointment]	School of Computing and Information Sciences	August 2023 – Present
Florida International University, Miami	Assistant Professor [Secondary Appointment]	School of Computing and Information Sciences	February 2023 – July 2023
Florida International University, Miami	Assistant Professor	Electrical and Computer Engineering	January 2019 – July 2023
Tennessee Technological University, Cookeville	Assistant Professor	Computer Science	August 2015 – December 2018
Ahsanullah University of Science & Technology, Dhaka	Assistant Professor	Computer Science and Engineering	January 2009 – December 2009
Military Institute of Science and Technology, Dhaka	Lecturer	Computer Science and Engineering	January 2006 – January 2009

PART-TIME ACADEMIC EXPERIENCE

Institution	Rank	Field	Dates
The University of North Carolina at Charlotte	Graduate Assistant	Computing and Information Systems	January 2010 – March 2015

NON-ACADEMIC EXPERIENCE

Place of Employment	Title	Dates
Air Force Research Laboratory	SFFP Fellow	May 2023 – June 2023
Air Force Research Laboratory	VFRP Fellow	June 2022 – August 2022
Air Force Research Laboratory	VFRP Fellow	June 2018 – August 2018
Information Technology, IBBL, Dhaka	Software Engineer	September 2004 – February 2007

PUBLICATIONS IN DISCIPLINE

Books

1. Ehab Al-Shaer and **Mohammad Ashiqur Rahman**, "Security and Resiliency Analytics for Smart Grids - Static and Dynamic Approaches," Advances in Information Security, Springer, June 2016.

Chapters in Books

1. Nur Imtiazul Haque[*] and **Mohammad Ashiqur Rahman**, "An Artificial Intelligence-Assisted Security Analysis of Smart Healthcare Systems," in "AI, Machine Learning and Deep Learning: A Security Perspective," edited by Fei Hu and Xiali Hei, CRC Press, June 2023.
2. Nico Saputro, Samet Tonyali, Abdullah Aydeger, Kemal Akkaya, **Mohammad Ashiqur Rahman,** and Selcuk Uluagac, "A Review of Moving Target Defense Mechanisms for Internet of Things Applications, Modeling and Design of Secure Internet of Things," in "Modeling and Design of Secure Internet of Things," edited by C. Kamhoua, L. Njilla, A. Kott, and S. Shetty, pp. 563 – 614, 01Wiley-IEEE Press, June 2020
3. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "Resiliency Analytics for Industrial Control Systems: A Formal Approach," in "Industrial Control Systems Security and Resiliency: Practice and Theory," edited by M. Haney, I. Ray, C. Rieger, Q. Zhu, Springer, pp. 51 – 69, March 2019.
4. Ehab Al-Shaer and **Mohammad Ashiqur Rahman**, "Attribution, Temptation, and Expectation: A Formal Framework for Defense-by-Deception in Cyber Warfare," in "Cyber Warfare- Building the Scientific Foundation," edited by S. Jajodia, P. Shakarian, V.S. Subrahmanian, V. Swarup, and C. Wang, Springer, pp. 57 – 80, April 2015.
5. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "A Declarative Logic-Based Approach for Threat Analysis of Advanced Metering Infrastructure," in "Automated Security Management," edited by E. Al-Shaer, X. Ou, and G. Xie, Springer, pp. 59 – 77, September 2013.

Journals

1. Md Hasan Shahriar[+*], **Mohammad Ashiqur Rahman**[+], Mohamadsaleh Jafari[*], and Sumit Paudyal "Formal Analytics for Stealthy Attacks against Contingency Analysis in Power Grids," Sustainable Energy, Grids and Networks (**SEGAN**), Elsevier, Vol. 38, June 2024.
2. Nur Imtiazul Haque[*], **Mohammad Ashiqur Rahman**, and Selcuk Uluagac, "Formal Threat Analysis of Machine Learning-Based Control Systems: A Study on Smart Healthcare Systems," Computers & Security (**COSE**), Elsevier, Vol. 139, April 2024.
3. Tayebeh Rajabi[+], Alvi Ataur Khalil[+*], Mohammad Hossein Manshaei, **Mohammad Ashiqur Rahman**, Mohammad Dakhilalian, Maurice Ngouen, Murtuza Jadliwala, and A. Selcuk Uluagac,

"Feasibility Analysis for Sybil Attacks in Shard-Based Permissionless Blockchains," ACM Distributed Ledger Technologies (**DLT**), Vol. 2, No. 4, December 2023.

4. Mohamadsaleh Jafari[*], **Mohammad Ashiqur Rahman**, and Sumit Paudyal "Optimal False Data Injection Attack Against Load-Frequency Control in Power Systems," IEEE Transactions on Information Forensics and Security (**TFIS**), Vol. 18, August 2023.

5. Alvi Ataur Khalil[*], Mohamed Y. Selim, **Mohammad Ashiqur Rahman**, "Deep Learning-based Energy Harvesting with Intelligent Deployment of RIS-assisted UAV-CFmMIMOs," Computer Networks (**COMNET**), Elsevier, Vol. 229, No. C, June 2023.

6. A H M Jakaria[*], **Mohammad Ashiqur Rahman**, Muneeba Asif[*], Alvi Ataur Khalil[*], Hisham Kholidy, Matthew Anderson, and Steven Drager, "Trajectory Synthesis for a UAV Swarm Based on Resilient Data Collection Objectives," IEEE Transactions on Network and Service Management (**TNSM**), Vol. 20, No. 1, March 2023.

7. Mohamadsaleh Jafari[*], **Mohammad Ashiqur Rahman**, and Sumit Paudyal "Optimal False Data Injection Attacks Against Power System Frequency Stability," IEEE Transactions on Smart Grid (**TSG**), Vol. 14, No. 2, March 2023.

8. Madhukrishna Priyadarsini[#], Padmalochan Bera, Sajal Das, **Mohammad Ashiqur Rahman**, "A Security Enforcement Framework for SDN Controller using Game Theoretic Approach," IEEE Transactions on Dependable and Secure Computing (**TDSC**), Vol. 20, No. 2, March-April 2023.

9. A K M Iqtidar Newaz[#], Amit Sikder, **Mohammad Ashiqur Rahman**, and A. Selcuk Uluagac, "A Survey on Security and Privacy Issues in Modern Healthcare Systems: Attacks and Defenses," ACM Transactions on Computing for Healthcare (**HEALTH**), Vol. 2, No. 3, July 2021.

10. A H M Jakaria[*], **Mohammad Ashiqur Rahman**, and Aniruddha Gokhale, "Resiliency-Aware Deployment of SDN in Smart Grid SCADA: A Formal Synthesis Model," IEEE Transactions on Network and Service Management (**TNSM**), Vol. 18, No. 2, June 2021.

11. Abdullah Aydeger[#], Mohammad Hossein Manshaei[!], **Mohammad Ashiqur Rahman**, and Kemal Akkaya, "Strategic Defense against Stealthy Link Flooding Attacks: A Signaling Game Approach," Transactions on Network Science and Engineering (**TNSE**), Vol. 8, No. 1, March 2021.

12. **Mohammad Ashiqur Rahman**, Md. Golam Mehedi Hasan[*], Mohammad Manshaei[!], and Ehab Al-Shaer, "A Game-Theoretic Analysis to Defend against Remote Operating System Fingerprinting," Journal of Information Security and Applications (**JISA**), Elsevier, Vol. 52, June 2020.

13. **Mohammad Ashiqur Rahman** and Amarjit Datta[*], "Impact of Stealthy Attacks on Optimal Power Flow: A Simulink-Driven Formal Analysis," IEEE Transactions on Dependable and Secure Computing (**TDSC**), Vol. 17, No. 3, June 2020.

14. Md. Golam Mehedi Hasan[*] and **Mohammad Ashiqur Rahman**, "A Signaling Game Approach to Mitigate Co-Resident Attacks in an IaaS Cloud Environment," Journal of Information Security and Applications (**JISA**), Elsevier, Vol. 50, February 2020.

15. Madhukrishna Priyadarsini[#], Joy Chandra Mukherjee, Padmalochan Bera, Shailesh Kumar, AHM Jakaria[*], **Mohammad Ashiqur Rahman**, "An Adaptive Load Balancing Scheme for-Software-defined Network Controllers," **Computer Networks**, Elsevier, Vol. 164, December 2019.

16. Madhukrishna Priyadarsini[#], Shailesh Kumar, Padmalochan Bera, and **Mohammad Ashiqur Rahman**, "An Energy-Efficient Load Distribution Framework for SDN Controllers," **Computing**, Springer, Vol. 102, No. 9, August 2019.

17. A H M Jakaria[*], **Mohammad Ashiqur Rahman**, and Carol Fung, "A Requirement-Oriented Design of NFV Topology by Formal Synthesis," IEEE Transactions on Network and Service Management (**TNSM**), Vol. 16, No. 4, December 2019.

18. **Mohammad Ashiqur Rahman**, Amarjit Datta[*], and Ehab Al-Shaer, Security Design against Stealthy Attacks on Power System State Estimation: A Formal Approach, Computers & Security (**COSE**), Elsevier, Vol. 84, July 2019.

19. Sara Qamar[#], Zahid Anwar, **Mohammad Ashiqur Rahman**, Ehab Al-Shaer, and Bei-Tseng Chu, "Data-Driven Analytics for Cyber-Threat Intelligence and Information Sharing," Computers and Security (**COSE**), Elsevier, Vol. 67, June 2017.

20. **Mohammad A. Rahman** and Ehab Al-Shaer, "Automated Synthesis of Distributed Network Access Controls: A Formal Framework with Refinement," IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol. 28, No. 2, February 2017.

21. Vitaly Ford[#], Ambareen Siraj, and **Mohammad Ashiqur Rahman**, "Secure and efficient protection of consumer privacy in Advanced Metering Infrastructure supporting fine-grained data analysis," Journal of Computer and System Sciences (**JCSS**), Elsevier, Vol. 83, No 1, February 2017.

22. **Mohammad Ashiqur Rahman**, Hossein Manshaei, Ehab Al-Shaer, and Mohamed Shehab, "Secure and Private Data Aggregation for Energy Consumption Scheduling in Smart Grids," IEEE Transactions on Dependable and Secure Computing (**TDSC**), Vol. 14, No. 2, March 2017.

23. **Mohammad Ashiqur Rahman**, Ehab Al-Shaer, and Padmalochan Bera, "A Noninvasive Security Threat Analyzer for AMI Smart Grid," IEEE Transactions on Smart Grid (**TSG**), Vol. 4, No. 1, March 2013.

24. Salahuddin Masum, Mostofa Akbar, Amin Ali, and **Mohammad Ashiqur Rahman**, "A Consensus-based ℓ-Exclusion Algorithm for Mobile Ad-hoc Networks," **Ad Hoc Networks**, Elsevier, Vol. 8, No. 1, January 2010.

Proceedings

Significant Publications:

1. Muneeba Asif[*], **Mohammad Ashiqur Rahman**, Kemal Akkaya, "ConFIDe: A PWM-Driven Control-Fused Intrusion Detection System," in the 19th ACM ASIA Conference on Computer and Communications Security (**ASIACCS**), July 2024 (acceptance rate~ 19%).

2. Alvi Ataur Khalil[*] and **Mohammad Ashiqur Rahman**, "PAROLE: Profitable Arbitrage in Optimistic Rollup with ERC-721 Token Transactions," in the 54th Annual IEEE/IFIP International Conference on Dependable Systems and Network (**DSN**), June 2024 (acceptance rate~ 20%).

3. Alejandro Almeida[*], Muneeba Asif[*], **Mohammad Ashiqur Rahman**, Md Tauhidur Rahman, "Side-channel-driven Intrusion Detection System for Mission Critical Unmanned Aerial Vehicles," in the 25th International Symposium on Quality Electronic Design (ISQED), April 2024 [Accepted].

4. Muneeba Asif[*], **Mohammad Ashiqur Rahman**, Kemal Akkaya, Hossain Shahriar, and Alfredo Cuzzocrea, "Adversarial and Generative Data-Augmented Resilient Intrusion Detection Systems for Unmanned Aerial Vehicles," in the IEEE International Conference on Big Data (**BigData**), Special Session: Privacy and Security of Big Data (**PSBD**), December 2023.

5. Alvi Ataur Khalil[*], **Mohammad Ashiqur Rahman**, and Hisham Kholidy, "FAKey: Fake Hashed Key Attack on Payment Channel Networks," in the 11th Annual IEEE Conference on Communications and Network Security (**CNS**), October 2023 (acceptance rate~ 28%).

6. Alvi Ataur Khalil[*] and **Mohammad Ashiqur Rahman**, "Adaptive Neuro-Fuzzy Inference System-Based Lightweight Intrusion Detection System for UAVs," in the IEEE 48th Conference on Local Computer Networks (**LCN**), October 2023 (acceptance rate~ 26%).

7. Nur Imtiazul Haque[*], Maurice Ngouen[*], **Mohammad Ashiqur Rahman**, Selcuk Uluagac, and Laurent Njilla, "SHATTER: Control and Defense-Aware Attack Analytics for Activity-Driven Smart Home Systems," in the 53rd Annual IEEE/IFIP International Conference on Dependable Systems and Network (**DSN**), June 2023 (acceptance rate~ 20%). [Best Paper Award]

8. Hisham Kholidy, Andrew Karam, James Sidoran, **Mohammad Ashiqur Rahman**, Mohamed Mahmoud, Mahmoud Badr, Ahmed Sayed, and Maqsood Mahmud, "'Toward Zero Trust Security

in 5G Open Architecture Network Slices," in the 40th Military Communications Conference (**MILCOM**), December 2022.

9. Alvi Ataur Khalil[*] and **Mohammad Ashiqur Rahman**, "FeD-UP: Federated Deep Reinforcement Learning-based UAV Path Planning against Hostile Defense System," in the 18th International Conference on Network and Service Management (**CNSM**), Miniconference, October 2022.

10. Mohamadsaleh Jafari[*], **Mohammad Ashiqur Rahman**, and Sumit Paudyal, "Optimal Improvement of Post-Disturbance Dynamic Response in Power Grids," in the IEEE Industry Applications Society Annual Meeting (**IASAM**), October 2022.

11. Nur Imtiazul Haque[*], **Mohammad Ashiqur Rahman**, and Sheikh Iqbal Ahamed, "DeepCAD: A Stand-alone Deep Neural Network-based Framework for Classification and Anomaly Detection in Smart Healthcare Systems," in the IEEE International Conference on Digital Health (**ICDH**), July 2022 (acceptance rate~ 25%).

12. Nur Imtiazul Haque[*] and **Mohammad Ashiqur Rahman**, "PHASE: Security Analyzer for Next Generation Smart Personalized Smart Healthcare System," in the IEEE International Conference on Digital Health (**ICDH**), July 2022 (acceptance rate~ 25%).

13. Maryam Abbasi, Mohammad Hossein Manshaei, **Mohammad Ashiqur Rahman**, Kemal Akkaya, and Murtuza Jadliwala, "On Algorand Transaction Fee: Challenges and Mechanism Design," in the IEEE International Conference on Communications (ICC), May 2022.

14. Ryan Shivers[*], **Mohammad Ashiqur Rahman**, Md Jobair Hossain Faruk, Hossain Shahriar, and Alfredo Cuzzocrea, "Ride-Hailing for Autonomous Vehicles: Hyperledger Fabric-Based Secure and Decentralized Blockchain Platform," the IEEE International Conference on Big Data (**BigData**), Special Session: Privacy and Security of Big Data (**PSBD**), December 2021.

15. Md Hasan Shahriar[*], Alvi Ataur Khalil[*], **Mohammad Ashiqur Rahman**, Mohammad Hossein, and Dong Chen, "iAttackGen: Generative Synthesis of False Data Injection Attacks in Cyber-physical Systems," in the 9th Annual IEEE Conference on Communications and Network Security (**CNS**), October 2021 (acceptance rate~ 28%).

16. Alvi Ataur Khalil[*], Mohamed Selim, and **Mohammad Ashiqur Rahman**, "CURE: Enabling RF Energy Harvesting using Cell-Free Massive MIMO UAVs Assisted by RIS," in the IEEE 46th Conference on Local Computer Networks (**LCN**), October 2021.

17. Nur Imtiazul Haque[*+], Alvi Ataur Khalil[*+], **Mohammad Ashiqur Rahman**, M. Hadi Amini, Sheikh Iqbal Ahamed, "BIOCAD: Bio-Inspired Optimization for Classification and Anomaly Detection in Digital Healthcare Systems," in the IEEE International Conference on Digital Health (**ICDH**), September 2021 (acceptance rate~ 20%).

18. Jobair Hossain, Hossain Shahriar, Maria Valero, Sweta Sneha, Sheikh Iqbal Ahamed, **Mohammad Ashiqur Rahman**, "Towards Blockchain-based Secure Data Management for Remote Patient Monitoring," in the IEEE International Conference on Digital Health (**ICDH**), September 2021 (acceptance rate~ 20%).

19. Md Hasan Shahriar[*], **Mohammad Ashiqur Rahman**, Nur Imtiazul Haque[*], Badrul Chowdhury, and Steven Whisenant, iDDAF: An Intelligent Deceptive Data Acquisition Framework for Secure Cyber-physical Systems, in the 17th EAI International Conference on Security and Privacy in Communication Networks (**SecureComm**), September 2021.

20. Alvi Ataur Khalil[*+], Alexander Byrne[*+], **Mohammad Ashiqur Rahman**, and Mohammad Hossein Manshaei, "REPlanner: Efficient UAV Trajectory-Planning using Economic Reinforcement Learning," in IEEE International Conference on Smart Computing (**SMARTCOMP**), August 2021.

21. Nur Haque[*], **Mohammad Ashiqur Rahman**, Dong Chen, and Hisham Kholidy, "BIoTA: Control-Aware Attack Analytics for Building Internet of Things," in the 18th IEEE International Conference on Sensing, Communication, and Networking (**SECON**), July 2021 (acceptance rate~ 26%).

22. Md Hasan Shahriar[*], **Mohammad Ashiqur Rahman**, Nur Imtiazul Haque[*], and Badrul Chowdhury, "DDAF: Deceptive Data Acquisition Framework against Stealthy Attacks in Cyber-

Physical Systems," in the 45th IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), July 2021 (acceptance rate~ 27%).

23. Nur Imtiazul Haque[*], **Mohammad Ashiqur Rahman**, and Hossain Shahriar, "Ensemble-based Efficient Anomaly Detection for Smart Building Control Systems," in the 45th IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), July 2021 (acceptance rate~ 27%).

24. Keyang Yu, Qi Li, Dong Chen, **Mohammad Ashiqur Rahman**, and Shiqiang Wang, "PrivacyGuard: Enhancing Smart Home User Privacy," the 20th ACM/IEEE Conference on Information Processing in Sensor Networks (**IPSN**), May 2021 (acceptance rate~ 25%).

25. A K M Iqtidar Newaz, Nur Haque[*], Amit Sikder, **Mohammad Ashiqur Rahman**, and A. Selcuk Uluagac, Adversarial Attacks to Machine Learning-Based Smart Healthcare Systems, IEEE Global Communications Conference (**GLOBECOM**), December 2020.

26. **Mohammad A. Rahman**, Rahat Masum[*], Matthew Anderson, and Steven Drager, "Formal Synthesis of Trajectories for Unmanned Aerial Vehicles to Perform Resilient Surveillance of Critical Power Transmission Lines," the 25th International Conference on Engineering of Complex Computer Systems (**ICECCS**), October 2020 (acceptance rate 25%).

27. Md Hasan Shahriar[*], Nur Imtiazul Haque[*], **Mohammad Ashiqur Rahman**, and Miguel Alonso Jr, "G-IDS: Generative Adversarial Networks assisted Intrusion Detection System," in the 44th IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), Madrid, Spain, July 2020 (acceptance rate~ 24%).

28. Amarjit Datta[*], **Mohammad Ashiqur Rahman**, and Hossain Shahriar, "WTC2: Impact-Aware Threat Analysis for Water Treatment Centers," in the 44th IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), Madrid, Spain, July 2020 (acceptance rate~ 24%).

29. Mehdi Fooladgar, Mohammad Hossein Manshaei[*], Murtuza Jadliwala, and **Mohammad Ashiqur Rahman**, "On Incentive Compatible Role-based Reward Distribution in Algorand," in the 50th IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN**), June 2020 (acceptance rate~ 16.5%).

30. A K M Iqtidar Newaz, Amit Sikder, **Mohammad Ashiqur Rahman**, and A. Selcuk Uluagac, "HealthGuard: A Machine Learning-Based Security Framework for Smart Healthcare Systems," in the International Symposium on Health and Medical informatics, Management and Security (**HMiMS**), Oct 2019.

31. A H M Jakaria[*], **Mohammad Ashiqur Rahman**, and Aniruddha Gokhale, "A Formal Model for Resiliency-Aware Deployment of SDN: A SCADA-Based Case Study," in the 14th International Conference on Network and Service Management (**CNSM**), Short Paper, October 2019.

32. MGM Mehedi Hasan[*+], **Mohammad Ashiqur Rahman**[+], Mohammad Hossein Manshaei, and Walid Saad, "A Game-Theoretic Analysis of Pricing Competition between Aggregators in V2G Systems," in the 43rd IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), July 2019 (acceptance rate~ 24%).

33. Brian Ledbetter[*], Samuel Wehunt[*], **Mohammad Ashiqur Rahman**, and Mohammad Hossein Manshaei, "LIPs Protocol: Leadership Incentives for Heterogeneous and Dynamic Platoons," the 43rd IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), July 2019 (acceptance rate~ 24%).

34. Mohamed Baza, Mahmoud Nabil, Muhammad Ismail, Mohamed Mahmoud, Erchin Serpedin, **Mohammad Ashiqur Rahman**, "Blockchain-Based Charging Coordination Mechanism for Smart Grid Energy Storage Units," IEEE International Conference on Blockchain (**Blockchain**), July 2019.

35. Enahoro Oriero[#] and Mohammad Ashiqur Rahman, "Privacy Preserving Fine-Grained Data Distribution Aggregation for Smart Grid AMI Networks," in the 37th International Conference for Military Communications (**MILCOM**), Los Angeles, USA, October 2018.

36. AHM Jakaria[*] and **Mohammad Ashiqur Rahman**, "Formal Analysis of k-Resiliency for Collaborative UAVs," in the 42nd IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), Jul 2018 (acceptance rate~ 24%).

37. AHM Jakaria[*], **Mohammad Ashiqur Rahman**, and Carol Fung, "Automated Synthesis of NFV Topology: A Security Requirement-Oriented Design," in the 13th International Conference on Network and Service Management (**CNSM**), Short Paper, November 2017 (acceptance rate~ 18%).

38. Amarjit Datta[*] and **Mohammad Ashiqur Rahman**, "Cyber Threat Analysis Framework for the Wind Energy Based Power System," in the ACM Workshop on Cyber-Physical Systems Security & Privacy (**CPS-SPC**) in conjunction with the 24th ACM **CCS**, November 2017.

39. Bata Tripathy[#], Ashray Sudhir, Padmalochan Bera, **Mohammad Ashiqur Rahman**, "Formal Modelling and Verification of Requirements of Adaptive Routing Protocol for Mobile AdHoc Network," in the 41st IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), Jul 2017 (acceptance rate~20%).

40. AHM Jakaria[*] and **Mohammad Ashiqur Rahman**, "A Formal Framework of Resource Management for VNFaaS in Cloud," in the 10th IEEE International Conference on Cloud Computing (**CLOUD**), June 2017 (acceptance rate ~25%).

41. MGM Mehedi Hasan[*] and **Mohammad Ashiqur Rahman**, "Protection by Detection: A Signaling Game Approach to Mitigate Co-Resident Attacks in Cloud," in the 10th IEEE International Conference on Cloud Computing (**CLOUD**), June 2017 (acceptance rate ~25%).

42. Mohammad Adiliy, Amin Mohammadi, Mohammad Manshaei, and **Mohammad Ashiqur Rahman**, "A Cost-Effective Security Management for Clouds: A Game-Theoretic Deception Mechanism," in the 15th IFIP/IEEE International Symposium on Integrated Network Management (**IM**), April 2017 (acceptance rate ~28.6%).

43. **Mohammad Ashiqur Rahman**, Abdullah Al Faroq, Amarjit Datta[*], and Ehab Al-Shaer, "Automated Synthesis of Resiliency Configurations for Cyber Networks," in the IEEE Conference on Communications and Network Security (**CNS**), October 2016 (acceptance rate ~29%).

44. Mujahid Mohsin[#], Zahid Anwar, Ghaith Husari, **Mohammad Ashiqur Rahman**, and Ehab Al-Shaer, "IoTSAT: A Formal Framework for Security Analysis of the Internet of Things," in the IEEE Conf. on Communications and Network Security (**CNS**), October 2016 (acceptance rate ~29%).

45. **Mohammad Ashiqur Rahman**, AHM Jakaria[*], and E. Al-Shaer, "Formal Analysis for Dependable Supervisory Control and Data Acquisition in Smart Grids," in the 46th IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN**), Jun 2016 (acceptance rate~ 22%).

46. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "Formal Synthesis of Dependable Configurations for Advanced Metering Infrastructures," in the IEEE International Conference on Smart Grid Communications (**SmartGridComm**), November 2015.

47. **Mohammad Ashiqur Rahman**, Rakesh Bobba, and Ehab Al-Shaer, "Moving Target Defense for Hardening the Security of the Power System State Estimation," in the ACM Workshop on Moving Target Defense (**MTD**), Co-located with ACM **CCS**, November 2014.

48. **Mohammad Ashiqur Rahman**, Ehab Al-Shaer, and R. Kavasseri, "Impact Analysis of Topology Poisoning Attacks on Economic Operation of the Smart Power Grid," in the 34th International Conference on Distributed Computing Systems (**ICDCS**), July 2014 (acceptance rate~ 13%).

49. **Mohammad Ashiqur Rahman**, E. Al-Shaer, R. Kavasseri, "Security Threat Analytics and Countermeasure Synthesis for Power System State Estimation," in the 44th IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN**), Jun 2014 (acceptance rate~ 30%).

50. **Mohammad Ashiqur Rahman**, Ehab Al-Shaer, and Rajesh Kavasseri, "A Formal Model for Verifying the Impact of Stealthy Attacks on Optimal Power Flow in Power Grids," in the ACM/IEEE International Conference on Cyber-Physical Systems (**ICCPS**), April 2014 (acceptance rate~ 24%).

51. **Mohammad Ashiqur Rahman**, Ehab Al-Shaer, and M. Ashfaqur Rahman, "A Formal Model for Verifying Stealthy Attacks on State Estimation in Power Grids," in the IEEE International Conference on Smart Grid Communications (**SmartGridComm**), October 2013.

52. **Mohammad Ashiqur Rahman**, M. H. Manshaei, and Ehab Al-Shaer, "A Game-Theoretic Approach for Deceiving Remote Operating System Fingerprinting," in the IEEE Conference on Communications and Network Security (**CNS**), October 2013 (acceptance rate~ 28%).

53. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "A Formal Framework for Network Security Design Synthesis," in the 33rd International Conference on Distributed Computing Systems (**ICDCS**), July 2013 (acceptance rate~ 13%).

54. **Mohammad Ashiqur Rahman**, Q. Duan, and Ehab Al-Shaer, "Energy Efficient Navigation Management for Hybrid Electric Vehicles on Highways," in the ACM/IEEE International Conference on Cyber-Physical Systems (**ICCPS**), April 2013 (acceptance rate~ 23%).

55. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "Metrics for Automated Network Security Design," in the 20th Annual Network & Distributed System Security Symposium (**NDSS**), Short Paper, February 2013.

56. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "A Formal Approach for Network Security Management Based on Qualitative Risk Analysis," in the IFIP/IEEE International Symposium on Integrated Network Management (**IM**), April 2013 (acceptance rate 27%).

57. **Mohammad Ashiqur Rahman**, L. Bai, M. Shehab, and Ehab Al-Shaer, "Secure Distributed Solution for Optimal Energy Consumption Scheduling in Smart Grid," in the IEEE International Conference on Trust, Security, and Privacy in Computing and Communications (**TrustCom**), Jun 2012 (acceptance rate~ 28%).

58. **Mohammad Ashiqur Rahman**, Padmalochan Bera, and Ehab Al-Shaer, "SmartAnalyzer: A Noninvasive Security Threat Analyzer for AMI Smart Grid," in the 31st Annual IEEE International Conference on Computer Communications (**INFOCOM**), March 2012 (acceptance rate~ 18%).

59. **Mohammad Ashiqur Rahman** and Ehab Al-Shaer, "A Declarative Approach for Global Network Security Configuration Verification and Evaluation," in the IFIP/IEEE International Symposium on Integrated Network Management (**IM**), May 2011 (acceptance rate~ 29%).

Selected Other Peer-Reviewed Publications:

1. Alvaro Alva[*], Luis Martinez Moreno, Muneeba Asif[*], Alvi Ataur Khalil[*], **Mohammad Ashiqur Rahman**, Hossain Shahriar, and Alfredo Cuzzocrea, "Secured UAV Navigation: A Novel Intrusion Detection System Based on PWM Signal Analysis," in the 11th IEEE Swiss Conference on Data Science (SDS), May 2024.

2. Maurice Ngouen[*], **Mohammad Ashiqur Rahman**, Nagarajan Prabakar, Selcuk Uluagac and Laurent Njilla, "Q-SECURE: A Quantum Resistant Security for Resource Constraint IoT Device Encryption," in the 10th International Conference on Internet of Things: Systems, Management and Security (**IoTSMS**), October 2023.

3. Mohamadsaleh Jafari, **Mohammad Ashiqur Rahman**, and Sumit Paudyal, "Optimal Improvement of Post-Disturbance Dynamic Response in Power Grids," IEEE Industry Applications Society Annual Meeting (**IAS**), October 2022.

4. Hisham A. Kholidy, Andrew Karam, James L. Sidoran, **Mohammad Ashiqur Rahman**, "5G Core Security in Edge Networks: A Vulnerability Assessment Approach," the 26th IEEE Symposium on Computers and Communications (**ISCC**), September 2021.

5. **Mohammad Ashiqur Rahman**, Amarjit Datta[*], and Ehab Al-Shaer, "Automated Configuration Synthesis for Resilient Smart Metering Infrastructure," EAI Endorsed Transactions on Security and Safety, September 2021.

6. Mohamadsaleh Jafari, **Mohammad Ashiqur Rahman**, and Sumit Paudyal, "False Data Injection Attack Against Power System Small-Signal Stability," IEEE Power & Energy Society General Meeting (**PESGM**), July 2021,

7. Mohamadsaleh Jafari, Md Hasan Shahriar, **Mohammad Ashiqur Rahman**, and Sumit Paudyal, "False Relay Operation Attacks in Power Systems with High Renewables," IEEE Power & Energy Society General Meeting (**PESGM**), July 2021.

8. Nur Imtiazul Haque[*], Md Hasan Shahriar[*], Md Golam Dastgir, Anjan Debnath, Imtiaz Parvez, Arif Sarwat, **Mohammad Ashiqur Rahman**, "A Survey of Machine Learning-based Cyber-physical Attack Generation, Detection, and Mitigation in Smart-Grid," the 52nd North American Power Symposium (**NAPS**), April 2021.

9. **Mohammad Ashiqur Rahman**, Md Tauhidur Rahman, Mithat Kisacikoglu, and Kemal Akkaya, "Intrusion Detection Systems-Enabled Power Electronics for Unmanned Aerial Vehicles," IEEE **CyberPELS**, October 2020.

10. Hossain Shahriar, Kai Qian, Md A. I. Talukder, Dan Lo, **Mohammad A. Rahman**, Fan Wu, and Sheikh Ahamed, DroidPatrol: A Static Analysis Plugin For Secure Mobile Software Development, in the 43rd IEEE Computer Society International Conference on Computers, Software, and Applications (**COMPSAC**), Short Paper, Milwaukee, Wisconsin, USA, July 2019.

11. A H M Jakaria[*], **Mohammad Ashiqur Rahman**, and MGM Mehedi Hasan[*], "Safety Analysis of AMI Networks through Smart Fraud Detection," in the Workshop on Cyber-Physical Systems Security (**CPS-Sec**) (Collocated with IEEE **CNS** 2019), Jun 2019.

12. Madhukrishna Priyadarsini, Padmalochan Bera, and **Mohammad Ashiqur Rahman**, "A Signalling Game-Based Security Enforcement Mechanism for SDN Controllers," in the 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Kanpur, India, July 2019.

13. MGM Mehedi Hasan[*], Amarjit Datta[*], **Mohammad Ashiqur Rahman**, and Hossain Shahriar, "Chained of Things: A Secure and Dependable Design of Autonomous Vehicle Services," in the 13th IEEE International Workshop on Security, Trust, and Privacy for Software Applications (**STPSA**) in conjunction with the 42nd IEEE **COMPSAC**, July 2018.

14. Madhukrishna Priyadarsini[#], Padmalochan Bera, and **Mohammad Ashiqur Rahman**, "A New Approach for Energy Efficiency in Software Defined Network," in the 5th International Conference on Software Defined Systems (SDS), April 2018.

15. Bahman Rashidi, Carol Fung, and **Mohammad Ashiqur Rahman**, "A Scalable and Flexible DDoS Mitigation System Using Network Function Virtualization," IEEE Workshop on Security for Emerging Distributed Network Technologies (**DISSECT**) in association with IEEE/IFIP **NOMS**, April 2018.

16. Amarjit Datta[*], Brian K Ledbetter[*], and **Mohammad Ashiqur Rahman**, "Optimal Deployment of Charging Stations for Electric Vehicles: A Formal Approach," in the IEEE International Workshop on Communication, Computing, and Networking in Cyber-Physical Systems (**CCNCPS**) in association with IEEE **ICDCS**, Jun 2017.

17. AHM Jakaria[*], Bahman Rashidi, **Mohammad Ashiqur Rahman**, Carol Fung, and Wei Yang, "Dynamic DDoS-Defense Resource Allocation using Network Function Virtualization," in the ACM International Workshop on Security in Software Defined Networks & Network Function Virtualization (**SDN-NFV Security**) in conjunction with the ACM **CODASPY**, March 2017.

18. Abdullah Aydeger[#], Nico Saputro, Kemal Akkaya, and **Mohammad Ashiqur Rahman**, "Mitigating Crossfire Attacks using SDN-based Moving Target Defense," in the 41st Annual IEEE Conference on Local Computer Networks (**LCN**), Short Paper, Nov 2016.

19. Mohammad S. Nourbakhsh, Mohammad H. Manshaei, **Mohammad Ashiqur Rahman**, and Walid Saad, "Electrical Vehicle Consumption Markets: An Economic Analysis," in the IEEE Global Conference on Signal and Information Processing (**GlobalSIP**), December 2016.

20. AHM Jakaria[*], Wei Yang, Bahman Rashidi, Carol Fung, and **Mohammad Ashiqur Rahman**, "VFence: A Defense against Distributed Denial of Service attacks using Network Function Virtualization," in the 11th IEEE International Workshop on Security, Trust, and Privacy for Software Applications (**STPSA**) in conjunction with IEEE **COMPSAC**, Jun 2016.

21. Bata Tripathy[#], Ananta Sethy, Padmalochan Bera, and **Mohammad Ashiqur Rahman**, "A Novel Secure and Efficient Policy Management Framework for Software Defined Network," in the 11th IEEE International Workshop on Security, Trust, and Privacy for Software Applications (**STPSA**) in conjunction with IEEE **COMPSAC**, Jun 2016.

22. Bata Tripathy[#], Padmalochan Bera, **Mohammad Ashiqur Rahman,** "Analysis of Trust Models in Mobile Ad hoc Networks: A Simulation Based Study," in the 8th International Conference on Communication Systems and Networks (**COMSNETS**), Jan 2016.

23. **Mohammad Ashiqur Rahman**, F. Mohsen, and Ehab Al-Shaer, "A Formal Model for Sustainable Vehicle-to-Grid Management," in the Smart Energy Grid Security Workshop (**SEGS**), Co-located with ACM **CCS**, November 2013.

24. **Mohammad Ashiqur Rahman** and M. Mostofa Akbar, "A Permission based Multilevel Parallel Solution for Distributed Mutual Exclusion," Journal of Computers (**JCP**), International Academy Publishing (IAP), Vol. 7, No. 8, July 2012.

25. **Mohammad Ashiqur Rahman** and M. Mostofa Akbar, "A Permission Based Hierarchical Algorithm for Mutual Exclusion," Journal of Computers (**JCP**), International Academy Publishing (IAP), Vol. 5, No. 12, December 2010.

26. **Mohammad Ashiqur Rahman**, Md Mostofa Akbar, Mohammad Alam, "A two-layer hierarchical permission based mutual exclusion algorithm," in the 12th International Conference on Computers and Information Technology, (**ICCIT**), Dec 2009.

27. **Mohammad Ashiqur Rahman** and M. Mostofa Akbar, "A Quorum Based Distributed Mutual Exclusion Algorithm for Multi-Level Clustered Network Architecture," in the Workshop on Algorithms and Computation (**WALCOM**), February 2007.

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[*]: *Dissertation/thesis Supervisee (PhD or MS student)*
[#] : *Mentored/collaborated student*
[!] : *Mentored postdoc/visiting researcher*
[+] : *Co-first author*

PRESENTED PAPERS AND LECTURES

Presented Papers:

1. "Q-SECURE: A Quantum Resistant Security for Resource Constraint IoT Device Encryption," in IoTSMS, October 2023.

2. "SHATTER: Control and Defense-Aware Attack Analytics for Activity-Driven Smart Home Systems," in IEEE/IFIP DSN, June 2023

3. "Formal Synthesis of Trajectories for Unmanned Aerial Vehicles to Perform Resilient Surveillance of Critical Power Transmission Lines," in ICECCS, Virtual, March 2021.

4. "A Formal Model for Resiliency-Aware Deployment of SDN: A SCADA-Based Case Study," in CNSM, Halifax, Canada, October 2019.

5. "Privacy Preserving Fine-Grained Data Distribution Aggregation for Smart Grid AMI Networks," MILCOM, Los Angeles, USA, October 2018.

6. "Formal Analysis of k-Resiliency for Collaborative UAVs," IEEE COMPSAC, Tokyo, Japan, July 2018.

7. "Chained of Things: A Secure and Dependable Design of Autonomous Vehicle Services," IEEE COMPSAC, Tokyo, Japan, July 2018.
8. "Cyber Threat Analysis Framework for the Wind Energy Based Power System," in CPS-SPC, ACM CCS, Dallas, USA, November 2017.
9. "A Formal Framework of Resource Management for VNFaaS in Cloud," IEEE CLOUD, Honolulu, Hawaii, USA, June 2017.
10. "Protection by Detection: A Signaling Game Approach to Mitigate Co-Resident Attacks in Cloud," IEEE CLOUD, Honolulu, Hawaii, USA, June 2017.
11. "Automated Synthesis of Resiliency Configurations for Cyber Networks," in IEEE CNS, Philadelphia, USA, October 2016.
12. "IoTSAT: A Formal Framework for Security Analysis of the Internet of Things," in IEEE CNS, Philadelphia, USA, October 2016.
13. "Formal Synthesis of Dependable Configurations for Advanced Metering Infrastructures," in IEEE SmartGridComm, Miami, USA, November 2015.
14. "Impact Analysis of Topology Poisoning Attacks on Economic Operation of the Smart Power Grid," in ICDCS, Madrid, Spain, July 2014.
15. "Security Threat Analytics and Countermeasure Synthesis for Power System State Estimation," in IEEE/IFIP DSN, Atlanta, USA, June 2014.
16. "A Game-Theoretic Approach for Deceiving Remote Operating System Fingerprinting," in IEEE CNS, Washington, DC, October 2013.
17. "Energy Efficient Navigation Management for Hybrid Electric Vehicles on Highways," in ACM/IEEE ICCPS, Philadelphia, USA, April 2013.
18. "A Formal Framework for Network Security Design Synthesis," in ICDCS, Philadelphia, USA, April 2013.

External/Invited Talks

1. "Control and Defense-Aware Attack-Resiliency Analytics for Cyber-Physical Systems," Department of Electrical and Computer Engineering, North Carolina A&T State University, September 2023.
2. "Artificial Intelligence-Driven Noninvasive Security Analytics for Smart Systems," Systems Research Seminar Series, North Carolina State University, September 2023.
3. "Control-Aware Attack-Resiliency Analytics for Machine Learning-Driven Cyber-Physical Systems," Cyber Resilient Electric Vehicle Charging Station & Critical Infrastructure Workshop, University of Memphis, August 2023.
4. "Artificial Intelligence-Driven Control-Aware Attack-Resiliency Analytics for Power Systems" Workshop on A Secure & Reliable Power Grid 2050, University of North Carolina at Charlotte, March 2023.
5. "Control-Aware Attack-Resiliency Analytics for Machine Learning-Driven Cyber-Physical Systems," Department of Computer Science, University of Texas at San Antonio, October 2022.
6. Invited talk on "A Digital Twin-Assisted Hardware and Software Platform for Unmanned Aircraft System Security Research, Education, and Training" at DoD University Consortium for Cybersecurity (DoD UC2) Workshop, Washington, DC, April 2022.
7. Invited talk on "Invasive and Noninvasive Analysis of IoT Security" at IEEE Computer Society Annual Symposium on VLSI, Miami, FL, July 2019.
8. Invited panel speaker on "Internet of Things Security" at IEEE PELS CyberPELS Workshop, Knoxville, TN, May 2019.

9. "Cyber-Physical Systems Security and Resiliency - Formal Analysis," Florida International University, February 2018.
10. "Cyber-Physical Systems Security - Formal Analysis of CPS Security and Resiliency," AICPS Lab, University of California Irvine, December 2017.
11. "Formal Analysis of Cyber-Physical Systems Security and Resiliency," Industrial Cybersecurity Workshop, Tennessee Tech, October 2017.
12. Keynote speech (online) on "IoT as the Internet of Threats - Smart Grid Case Study," International Symposium on IoT, National University of Sciences and Technology (NUST), Pakistan, July 2017.
13. "Protection by Detection: A Signaling Game Approach to Mitigate Co-Resident Attacks in Cloud," UNC Charlotte, March 2017.
14. "Formal Security Analytics for Cyber and Cyber-Physical Systems," University of New Orleans, Louisiana, October 2014.
15. "Automated Formal Analytics for Smart Grid Security," Washington State University, Pullman, Washington, May 2014.

FUNDED RESEARCH

1. **Center for Agile and Intelligent Power Systems (CAIPS): Cybersecurity Research, Development, and Workforce Training**
   Source of Support: Department of Energy (DOE); Award ID: DE-CR0000046
   Scholarship Amount: **$2,500,000**; Scholarship Period: June 2024 – May 2026
   Role: **Lead PI**; Other Investigators: Sumit Paudyal, Mo Sha, Kemal Akkaya, and Arif Sarwat
   Subcontractors: North Carolina State University, the University of Alabama - Birmingham, Tennessee Tech University, the University of West Florida, Idaho National Laboratory, Raytheon Technologies, and Bedrock Systems.

2. **Adversarial Attack Detection in Horizontal Collaboration-based Distributed Machine Learning Inference for Edge Intelligence**
   Source of Support: Summer Faculty Research Program (SFFP), Air Force Office of Scientific Research (AFOSR); Award ID: SA10032022060519
   Scholarship Amount: **$16,520**; Scholarship Period: May 2023 – June 2023
   Role: **PI/Fellowship**

3. **Artificial Intelligence-Enabled Tools (ArtIT) for Cyber Hardening of Power Grids**
   Source of Support: Department of Energy (DOE); Award ID: DE-CR0000024
   Scholarship Amount: **$2,000,000**; Scholarship Period: October 2022 – September 2025
   Role: **Lead PI**; Other Investigators: Sumit Paudyal, Kemal Akkaya, and Selcuk Uluagac
   Subcontractors: North Carolina State University, the University of North Carolina at Charlotte, and Raytheon Technologies

4. **Intelligent Detection and Mitigation of Hardware and Firmware Attacks for Resilient Unmanned Aircraft Systems**
   Source of Support: National Security Agency (NSA); Award ID: H98230-22-1-0327
   Scholarship Amount: **$750,000**; Scholarship Period: October 2022 – September 2025
   Role: **Lead PI**; Other Investigators: Md Tauhidur Rahman
   Subcontractors: The University of Florida, Auburn University

5. **Formal Model-assisted Reinforcement Learning-based Threat Analysis for Advanced IoT Systems**
   Source of Support: Visiting Faculty Research Program (VFRP), Air Force Research Laboratory (AFRL);
   Award ID: SA1003202209EXT0597

Scholarship Amount: **$8,000**; Scholarship Period: October 2022 – December 2022
Role: **PI/Independent Contractor**

6. **Threat Characteristics Analysis and Multi-Sensor Fusion-based Detection for Advanced IoT Systems**
Source of Support: Visiting Faculty Research Program (VFRP), Air Force Research Laboratory (AFRL);
Award ID: SA10032022060519
Scholarship Amount: **$18,287**; Scholarship Period: June 2022 – August 2022
Role: **PI/Fellowship**

7. **Consortium for Research and Education in Power and Energy Systems (CREPES) for Sustainable STEM Workforce**
Source of Support: Department of Energy (DOE); Award ID: DE-NA0004016,
Scholarship Amount: **$3,000,000**; Scholarship Period: October 2021 – September 2024
Role: **Co-PI**; Other Investigators: Sumit Paudyal (Lead PI), Osama Mohammed, and Trina Fletcher
Subcontractors: The University of Texas at El Paso, Alabama A&M University

8. **Automated Risk Detection and Mitigation of Devices and Apps in Smart Settings**
Source of Support: National Security Agency (NSA); Award ID: H98230-21-1-0324
Scholarship Amount: **$750,000**; Scholarship Period: August 2021 – July 2024
Role: **Co-PI**; Other Investigators: Selcuk Uluagac (PI), Kemal Akkaya, Amin Kharraz, Alexander Perez-Pons, Jason Liu

9. **I-Corps: Smart Healthcare System Threat Analyzer**
Source of Support: National Science Foundation (NSF); Award ID: CNS 2138301
Scholarship Amount: **$50,000**; Scholarship Period: July 2021 – January 2023
Role: **PI (Single)**

10. **REU Supplement on CRII: CPS: Noninvasive Security Analysis for Smart Grid Energy Management System**
Source of Support: National Science Foundation (NSF); Award ID: CNS 1929183
Scholarship Amount: **$21,000**; Scholarship Period: June 2020 – April 2022
Role: **PI (Single)**

11. **Identification and Mitigation of Coordinated Attacks on Distributed Energy Management**
Source of Support: Center for Advanced Power Engineering Research (CAPER), UNC Charlotte; Award ID: CAPER DM-02
Scholarship Amount: **$20,000**; Scholarship Period: July 2019 – June 2021
Role: **PI/Independent Contractor**

12. **ARO Travel Grant Support for ACM WiSec 2019 Conference**
Source of Support: Army Research Office (ARO); Award ID: 75187-CS-CF
Scholarship Amount: **$10,000**; Scholarship Period: April 2019 – March 2020
Role: **PI**; Other Investigators: Alex Afanasyev, Selcuk Uluagac, and Kemal Akkaya

13. **CRII: CPS: Noninvasive Security Analysis for Smart Grid Energy Management System**
Source of Support: National Science Foundation (NSF); Award ID: CNS 1929183
Scholarship Amount: **$130,132**; Scholarship Period: January 2019 – April 2022
Role: **PI (Single)**

14. **Toward Designing Trajectory of a UAV Swarm for k-Resilient Surveillance and Data Collection**
Source of Support: Visiting Faculty Research Program (VFRP), Air Force Research Laboratory (AFRL);
Award ID: IICA2018-EXT-021
Scholarship Amount: **$10,000**; Scholarship Period: September 2018 – October 2018
Role: **PI/Independent Contractor**

15. **Proactive Resiliency Threat Detection and Mitigation for Dependable Internet of Things**
    Source of Support: Visiting Faculty Research Program (VFRP), Air Force Research Laboratory (AFRL);
    Award ID: ICA2018-VFRP-023
    Scholarship Amount: **$18,130**; Scholarship Period: June 2018 – August 2018
    Role: **PI/Fellowship**

16. **CRII: CPS: Noninvasive Security Analysis for Smart Grid Energy Management System**
    Source of Support: National Science Foundation (NSF); Award ID: CNS 1657302 [Transferred to FIU,
    CNS 1929183]
    Scholarship Amount: **$174,973**; Scholarship Period: May 2017 – April 2019
    Role: **PI (Single)**

17. **Tennessee Cybercorps: A Hybrid Program in Cybersecurity**
    Source of Support: National Science Foundation (NSF); Award ID: DGE 1565562
    Scholarship Amount: **$5,058,652**; Scholarship Period: January 2016 – December 2020
    Role: **Co-PI** [Left in December 2018]; Other Investigators: Ambareen Siraj (PI) and Doug Talbert

18. **REU Site: Secure and Privacy-Preserving Cyber-Physical Systems**
    Source of Support: National Science Foundation (NSF); Award ID: CNS 1560434
    Scholarship Amount: **$359,972**; Scholarship Period: Mar 2016 – Feb 2018
    Role: **Senior Personnel**; Investigators: Mohammed Mahmoud (PI) and Syed Hasan

PATENT DISCLOSURES, APPLICATIONS, AND AWARDS

1. US11410776B1: Systems and Methods for Formal Threat Analysis of a Smart Healthcare System
   Inventors: **Mohammad Ashiqur Rahman** and Nur Imtiazul Haque[*]

OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

Organizing/Program Committee Chair

1. Conference Technical Program Committee (TPC) Co-Chair: IEEE/IFIP NOMS 2023: IEEE/IFIP
   Network Operations and Management Symposium (NOMS), Miami, FL, May 2023
2. Conference Local Chair: ACM WiSec 2019: ACM Conference on Security and Privacy in Wireless
   and Mobile Networks, Miami, FL, May 2019
3. Workshop Program Committee Co-Chair
   a. IEEE STPSA 2017 - 2022: IEEE International Workshop on Security, Trust, and Privacy for
      Software Applications, collocated with IEEE COMPSAC.
   b. CPS-Sec 2019 - 2023: IEEE International Workshop on Cyber-Physical Systems Security,
      collocated with IEEE CNS 2019 – 2020, 2022, 2023 and IEEE ICNP 2021.
   c. SafeConfig 2015: Automated Decision Making for Active Cyber Defense, collocated with ACM
      CCS, October 2015.

Journal Editor

1. Springer Nature Computer Science.
2. Special Issue on "Harnessing Machine Learning and AI in Cybersecurity," MDPI Sensors.

Technical Program Committee (TPC) Member

Selected Conferences:
1. IEEE International Conference on Digital Health (ICDH), 2021 – 23
2. IEEE Computer Society International Conference on Computers, Software, and Applications (COMPSAC), 2016 – 23.
3. IEEE International Conference on Communications (ICC), 2019 – 23
4. IEEE International Conference on Blockchain (Blockchain), 2021 – 2023
5. Conference on Blockchain Research and Applications for Innovative Networks and Services (BRAINS), 2020 - 23.
6. International Conference on Network and Service Management (CNSM), 2017 – 23.
7. IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm), 2018 – 22.
8. Military Communication (MILCOM) Conference 2019
9. International Conference on Computer Communications and Networks (ICCCN), 2019.
10. IEEE International Symposium on Real-Time Computing, 2019.
11. IEEE International Conference on Communications, 2019.
12. IEEE Conference on Local Computer Networks (LCN), 2017 – 19.
13. ACM Symposium on Applied Computing (SAC), 2017 – 19.
14. IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Brief Presentations (BP), 2018.
15. ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI), Poster/Demos, 2018.
16. International Conference on Networking, Systems, and Security (NSysS), 2016 – 19.

Selected Journal Referee

1. IEEE Transactions on Industrial Informatics
2. IEEE Transactions on Dependable and Secure Computing
3. IEEE Communications Surveys and Tutorials
4. IEEE/ACM Transactions on Networking
5. IEEE Transactions on Vehicular Technology
6. IEEE Transactions on Smart Grid
7. IEEE Transactions on Network and Service Management
8. IEEE Journal of Internet of Things
9. IEEE Transactions on Industrial Informatics
10. IEEE Transactions on Wireless Communications
11. Elsevier Computer and Security
12. Elsevier Information Sciences
13. Elsevier Journal of Systems Architecture
14. Journal of the Network and Systems Management
15. IEEE Communications Magazine
16. IEEE Security and Privacy Magazine
17. IEEE Embedded Systems Letters

PROFESSIONAL MEMBERSHIPS

1. IEEE [Senior Member]
2. ACM

GRADUATE STUDENT SUPERVISION AND SUPPORT

PhD: Major Advisor

1. Alejandro Almeida
   Spring 2024 – Present
   Major Research Area: Hardware and Firmware Security

2. Jean Tonday Rodriguez
   Spring 2024 – Present
   Major Research Area: Nuclear Plants Security

3. Mohammad Zakaria Haider
   Fall 2023 – Present
   Major Research Area: CPS Security through Agility

4. Maurice Ngouen
   Spring 2022 – Present
   Major Research Area: Post-Quantum Security for IoT

5. Muneeba Asif
   Fall 2021 – Present
   Major Research Area: Hardware and Firmware Security

6. Alvi Ataur Khalil
   Fall 2020 – Present
   Major Research Area: Blockchain Security

7. Nur Imtiazul Haque
   Fall 2019 – Present
   Major Research Area: Smart Home/Building Security

8. Mohamadsaleh Jafari
   Summer 2019 – Spring 2022 (Dissertation Defense in Fall 2021)
   Dissertation Title: *Impact-based Analytics of Cascaded False Data Injection Attacks on Smart Grids*
   First Appointment: Senior Engineer, California ISO (CAISO), Folsom, CA

9. A H M Jakaria
   Spring 2016 – Summer 2020 (Dissertation Defense in Spring 2020)
   Dissertation Title: *Formal Techniques for Automated Design of Adaptive Networked Systems based on Security and Resiliency Requirements*

First Appointment: Senior Scientist, Electric Power Research Institute (EPRI), Knoxville, TN

MS Thesis: Major Advisor

1. David Perry
   Fall 2023 – Present
   Research Area: Electric Vehicle Charging Station Security

2. Alvaro Alva
   Fall 2022 – Present
   Research Area: Unmanned Aerial Vehicle Defense against Cyberattacks

3. Alejandro Almeida
   Spring 2023 – Fall 2023
   Thesis Title: Side Channel-Driven Intrusion Detection System for Mission Critical Unmanned Aerial Vehicles
   First Appointment: Continue wiht the ACyD Lab as a PhD Student

4. Md Hasan Shahriar
   Spring 2019 – Fall 2020
   Thesis Title: Deception Defense against Stealthy Attacks in Power Grids
   First Appointment: PhD Student, Virginia Tech

5. Masum Rahat
   Fall 2017 – Spring 2019 (Tennessee Tech University; Remote Supervision in Spring 2019)
   Thesis Title: *Continuous Surveillance Design for Critical Smart Grid Infrastructure using Unmanned Aerial Vehicles*
   First Appointment: Software Engineer, Infosys, Seattle, WA

6. Ryan Shivers
   Fall 2018 – Spring 2019 (Tennessee Tech University; Remote Supervision in Spring 2019)
   Thesis Title: *Toward a Secure and Decentralized Blockchain-based Ride-Hailing Platform for Autonomous Vehicles*
   First Appointment: Researcher, Oak Ridge National Lab, TN

7. Brian Ledbetter
   Fall 2017 – Spring 2019 (Tennessee Tech University; Remote Supervision in Spring 2019)
   Thesis Title: *LIPs: A Protocol for Leadership Incentives for Heterogeneous and Dynamic Platoons*
   First Appointment: US Federal Agency

8. Samuel Wehunt
   Fall 2018 – Spring 2019 (Tennessee Tech University; Remote Supervision in Spring 2019)
   Project Title: *A Blockchain Application for Autonomous Vehicle Platooning*
   First Appointment: US Federal Agency

9. Amarjit Datta
   Fall 2015 – Spring 2018 (Tennessee Tech University)

Thesis Title: *A Formal Framework for Cascading Attack Analysis in the Microgrid Islanding Detection Process*
First Appointment: Senior Software Engineer, IBM, Kennesaw, GA

10. MGM Mehedi Hasan
    Spring 2016 – Fall 2017 (Tennessee Tech University)
    Thesis Title: *Protection by Detection: A Signaling Game Approach to Mitigate Co-Resident Attacks in Cloud*
    First Appointment: PhD Student, Tennessee Tech University

SELECTED UNDERGRADUATE STUDENT MENTORING AND SUPPORT

1. Christopher Paladines-Muniz (Undergraduate Researcher; FIU; Spring 2024 – Present)
2. Kiran Brahmatewari (Undergraduate Researcher; FIU; Fall 2023 – Present)
3. Ernesto Alva Chavez (Undergraduate Researcher; FIU; Summer 2023 – Present)
4. Mohammad Kazmi (Undergraduate Researcher; FIU; Spring 2023 – Present)
5. Annabella Christopher (Undergraduate Researcher; FIU; Fall 2021 – Fall 2022)
6. Nathanael Gelin (Undergraduate Researcher; FIU; Spring 2023)
7. Annabella Christopher (Undergraduate Researcher; FIU; Fall 2021 – Fall 2022)
8. Ahmad Mohammad (NSF REU Scholar; FIU; Summer 2022)
9. Christopher Puig (Undergraduate Researcher; FIU; Spring 2022 – Summer 2022)
10. Brian Rodriguez Perez (Undergraduate Researcher; FIU; Spring 2022)
11. Alexander Byrne (Undergraduate Researcher; FIU; Summer 2020 – Summer 2021)
12. Gianluca Bacigalupo (Undergraduate Researcher; FIU; Summer 2020 – Fall 2021)
13. Eloy Beaucejour (Undergraduate Researcher; FIU; Spring 2020 – Summer 2021)
14. Nicolas Contreras (Undergraduate Researcher; FIU; Spring 2021 – Fall 2021)
15. Samara Ruiz Sandoval (Undergraduate Researcher; FIU; Spring 2020 – Summer 2020)
16. Nuria Pacheco (NSF REU Scholar; FIU; Undergraduate Researcher; Summer 2019)
17. Anquan Gamble (NSF REU Scholar; FIU; Undergraduate Researcher; Summer 2019)
18. Michael Dimovich (NSF REU Scholar; TTU; Undergraduate Researcher; Summer 2018)
19. Cory Stephenson (NSF REU Scholar; TTU; Undergraduate Researcher; Summer 2018)
20. Emily Chen (NSF REU Scholar; TTU; Undergraduate Researcher; Summer 2017)
21. Jeremiah Russell (NSF REU Scholar; TTU; Undergraduate Researcher; Summer 2017)
22. Brian Ledbetter (NSF REU Scholar; TTU; Undergraduate Researcher; Summer 2016)

COURSES TAUGHT

Courses Taught at Florida International University:
CNT 5415   Practical Applied Security
CNT 4165   Network Protocols for loT
TCN 2720   Introduction to Internet of Things

Courses Taught at Tennessee Tech University:
CSC 6575: Internet Security
CSC 2710: Foundations of Computer Science
CSC 5400/4400: Analysis of Algorithms
CSC 7575: Security Topics in the Smart Grid

NEW COURSE DEVELOPMENT AND MAJOR COURSE CHANGES

Courses at Florida International University:
1. The online version of CNT 4165: Network Protocols for loT
2. The online version of CNT 5415: Practical Applied Security

Courses at Tennessee Tech University:
1. CSC 7575: Security Topics in the Smart Grid
2. CSC 6575: Internet Security

Last Updated: January 23, 2023