

Curriculum Vitae of Irfan Ahmed

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RESEARCH INTERESTS

Digital Forensics
Malware Detection and Analysis
Cyber-Physical Systems (CPS)
Industrial Control System (ICS) Security
Additive Manufacturing/3D Printing Security
Cybersecurity Education

CURRENT PROFESSIONAL AFFILIATIONS

Associate Professor (tenured) July 2021 - To-date
Assistant Professor (tenure-track) August 2018 - June 2021
Department of Computer Science www.egr.vcu.edu/departments/computer/
College of Engineering <https://egr.vcu.edu>
Virginia Commonwealth University (VCU), Richmond, VA

Director, Security and Forensics Engineering (SAFE) Lab August 2018 - To-date
Department of Computer Science <https://safe.lab.vcu.edu>
Virginia Commonwealth University (VCU), Richmond, VA

Faculty Fellow August 2018 - To-date
VCU Cybersecurity Center, Richmond, VA <https://cybersecurity.vcu.edu>

Memberships

Senior Member, IEEE (Institute of Electrical and Electronics Engineers)
Member, IEEE Computer Society Technical Committee on Security and Privacy
Member, IEEE Technical Committee on Cyber-Physical Systems
Member, American Academy of Forensic Sciences (AAFS) - www.aafs.org
Member, DHS Industrial Control Systems Joint Working Group (ICSJWG)
Member, ACM (Association for Computing Machinery)
Member, ACM Special Interest Group on Security, Audit and Control (SIGSAC)
Member, ACM Special Interest Group on Computer Science Education (SIGCSE) - sigcse.org/sigcse
Member, ACM Emerging Interest Group on Smart Cities and Communities
Member, Laboratories and Educators Alliance Program (LEAP), joint effort between the American Society of Crime Lab Directors (ASCLD) and the Council of Forensic Science Educators (COFSE)
Member, Council of Forensic Science Educators (COFSE). <https://www.cofse.org>

PREVIOUS PROFESSIONAL AFFILIATIONS

Canizaro-Livingston Endowed Assistant Professor in Cybersecurity August 2017 - July 2018
Department of Computer Science www.cs.uno.edu
University of New Orleans

Assistant Professor (tenure-track) August 2013 - July 2018
Department of Computer Science www.cs.uno.edu
University of New Orleans

Director, Cyber-Physical Systems (CyPhy) Lab

Department of Computer Science
University of New Orleans

August 2015 - July 2018
cyphy.cs.uno.edu

Associate Director

Research Affiliation

Greater New Orleans Center for Information Assurance (GNOCIA)
University of New Orleans

January 2017 - July 2018
January 2012 - July 2018
gnocia.cs.uno.edu

Advisory Board Member of Cybersecurity

Sacred Heart University, Fairfield, CT

June 2018 - May 2022
www.sacredheart.edu

PROFESSIONAL PREPARATION

Postdoctoral Research Associate (Postdoc)

University of New Orleans, New Orleans, LA, United States

<http://www.uno.edu>

Project: Virtual Machine Introspection-based Live Forensics for Detection of Malicious Software

Funded by: National Science Foundation (Award No.: 1016807)

Jan 2012-Aug 2013

Postdoctoral Research Associate (Postdoc)

Queensland University of Technology, Brisbane, Australia

<http://www.qut.edu.au>

Project: Forensic Readiness in Control Systems: Tools and Methods

Funded by: Department of Prime Minister and Cabinet's Research Support for National Security

Sept 2010-Sept 2011

Doctor of Philosophy (PhD), Computer Science

Ajou University, Suwon, South Korea

<http://www.ajou.ac.kr>

June 2010

Master of Science (M.S.), Computer Science

SZABIST, Karachi, Pakistan

<http://szabist.edu.pk>

April 2005

Bachelor of Engineering (B.E.), Computer System

NED University of Engineering and Technology, Karachi, Pakistan

<http://www.neduet.edu.pk>

Feb 2003

Oracle Certified Professional (OCP), Database Administration

<http://www.oracle.com/education/professional.html>

May 2001

HONORS AND AWARDS

Best Paper Award

9th Annual Digital Forensics Research Conference Europe (DFRWS EU'22), University of Oxford, Oxford, United Kingdom

March 2022

Best Student Paper Award

9th Annual Digital Forensics Research Conference Europe (DFRWS EU'22), University of Oxford, Oxford, United Kingdom

March 2022

<i>Best Poster Award</i> 8 th Annual Women in Cybersecurity (WiCyS) Conference, Denver, CO	September 2021
<i>Best Student Paper Award</i> 20 th Annual Digital Forensics Research Conference (DFRWS'20), USA	July 2020
<i>ORAU Ralph E. Powe Junior Faculty Enhancement Award</i> Oak Ridge Associated Universities (ORAU) https://www.ornl.gov/news/releases/2019/2019-powe-winners.html	May 2019
<i>Canizaro-Livingston Endowed Professorship in Cybersecurity</i> University of New Orleans, New Orleans, LA	August 2017
<i>Early Career Research Prize</i> University of New Orleans, New Orleans, LA http://new.uno.edu/research/research-council/awards (A university-level award given only to one junior faculty member each year based-on the achievements in teaching, research, and service.)	December 2016
<i>Outstanding Poster Award</i> With my PhD Student, Aisha Ali-Gombe 6 th ACM Conference on Data and Application Security and Privacy (CODASPY'16), New Orleans, LA	March 2016
<i>Outstanding Research Award</i> 66 th Annual Meeting of the American Academy of Forensic Sciences, Washington, USA	February 2014
<i>Best Paper Award</i> 16 th Information Security Conference (ISC'13), Dallas, Texas, USA	November 2013
<i>Best Paper Award</i> International Cyber Resilience Conference, Perth, Australia	August 2011
<i>Korean Government Scholarship</i> Institute of Information Technology Advancement (IITA), South Korea	Sept 2006 - Aug 2010
<i>Ajou University Full Tuition Scholarship</i> Ajou University, South Korea	Sept 2006 - Aug 2008
<i>Silver Medalist</i> 23 rd International Art Exhibition, Tokyo, Japan	1993

INITIATIVES AND ACHIEVEMENTS

<i>Established an annual fully-funded GenCyber cybersecurity summer bootcamp at VCU</i> Funded by NSA/NSF targeting JROTC middle and early high school students	2022
<i>Led VCU to join the U.S. Cyber Command's Academic Engagement Network</i> United States Cyber Command (USCYBERCOM)	2022
<i>Led an Education Partnership Agreement (EPA) between the DoD DC3 and VCU</i> The Department of Defense Cyber Crime Center (DC3) for excellence in digital forensics	2021

Led the effort of achieving the DHS/NSA CAE-R designation at VCU 2020
 DHS/NSA National Center for Academic Excellence in Research (CAE-R)

One of the First Ten Contributors to the National Cybersecurity Curriculum Mar 2017- Dec 2018
 National Security Agency (NSA)'s National Cybersecurity Curriculum Program (NCCP)
 (Endorsed by the NSA program manager to the Dean of College of Engineering at VCU)

Created a fully functional small-scale industrial control system (ICS) testbed at UNO 2016
 Funded by the Army Research Office (ARO) to promote university research in ICS security

TEACHING

Term	Level	Course Number	Course Name	Class Size	Evaluation
University of New Orleans					
Spring'13	U,G	CSCI 4621/5621	Introduction to Computer Security	21	4.64 / 5.00
Fall'13	U,G	CSCI 4311/5311	Computer Networks	26	4.13 / 5.00
Spring'14	U,G	CSCI 4311/5311	Computer Networks	23	N/A
Fall'14	U,G	CSCI 4401/5401	Operating System	37	4.71 / 5.00
Fall'14	U,G	CSCI 4621/5621	Introduction to Computer Security	33	4.88 / 5.00
Spring'15	U,G	CSCI 4311/5311	Computer Networks	45	N/A
Spring'15	U,G	CSCI 4621/5621	Introduction to Computer Security	34	N/A
Fall'15	G	CSCI 6627	Industrial Control System Security	38	4.91 / 5.00
Fall'15	U,G	CSCI 4621/5621	Introduction to Computer Security	26	4.95 / 5.00
Spring'16	G	CSCI 6627	Industrial Control System Security	19	4.45 / 5.00
Spring'16	G	CSCI 6621	Topics in Network Security and Forensics	20	4.56 / 5.00
Fall'16	U,G	CSCI 4623/5623	Introduction to Computer Forensics	15	4.89 / 5.00
Fall'16	U,G	CSCI 4621/5621	Introduction to Computer Security	25	4.42 / 5.00
Spring'17	G	CSCI 6627	Industrial Control System Security	14	4.72 / 5.00
Spring'17	G	CSCI 6621	Topics in Network Security and Forensics	10	4.71 / 5.00
Fall'17	U,G	CSCI 4621/5621	Introduction to Computer Security	35	4.78 / 5.00
Spring'18	U,G	CSCI 4621/5621	Introduction to Computer Security	48	4.56 / 5.00
Virginia Commonwealth University					
Fall'18	U	CMSC 414	Computer and Network Security	7	4.50 / 5.00
Spring'19	U	CMSC 414	Computer and Network Security	56	3.47 / 5.00
Fall'19	<i>No Teaching</i>				
Spring'20	U	CMSC 414	Computer and Network Security	34	3.75 / 5.00
Fall'20	G	CMSC 654	Memory and Malware Forensics	8	4.57 / 5.00
Spring'21	U	CMSC 414	Computer and Network Security	41	4.08 / 5.00
Fall'21	G	CMSC 654	Memory and Malware Forensics	6	4.33 / 5.00
Spring'22	U	CMSC 414	Computer and Network Security	48	3.83 / 5.00
Fall'22	G	CMSC 654	Memory and Malware Forensics		/ 5.00

U ← Undergraduate-level

G ← Graduate-level

FUNDED GRANTS/CONTRACTS

Total Funding: \$5,702,545 (Approx. \$5.70 Million)

My Share: \$3,339,218 (Approx. \$3.34 Million)

(Lead/Sole/Institute) PI: \$2,543,818 (Approx. \$2.44 Million)

Co-PI: \$795,400 (Approx. \$0.80 Million)

DHS	NSF	NSA	ARO	ONR	VA-CCI	LA-BoR	UNO	ORAU
2	6	8	1	1	5	4	7	1

- National Science Foundation (NSF)
- National Security Agency (NSA)
- Department of Homeland Security (DHS)
- Army Research Office (ARO)
- Office of Naval Research (ONR)
- Virginia Commonwealth Cyber Initiative (VA-CCI)
- Louisiana State Board of Regents (LA-BoR)
- University of New Orleans (UNO)
- Oak Ridge Associated Universities (ORAU)

*Principal Investigator (PI)

*Co-Principal Investigator (Co-PI)

Research

- [NSF]. “OAC Core: Small: MedKnights - Towards Secure and Flexible Medical IoT (IoMT) Infrastructure using Generative Adversarial Networks”, National Science Foundation (NSF), Role: Co-PI, Total Funding: \$599,924, **My Share: \$223,864**, Project Duration: 3 years (2022-2025)
- [DHS]. “Data Science-integrated Experiential Digital Forensics Training based-on Real-world Case Studies of Cybercrime Artifacts”, DHS Criminal Investigations and Network Analysis (CINA) Center, Role: Lead PI (with Kostadin Damevski from VCU), Total Funding: \$200,000, **My Share: \$100,000**, Project Duration: 2 year (2022-2024)
- [VA-CCI]. “Digital Forensics Experiential Learning Program with Virginia State Police”, Virginia Commonwealth Cyber Initiative (CCI), Role: Sole PI, Total Funding: \$100,000 (all direct cost), **My Share: \$100,000**, Project Duration: 1 year and three months (2022 - 2023)
- [DHS]. “Digital Forensic Tools and Techniques for Investigating Control Logic Attacks in Industrial Control Systems”, DHS Criminal Investigations and Network Analysis (CINA) Center, Role: Sole PI, Total Funding: \$150,000, **My Share: \$150,000**, Project Duration: 1 year and 4 months (2022-2023)
- [NSA]. “Machine Learning-Based Entity Fingerprinting”, National Security Agency (NSA), Role: Institute PI (with Aisha Ali-Gombe from Towson University), Total Funding: \$483,226, **My Share: \$239,908**, Project Duration: 2 years (2021 - 2023)
- [VA-CCI]. “Spatiotemporal G-code Modeling for Additive Manufacturing Security”, Virginia Commonwealth Cyber Initiative (CCI), Role: Institute PI (with Robert J. Prins from James Madison University), Total Funding: \$352,778 (cost-sharing included), **My Share: \$242,000**, Project Duration: 1 year and 6 months (Jan 2021 - June 2022)
- [NSF]. “CyberTraining: Implementation: Small: Using Problem-Based Learning for Vocational Training in Cyberinfrastructure Security at Community Colleges”, National Science Foundation (NSF) CyberTraining, Role: Lead-PI (with Sajal Bhatia from Sacred Heart University), Total Funding: \$499,661, **My Share: \$250,000**, Project Duration: 3 years (2020 - 2023), *Award No.: 2017337*
- [VA-CCI]. “Control Logic Attacks and Defenses for Electric Vehicle Charging Stations”, Virginia Commonwealth Cyber Initiative (CCI), Role: Institute PI (with Joseph Shelton from Virginia State University and Kevin Heaslip from Virginia Tech), Total Funding: \$125,000 (all direct cost), **My Share: \$50,000**, Project Duration: 1 year (2021 - 2022)

- [NSF]. “EDU: Collaborative: Using Virtual Machine Introspection for Deep Cyber Security Education”, National Science Foundation (NSF) - Secure & Trustworthy Cyberspace (SaTC), Role: PI (with Zhiqiang Lin from The Ohio State University), Total Funding: \$299,913, **My Share: \$150,000**, Project Duration: 4 years (2016 - 2020), *Award No.: 1623276*
- [NSF]. “SaTC-EDU: EAGER: Peer Instruction for Cybersecurity Education”, National Science Foundation (NSF) - Secure & Trustworthy Cyberspace (SaTC), Role: PI (Co-PIs: Cynthia B. Lee from Stanford University and Golden G. Richard III and Vassil Roussev from UNO), Total Funding: \$300,000, **My Share: \$250,000**, Project Duration: 4 years (2015 - 2019), *Award No.: 1500101*
- [VA-CCI]. “Virtual PLC Platform for Threat Intelligence in Industrial Control Systems”, Virginia Commonwealth Cyber Initiative (CCI), Role: Sole PI, Total Funding: \$20,000 (all direct cost), **My Share: \$20,000**, Project Duration: 1 year (2021 - 2022)
- [VA-CCI]. “CCI Smart Cities: Cyber and Physically Secure Communities: Resilient, Sustainable, Energy Efficient”, Virginia Commonwealth Cyber Initiative (CCI), Role: Co-PI (with Milos Manic, Eyuphan Bulut, and Changqing Luo from VCU), Total Funding: \$200,000 (all direct cost), **My Share: \$50,000**, Project Duration: 1 year (2020 - 2021)
- [ORAU]. “A Virtual PLC Framework for Control Logic Forensics in Industrial Control System”, Oak Ridge Associated Universities (ORAU) Ralph E. Powe Junior Faculty Enhancement Award, Role: Sole-PI, Total Funding: \$10,000, **My Share: \$10,000**, Project Duration: 1 year (June 2019 - May 2020)
- [NSA]. “Automated Platform for Comprehensive Hands-on Cybersecurity Training”, National Security Agency, Role: Co-PI (with Vassil Roussev), Total Funding: \$274,370, **My Share: \$140,000**, Project Duration: 1 year (2017 - 2018)
- [NSA]. “Portable Hands-on Training Environment for SCADA Security”, National Security Agency, Role: PI (Co-PI: Vassil Roussev), Total Funding: \$280,310, **My Share: \$150,000**, Project Duration: 1 year (2017 - 2018)
- [NSA]. “Instructional Material for SCADA Security Course”, National Security Agency, Role: PI (Co-PI: Vassil Roussev from UNO and Sajal Bhatia from Fordham University), Total Funding: \$187,964, **My Share: \$100,000**, Project Duration: 1 year (2017 - 2018)
- [NSA]. “Concept Maps for Cybersecurity Education”, National Security Agency, Role: PI (Co-PI: Vassil Roussev), Total Funding: \$163,803, **My Share: \$100,000**, Project Duration: 1 year (2017 - 2018)
- [UNO]. “Towards Programmable Logic Controller Forensics”, UNO Office of Research and Sponsored Programs (ORSP) - SCoRe (Stimulating Competitive Research), University of New Orleans, Role: Sole PI, Total Funding: \$15,000, **My Share: \$15,000**, Project Duration: 1 year (January 2018 - February 2019)
- [UNO]. “Gap Analysis of Digital Forensics on SCADA Testbed”, UNO Office of Research and Sponsored Programs (ORSP) - SCoRe (Stimulating Competitive Research), University of New Orleans, Role: Sole PI, Total Funding: \$12,000, **My Share: \$12,000**, Project Duration: 1 year (July 2016 - June 2017)
- [ONR]. “Digital Forensic Toolkit for Machine Control Systems (TRACE)”, Office of Naval Research - STTR Phase 1, Role: PI (with Intelligent Automation Inc.), Total Funding: \$80,000, **My Share: \$24,000**, Project Duration: 7 Months (2016-2017)
- [UNO]. “UNO ORSP for Early Career Research Prize”, University of New Orleans, Role: Sole PI, Total Funding: \$7,500, **My Share: \$7,500**, Project Duration: 1 Year (2016-2017)
- [UNO]. “Fuzzing Infrastructure for the Cloud”, UNO ORSP Internal Grant Program funded by the Louisiana Working and Innovation for a Stronger Economy (WISE) initiative, Role: Sole PI, Total Funding: \$20,000, **My Share: \$20,000**, Project Duration: 8 Months (2015 - 2016)

- [NSA]. “Automatic Run-time Mitigation of Kernel Exploits in Cloud Environments”, National Security Agency, Role: PI (Co-PIs: Vassil Roussev and Golden G. Richard III), Total Funding: \$75,000, **My Share: \$50,000**, Project Duration: 1 year (2015 - 2016)
- [BoR RCS]. “Towards Effective Vulnerability Analysis of Application Code in a Cloud-computing Environment”, LA Board of Regents (BoR) - Research Competitiveness Subprogram (RCS), Role: Sole PI, Total Funding: \$146,700, **My Share: \$146,700**, Project Duration: 3 years (2015 - 2018) Award No.: LEQSF(2015-18)-RD-A-34 (*awarded, but due to LA state budget cut, not funded*)
- [NSF]. “CNS-SaTC: EAGER: Integrating Cognitive and Computer Science to Improve Cyber Security: Selective Attention and Personality Traits for the Detection and Prevention of Risk”, National Science Foundation (NSF) - Secure & Trustworthy Cyberspace (SaTC), Role: PI since January 2017 and Co-PI from 2014 to 2016 (with Carl Weems from Iowa State University and Golden G. Richard III from UNO), Total Funding: \$223,022, **My Share: \$100,000**, Project Duration: 4 years (2014 - 2018), *Award No.: 1358723*
- [UNO]. “Botnet Detection in Cloud-computing Environments”, UNO Office of Research and Sponsored Programs (ORSP) - SCoRe (Stimulating Competitive Research), University of New Orleans, Role: Sole PI, Total Funding: \$12,000, **My Share: \$12,000**, Project Duration: 3 months (May 2014 - Aug 2014)
- [NSF]. “EDU: Lightweight Environment for Network Security Education (LENSE)”, National Science Foundation (NSF) - Secure & Trustworthy Cyberspace (SaTC), Role: Co-PI (with Vassil Roussev and Golden G. Richard III), Total Funding: \$299,846, **My Share: \$50,000**, Project Duration: 3 years (2014 - 2017), *Award No.: 1419358*

Planning

- [NSF]. “IUCRC Planning Grant VCU: Center for Wireless Innovation towards Secure, Pervasive, Efficient and Resilient Next G Networks (WISPER)”, National Science Foundation (NSF), Role: Co-PI (with Erdem Topsakal, Eyuphan Bulut, and Tamer Nadeem), Total Funding: \$20,000, Project Duration: 1 year (2022 - 2023)

Equipment

- [BoR]. “UNO CyberRange: An Advanced Platform for Cybersecurity Workforce Training”, LA Board of Regents (BoR) Departmental Enhancement, Role: Co-PI (with Vassil Roussev and Minhaz Zibrán), Total Funding: \$195,400, Project Duration: 1 year (2018 - 2019)
- [ARO]. “SCADA Testbed for Security and Forensics Research”, Army Research Office (ARO) - Defense University Research Instrumentation Program (DURIP), Role: PI (Co-PIs: Golden G. Richard III and Vassil Roussev), Total Funding: \$96,310, Project Duration: 1 year (2015 - 2016)

Outreach

- [NSA]. “GenCyber Bootcamp for JROTC Middle and Early High-school Students”, National Security Agency, Role: PI (Co-PI: Ahmet Sonmez), Total Funding: \$150,000, **My Share: \$130,000**, Project Duration: 2 year (2021 - 2023)
- [NSA]. “GenCyber@UNO: An Intensive Cybersecurity Bootcamp for Secondary School Teachers”, Joint funding of National Security Agency & National Science Foundation, Role: Co-PI (with Vassil Roussev), Total Funding: \$116,418, **My Share: \$10,000**, Project Duration: 1 year (2017 - 2018)

Others

- [UNO]. Total Funding:\$50,000, **My Share: \$50,000** from UNO Foundation for ICS Equipment in 2016
- [BoR]. “Travel Grants for Emerging Faculty (TGEF)”, Board of Regents - Louisiana, Total Funding: \$1200, **My Share: \$1200**, 2016
- [UNO]. Total Funding:\$10,000, **My Share: \$10,000** from UNO CS Department for Equipment (PLC Trainers) in 2015

- [BoR]. “Travel Grants for Emerging Faculty (TGEF)”, Board of Regents - Louisiana, Total Funding: \$1200, **My Share: \$1200**), 2014

COMMERCIALIZATION AND PATENTS

- **Company Name:** VirtualPLC LLC
Co-Founders: Irfan Ahmed, and Syed Ali Qasim
Product: Virtual programmable logic controllers (PLCs) for threat intelligence
Seed Funding: Virginia Commonwealth Cyber Initiative (CCI)

PEER-REVIEWED PUBLICATIONS

- [IEEE CSR]. Nauman Zubair, Adeen Ayub, Hyunguk Yoo, **Irfan Ahmed**, “Control Logic Obfuscation Attack in Industrial Control Systems”, In IEEE International Conference on Cyber Security and Resilience (IEEE CSR’22), July 2022. *(held virtually)*
- [DFRWS US]. Megan Davis, Bridget McInnes, **Irfan Ahmed**, “Forensic Investigation of Instant Messaging Services on Linux OS: Discord and Slack as Case Studies”, In the 22nd Annual Digital Forensics Research Conference (DFRWS US’22), July 2022. *(held virtually)*
(Acceptance rate (30%): 13 out of 43 submissions)
- [ICCIP]. Muhammad Haris Rais, Muhammad Ahsan, Vaibhav Sharma, Radhika Barua, Rob Prins, **Irfan Ahmed**, “Low-magnitude Infill Structure Manipulation Attacks on FFF-based 3D Printers”, In the 16th IFIP International Conference on Critical Infrastructure Protection (ICCIP), March 2022, Arlington, Virginia. *(held virtually)*
- [DFRWS EU]. Nauman Zubair, Adeen Ayub, Hyunguk Yoo, **Irfan Ahmed**, “PEM: Remote Forensic Acquisition of PLC Memory in Industrial Control Systems”, In the 9th Annual Digital Forensics Research Conference Europe (DFRWS EU’22), March 2022, Oxford, United Kingdom
(Best Paper Award)
(Acceptance rate (32.5%): 13 out of 40 submissions)
- [DFRWS EU]. Muhammad Haris Rais, Rima Asmar Awad, Juan Lopez Jr., **Irfan Ahmed**, “Memory Forensic Analysis of a Programmable Logic Controller in Industrial Control Systems”, In the 9th Annual Digital Forensics Research Conference Europe (DFRWS EU’22), March 2022, Oxford, United Kingdom
(Best Student Paper Award)
(Acceptance rate (32.5%): 13 out of 40 submissions)
- [IEEE Access]. Shresht Bhatia, Sajal Bhatia, **Irfan Ahmed**, “Automated Waterloo Rubric for Concept Map Grading”, In IEEE Access Journal, 2021
(Impact Factor: 3.75 in 2021)
- [IEEE Access]. Masrik Dahir, Syed Ali Qasim, **Irfan Ahmed**, “Cronus: An Automated Feedback Tool for Concept Maps”, In IEEE Access Journal, August 2021
(Impact Factor: 3.75 in 2021)
- [J. Additive Manufacturing]. Muhammad Haris Rais, Ye Li, **Irfan Ahmed**, “Dynamic-thermal and Localized Filament-kinetic Attacks on Fused Filament Fabrication based 3D Printing Process”, In the Additive Manufacturing Journal, Elsevier, July 2021
(Impact Factor: 11.00 in 2021)
- [DFRWS]. Muhammad Haris Rais, Rima Asmar Awad, Juan Lopez Jr., **Irfan Ahmed**, “JTAG-based PLC Memory Acquisition Framework for Industrial Control Systems”, In the 21st Annual Digital Forensics Research Conference (DFRWS’21), July 2021. *(held virtually)*
(Acceptance rate (36%): 16 out of 44 submissions)

- **[WOOT]**. Adeen Ayub, Hyunguk Yoo, **Irfan Ahmed**, “Empirical Study of PLC Authentication Protocols in Industrial Control Systems”, In the 15th IEEE Workshop on Offensive Technologies (WOOT’21), co-located with the 42nd IEEE Symposium on Security and Privacy and in cooperation with Usenix, San Francisco, CA, May 2021 (*held virtually*)
(Resulted in seven CVEs: CVE-2021-32980, CVE-2021-32984, CVE-2021-32986, CVE-2021-32982, CVE-2021-32978, CVE-2021-32926, and CVE-2020-15791)
(Acceptance rate (35%): 12 out of 34 submissions)
- **[ICCPs]**. Muhammad Haris Rais, Ye Li, **Irfan Ahmed**, “Spatiotemporal G-code Modeling for Secure FDM-based 3D Printing”, In the 12th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPs), May 2021, Nashville, TN. (*held virtually*)
(Acceptance rate (26%): 20 out of 77 submissions)
- **[ICCIP]**. Syed Ali Qasim, Adeen Ayub, Jordan Johnson, **Irfan Ahmed**, “Attacking IEC-61131 Logic Engine in Programmable Logic Controllers in Industrial Control Systems”, In the 15th IFIP International Conference on Critical Infrastructure Protection (ICCIP), March 2021, Arlington, Virginia. (*held virtually*)
(CVEs to be assigned)
- **[MAKE]**. Manish Bhatt, Avdesh Mishra, Sharon Gatto, Rishav Rajendra, Md Tamjidul Hoque, **Irfan Ahmed**, “Hierarchical based File Fragment Classification”, Journal of Machine Learning and Knowledge Extraction (MAKE), MDPI, August 2020
- **[DFRWS]**. Syed Ali Qasim, Jared Smith, **Irfan Ahmed**, “Control Logic Forensics Framework using Built-in Decompiler of Engineering Software in Industrial Control Systems”, In the 20th Annual Digital Forensics Research Conference (DFRWS’20), July 2020, Memphis, TN. (*held virtually*)
(Best Student Paper Award)
- **[ISC]**. Syed Ali Qasim, Juan Lopez Jr., **Irfan Ahmed**, “Automated Reconstruction of Control Logic for Programmable Logic Controller Forensics”, In the 22nd Information Security Conference (ISC’19), September 2019, New York.
(Acceptance rate (26.7%): 23 out of 86 submissions)
- **[INTERPOL]**. Vassil Roussev, **Irfan Ahmed**, “Cloud Forensics - A True Game Changer”, INTERPOL Digital 4N6 Pulse, Volume: V, June 2019
- **[CISSE]**. Mandar Shivapurkar, Sajal Bhatia, **Irfan Ahmed**, “Problem-based Learning for Cybersecurity Education”, In the 23rd Colloquium for Information Systems Security Education (CISSE’19), June 2019, Las Vegas, NV.
- **[IFIP SEC]**. Hyunguk Yoo, **Irfan Ahmed**, “Control Logic Injection Attacks on Industrial Control Systems”, In 34th IFIP International Conference on Information Security and Privacy Protection (IFIP SEC’19), June 2019, Lisbon, Portugal.
(Resulted in three CVEs: CVE-2018-7790, CVE-2018-7791, and CVE-2018-7792)
(Acceptance rate (18%): 26 out of 142 submissions)
- **[DIMVA]**. Hyunguk Yoo, Sushma Kalle, Jared Smith, **Irfan Ahmed**, “Overshadow PLC to Detect Remote Control-Logic Injection Attacks”, In 16th SIG SIDAR Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA’19), June 2019, Gothenburg, Sweden.
(Acceptance rate (28%): 23 out of 80 submissions)
- **[NDSS BAR]**. Sushma Kalle, Nehal Ameen, Hyunguk Yoo, **Irfan Ahmed**, “CLIK on PLCs! Attacking Control Logic with Decompilation and Virtual PLC”, In Binary Analysis Research (BAR) Workshop in Conjunction with Network and Distributed System Security Symposium (NDSS), Feb 2019, San Diego, CA.
- **[SIGCSE]**. Pranita Deshpande, **Irfan Ahmed**, “Topological Scoring of Concept Maps for Cybersecurity Education”, In 50th ACM Technical Symposium on Computer Science Education (SIGCSE), February 2019, Minneapolis, Minnesota, USA.
(Acceptance rate (32%): 169 out of 526 submissions)

- [SIGCSE]. Pranita Deshpande, Cynthia Lee, **Irfan Ahmed**, “Evaluation of Peer Instruction for Cybersecurity Education”, In 50th ACM Technical Symposium on Computer Science Education (SIGCSE), February 2019, Minneapolis, Minnesota, USA.
(Acceptance rate (32%): 169 out of 526 submissions)
- [PLOS ONE]. Carl Weems, **Irfan Ahmed**, Golden G. Richard III, Justin Russell, Erin Neill, “Susceptibility and Resilience to Cyber Threat: Findings from a Scenario Decision Program to Measure Secure and Insecure Computing Behavior”, PLOS ONE, Dec 2018
(Impact Factor: 2.76 in 2018)
- [Book Chapter]. Sajal Bhatia, Sunny Behal, **Irfan Ahmed**, “Distributed Denial of Service Attacks and Defense Mechanism: Current Landscape and Future Directions”, In Advances in Information Security Series, Conti, Somani, and Poovendran (Eds.), Springer, 2018.
- [Book Chapter]. **Irfan Ahmed**, Vassil Roussev, “Analysis of Cloud Digital Evidence”, In Security, Privacy, and Digital Forensics in the Cloud, L. Chen, and H. Takabi (Eds.), IGI Global, 2018.
- [IEEE S&P]. **Irfan Ahmed**, Vassil Roussev, “Peer Instruction Teaching Methodology for Cybersecurity Education”, IEEE Security & Privacy, Vol. 16, No. 4, July 2018.
(Impact Factor: 1.382 in 2018)
- [DFRWS]. Manish Bhatt, **Irfan Ahmed**, “Leveraging Relocations in Kernel ELF-binaries for Linux Kernel Version Identification”, In the 18th Annual Digital Forensics Research Conference (DFRWS’18), July 2018, Providence, RI, USA.
(Acceptance rate (31%): 14 out of 44 submissions)
- [CODASPY]. Saranyan Senthivel, Shrey Dhungana, Hyunguk Yoo, **Irfan Ahmed**, Vassil Roussev, “Denial of Engineering Operations Attacks in Industrial Control Systems”, In 8th ACM Conference on Data and Application Security and Privacy (CODASPY’18), March 2018, Tempe, AZ.
(Acceptance rate (21%): 23 out of 110 submissions)
- [SIGCSE]. Manish Bhatt, **Irfan Ahmed**, Zhiqiang Lin, “Using Virtual Machine Introspection for OS Kernel Security Education”, In 49th ACM Technical Symposium on Computer Science Education (SIGCSE), February 2018, Baltimore, Maryland, USA.
(Acceptance rate (35%): 161 out of 459 submissions)
- [IEEE S&P]. **Irfan Ahmed**, Sebastian Obermeier, Sneha Sudhakaran, Vassil Roussev, “Programmable Logic Controller Forensics”, IEEE Security & Privacy, Vol. 15, No. 6, Nov 2017.
(Impact Factor: 1.38 in 2017)
- [WISA]. Jonathan Grimm, **Irfan Ahmed**, Vassil Roussev, Manish Bhatt, ManPyo Hong, “Automatic Mitigation of Kernel Rootkits in Cloud Environments”, In the 18th World Conference on Information Security Applications (WISA’17), Lecture Notes in Computer Science (LNCS) Springer, August 2017, Jeju Island, South Korea
(Acceptance rate (47.1%): 25 out of 53 submissions)
- [USENIX ASE]. William Johnson, **Irfan Ahmed**, Vassil Roussev, Cynthia B. Lee, “Peer Instruction for Digital Forensics”, USENIX Advances in Security Education Workshop (ASE’17), co-located with 26th USENIX Security Symposium, August 2017, Vancouver, BC, Canada
(Acceptance rate (46.1%): 12 out of 26 submissions)
- [DFRWS]. Saranyan Senthivel, **Irfan Ahmed**, Vassil Roussev, “SCADA Network Forensics of the PCCC Protocol”, In the 17th Annual Digital Forensics Research Conference (DFRWS’17), August 2017, Austin, USA.
(Acceptance rate (32%): 13 out of 41 submissions)
- [Taylor & Francis JCST]. Justin Russell, Carl Weems, **Irfan Ahmed**, Golden G. Richard III, “Self-reported secure and insecure cyber behaviour: factor structure and associations with personality factors”, Journal of Cyber Security Technology, Taylor & Francis, July 2017.
- [ACSAC ICSS]. **Irfan Ahmed**, Vassil Roussev, William Johnson, Saranyan Senthivel, Sneha Sudhakaran, “A SCADA System Testbed for Cybersecurity and Forensic Research and Pedagogy”, In

the 2nd Annual Industrial Control System Security Workshop (ICSS'16), In conjunction with 32nd Annual Computer Security Applications Conference (ACSAC'16), December 2016, Los Angeles, CA.

- [Elsevier DI]. Vassil Roussev, **Irfan Ahmed**, Andres Barreto, Shane McCulley, Vivek Shanmughan, “Cloud Forensics-Tool Development Studies & Future Outlook”, Digital Investigation, Elsevier, Vol. 18, No. 3, September 2016.
(Impact Factor: 1.77 in 2017)
- [USENIX ASE]. William Johnson, Allison Luzader, **Irfan Ahmed**, Vassil Roussev, Golden G. Richard III, Cynthia B. Lee, “Development of Peer Instruction Questions for Cybersecurity Education”, USENIX Advances in Security Education Workshop (ASE'16), co-located with 25th USENIX Security Symposium, August 2016, Austin, TX
(Acceptance rate (57.1%): 12 out of 21 submissions)
- [WiSec]. Aisha Ali-Gombe, Golden G. Richard III, **Irfan Ahmed**, Vassil Roussev, “Don't Touch that Column: Portable, Fine-Grained Access Control for Android's Native Content Providers”, In the 9th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec'16), July 2016, Darmstadt, Germany.
(Acceptance rate (26%): 13 out of 51 submissions)
- [IFIP DF]. Vassil Roussev, Andres Barreto, **Irfan Ahmed**, “Forensic Acquisition of Cloud Drives”, In the 12th IFIP WG 11.9 International Conference on Digital Forensics, Jan 2016, New Delhi, India
- [ACSAC PPREW]. Aisha Ali-Gombe, **Irfan Ahmed**, Golden G. Richard III, Vassil Roussev, “OpSeq: Android Malware Fingerprinting”, In the 5th Program Protection and Reverse Engineering Workshop (PPREW'15), In conjunction with 31st Annual Computer Security Applications Conference (ACSAC'15), December 2015, Los Angeles, CA, USA.
- [CODASPY]. **Irfan Ahmed**, Vassil Roussev, Aisha Ali Gombe, ”Robust Fingerprinting for Relocatable Code”, In the 5th ACM Conference on Data and Application Security and Privacy (CODASPY'15), March 2015, San Antonio, TX, USA.
(Acceptance rate (21%): 19 out of 91 submissions)
- [DFRWS]. Vassil Roussev, **Irfan Ahmed**, Thomas Sires, “Image-Based Kernel Fingerprinting”, In the 14th Annual Digital Forensics Research Conference (DFRWS'14), August 2014, Denver CO, USA.
(Acceptance rate (29%): 15 out of 52 submissions)
- [ISC]. **Irfan Ahmed**, Golden G. Richard III, Aleksandar Zoranic, Vassil Roussev, “Integrity Checking of Function Pointers in Kernel Pools via Virtual Machine Introspection”, In the 16th Information Security Conference (ISC'13), November 2013, Dallas, Texas, USA.
(Acceptance rate (23%): 16 out of 70 submissions)
(Best Paper Award)
- [IFIP DF]. **Irfan Ahmed**, Aleksandar Zoranic, Salman Javaid, Golden G. Richard III, Vassil Roussev “Rule-based Integrity Checking of Interrupt Descriptor Table in Cloud Environments”, In the 9th IFIP WG 11.9 International Conference on Digital Forensics, January 2013, Orlando, Florida.
- [ACSAC LAW]. Salman Javaid, Aleksandar Zoranic, **Irfan Ahmed**, Golden G. Richard III, “Atomizer: Fast, Scalable and Lightweight Heap Analyzer for Virtual Machines in a Cloud Environment”, In the 6th Layered Assurance Workshop (LAW'12), In conjunction with 28th Annual Computer Security Applications Conference (ACSAC'12), December 2012, Orlando, Florida, USA.
- [IEEE Computer]. **Irfan Ahmed**, Sebastian Obermeier, Martin Naedele, Golden G. Richard III, “SCADA Systems: Challenges for Forensic Investigators”, In IEEE Computer, Vol. 45, No. 12, December 2012.
(Impact Factor: 1.75 in 2017)
- [ICPP CloudSec]. **Irfan Ahmed**, Aleksandar Zoranic, Salman Javaid, Golden G. Richard III, “ModChecker: Kernel Module Integrity Checking in the Cloud Environment”, In the 4th International Workshop on Security in Cloud Computing (CloudSec'12), In conjunction with 41st International Conference on Parallel Processing (ICPP'12), Sept 2012, Pittsburgh, Pennsylvania.

- [Springer IJIS]. **Irfan Ahmed**, Martin Naedele, Bradley Schatz, Ryoichi Sasaki, Andrew West, “SCADA System Security”, In International Journal of Information Security, Springer, Vol. 11, No. 4, August 2012. (*Editorial*)
(Impact Factor: 1.91 in 2016)
- [Springer JCV]. **Irfan Ahmed**, Kyung-suk Lhee, “Classification of Packet Contents for Malware Detection”, In Journal of Computer Virology and Hacking Techniques, Springer, Vol. 7, No. 4, pp. 279-295, October 2011.
- [NSS]. Eesa Al Soalmi, Colin Boyd, Andrew Clark and **Irfan Ahmed**, “User-Representative Feature Selection for Keystroke Dynamics” In the 5th IEEE International Conference on Network and System Security (NSS’ 11), pp. 229-233, September 2011, Milan, Italy.
(Acceptance rate (44%): 56 out of 127 submissions)
- [ICRC]. Nishchal Kush, Ernest Foo, Ejaz Ahmed, **Irfan Ahmed**, Andrew Clark, “Gap Analysis of Intrusion Detection in Smart Grids”, In International Cyber Resilience Conference, pp. 38-46, August 2011, Perth, Australia.
(*Best Paper Award*)
- [IFIP DF]. **Irfan Ahmed**, Kyung-suk Lhee, Hyunjung Shin, and ManPyo Hong, “Fast Content-based File-type Identification”, In the 7th IFIP WG 11.9 International Conference on Digital Forensics, pp. 65-75, February 2011, Orlando, Florida, USA.
- [IETE TR]. **Irfan Ahmed**, Kyung-suk Lhee, Hyunjung Shin, and ManPyo Hong, “Content-based File-type Identification using Cosine Similarity and a Divide-and-Conquer approach”, In IETE Technical Review, Vol. 27, No. 6, pp. 465-477, Nov 2010.
(Impact Factor: 1.33 in 2017)
- [SAC]. **Irfan Ahmed**, Kyung-suk Lhee, Hyunjung Shin, and ManPyo Hong, “Fast File-type Identification”, In the 25th Annual ACM Symposium on Applied Computing, (SAC’10), ACM Special Interest Group on Applied Computing (SIGAPP), March 2010, Sierre, Switzerland.
- [ACISP]. **Irfan Ahmed**, Kyung-suk Lhee, Hyunjung Shin, and ManPyo Hong, “On Improving the Accuracy and Performance of Content-based File-type Identification”, In the 14th Australasian conference on information security and privacy (ACISP’09), Lecture notes in computer science (LNCS), pp. 44-59, July 2009, Brisbane, Australia.
(Acceptance rate (28%): 30 out of 106 submissions)
- [ARES]. **Irfan Ahmed**, Kyung-suk Lhee, “Detection of Malcodes by Packet Classification”, In the International Workshop on Privacy and Security by means of Artificial Intelligence (PSAI’08), In conjunction with the 3rd IEEE International Conference on Availability Reliability and Security (ARES’08), March 2008, Barcelona, Spain.
- [IAS]. **Irfan Ahmed**, Usman Tariq, Shoaib Mukhtar, Kyung-suk Lhee, Seung-Wha Yoo, Piao Yanji and Manpyo Hong, “Binding Update Authentication Scheme for Mobile IPv6”, In the 3rd IEEE International Symposium on Information Assurance and Security (IAS’07), pp. 109-114, August 2007, Manchester, United Kingdom.
(Acceptance rate (42.5%): 60 out of 141 submissions)

PEER-REVIEWED PRESENTATIONS, DEMOS, AND POSTERS

- [HoTSoS]. Adeen Ayub, Hyunguk Yoo, **Irfan Ahmed**, “Empirical Study of PLC Authentication Protocols in Industrial Control Systems”, In the 9th Annual Hot Topics in the Science of Security (HoTSoS) Symposium, April 2022. (*Held Virtually*)
- [CODASPY]. Ramyapandian Vijayakanthan, **Irfan Ahmed**, Aisha Ali-Gombe, “Transforming Memory Image to Sound Wave Signals for an Effective IoT Fingerprinting”, In 12th ACM Conference on Data and Application Security and Privacy (CODASPY’22), Baltimore-Washington DC Area, April 2022. (*Poster*)

- [WiCyS]. Adeen Ayub, Hyunguk Yoo, **Irfan Ahmed**, “ROP on PLCs”, In the 9th Annual Women in Cybersecurity (WiCyS) Conference, Cleveland, OH, March 2022.
- [WiCyS]. Ramyapandian Vijayakanthan, **Irfan Ahmed**, Aisha Ali-Gombe, “Comparative Analysis on IoT Memory Images Generated using Hardware and Software Acquisition”, In the 9th Annual Women in Cybersecurity (WiCyS) Conference, Cleveland, OH, March 2022.
- [AAFS]. Syed Ali Qasim, **Irfan Ahmed**, “A Case Study of Virtual Programmable Logic Controllers (PLC) Forensic Framework on Investigating Control Logic Attacks in a Belt Conveyor System”, In the 74th Annual Meeting of the American Academy of Forensic Sciences, February 2022, Seattle, Washington. (*Extended Abstract*)
- [AAFS]. Muhammad Haris Rais, **Irfan Ahmed**, “A Forensic Readiness Model for the Fused Filament Fabrication (FFF)-Based Additive Manufacturing (AM) Process”, In the 74th Annual Meeting of the American Academy of Forensic Sciences, February 2022, Seattle, Washington. (*Extended Abstract*)
- [AAFS]. Muhammad Haris Rais, **Irfan Ahmed**, “Memory Forensic Analysis for Programmable Logic Controllers (PLCs)”, In the 74th Annual Meeting of the American Academy of Forensic Sciences, Seattle, Washington, February 2022. (*Poster*)
- [WiCyS]. Adeen Ayub, **Irfan Ahmed**, Hyunguk Yoo, “Empirical Analysis of PLC Authentication Protocols in Industrial Control Systems”, In the 8th Annual Women in Cybersecurity (WiCyS) Conference, Denver, CO, September 2021. (*Best Poster Award*)
- [WiCyS]. Nixy Camacho, Adeen Ayub, **Irfan Ahmed**, Hyunguk Yoo, “Automating Binary Analysis of PLCs”, In the 8th Annual Women in Cybersecurity (WiCyS) Conference, Denver, CO, September 2021. (*Poster*)
- [ACNS CIMSS]. Syed Ali Qasim, **Irfan Ahmed**, “Virtual PLC-assisted Forensic Analysis of Control Logic Injection Attacks”, In the 1st International Workshop on Critical Infrastructure and Manufacturing System Security (CIMSS) in conjunction with the 19th International Conference on Applied Cryptography and Network Security, Kamakura, Japan, June 2021. (*Demo*)
- [ACNS CIMSS]. Muhammad Haris Rais, Ye Li, **Irfan Ahmed**, “On Detecting Sabotage Attacks on 3D Printing Process”, In the 1st International Workshop on Critical Infrastructure and Manufacturing System Security (CIMSS) in conjunction with the 19th International Conference on Applied Cryptography and Network Security, Kamakura, Japan, June 2021. (*Demo*)
- [DHS ICSJWG]. **Irfan Ahmed**, “Control-logic Forensics of Denial of Engineering Operations (DEO) Attacks”, In Industrial Control Systems Joint Working Group (ICSJWG) meeting organized by DHS Cybersecurity and Infrastructure Security Agency (CISA), April 2021. (*Presentation*)
- [DHS ICSJWG]. **Irfan Ahmed**, “Control Logic Attacks and Mitigation: A Case Study of Modicon M221 Programmable Logic Controller”, In Industrial Control Systems Joint Working Group (ICSJWG) meeting organized by DHS Cybersecurity and Infrastructure Security Agency (CISA), Sept 2020. (*Presentation*)
- [DFRWS]. Muhammad Haris Rais, Ye Li, **Irfan Ahmed**, “Forensic Readiness Framework for 3D printing process: A case study of Ultimaker 3”, In the 20th Annual Digital Forensics Research Conference (DFRWS’20), July 2020, Memphis, TN. (*Presentation*)
- [ICPS]. Carl Weems, Golden Richard III, **Irfan Ahmed**, Justin Russell, Erin Neill, Marsee Monica, “Susceptibility and Resilience to Cyber Threat: Findings from a Scenario Decision Program to Measure Secure and Insecure Computing Behavior”, In International Convention of Psychological Science (ICPS), March 2019, Paris, France. (*Poster*)
- [AAFS]. **Irfan Ahmed**, “A Ladder Logic Decompiler for Supervisory Control and Data Acquisition (SCADA) Network Forensics”, In the 71st Annual Meeting of the American Academy of Forensic Sciences, February 2019, Baltimore, MD, USA. (*Extended Abstract*)

- [AAFS]. **Irfan Ahmed**, “Supervisory Control and Data Acquisition (SCADA) Forensics: Network Traffic Analysis for Extracting a Programmable Logic Controller (PLC) System and Programming Logic Files”, In the 69th Annual Meeting of the American Academy of Forensic Sciences, February 2017, New Orleans, USA. (*Extended Abstract*)
- [CODASPY]. Aisha Ibrahim Ali-Gombe, **Irfan Ahmed**, Golden G. Richard III, Vassil Roussev, “AspectDroid: Android App Analysis System”, In 6th ACM Conference on Data and Application Security and Privacy (CODASPY’16), March 2016, New Orleans, LA, USA. (*Poster*)
(Outstanding Poster Award)
- [CODASPY]. Anjila Tamrakar, Justin D. Russell, **Irfan Ahmed**, Golden G. Richard III, Carl F. Weems, “SPICE: A Software Tool for Bridging the Gap Between End-user’s Insecure Cyber Behavior and Personality Traits”, In 6th ACM Conference on Data and Application Security and Privacy (CODASPY’16), March 2016, New Orleans, LA, USA. (*Poster*)
- [AAFS]. **Irfan Ahmed**, Vassil Roussev, Aisha Ali Gombe, ”Memory Forensics: Reliable In-Memory Code Identification Using Relocatable Pointers”, In the 67th Annual Meeting of the American Academy of Forensic Sciences, February 2015, Orlando, FL, USA. (*Extended Abstract*)
- [AAFS]. **Irfan Ahmed**, Golden G. Richard III, “Kernel Pool Monitoring to Support Malware Forensics in a Cloud Computing Environment”, In the 66th Annual Meeting of the American Academy of Forensic Sciences, February 2014, Washington, USA. (*Extended Abstract*)
- [AAFS]. Golden G. Richard III, **Irfan Ahmed**, “Compressed RAM and Live Forensics”, In the 66th Annual Meeting of the American Academy of Forensic Sciences, February 2014, Washington, USA. (*Extended Abstract*)
- [ACSAC]. **Irfan Ahmed**, Aleksandar Zoranic, “HookLocator: Function Pointer Integrity Checking in Kernel Pools via Virtual Machine Introspection”, In 29th Annual Computer Security Applications Conference (ACSAC’13), December 2013, New Orleans, LA, USA. (*Poster*)
- [ACSAC]. Aisha Ali-Gombe, **Irfan Ahmed**, Golden G. Richard III, “DROIDHOOK: Android MalApp Detection Through Context”, In 29th Annual Computer Security Applications Conference (ACSAC’13), December 2013, New Orleans, LA, USA. - (*Presentation*)
- [AAFS]. **Irfan Ahmed**, Golden G. Richard III, “Live Forensic Analysis of Kernel Code for Malware Detection in Cloud Computing Environments”, In the 65th Annual Meeting of the American Academy of Forensic Sciences, February 2013, Washington, USA. (*Extended Abstract*)
(Outstanding Research Award)

TECHNICAL WORKSHOPS

- [DFRWS EU]. “Network Forensics of Industrial Control Systems”, In the 9th Annual Digital Forensics Research Conference Europe (DFRWS EU’22), March 2022, Oxford, United Kingdom.
(*Duration: 2 hours*)

SOFTWARE/HARDWARE VULNERABILITY DISCLOSURE

- CVE-2021-32980, Automation Direct CLICK PLC,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-166-02>
- CVE-2021-32984, Automation Direct CLICK PLC,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-166-02>
- CVE-2021-32986, Automation Direct CLICK PLC,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-166-02>
- CVE-2021-32982, Automation Direct CLICK PLC,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-166-02>

- CVE-2021-32978, Automation Direct CLICK PLC,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-166-02>
- CVE-2021-32926, Rockwell Automation Micro800 and MicroLogix 1400 PLCs,
<https://us-cert.cisa.gov/ics/advisories/icsa-21-145-02>
- CVE-2020-15791, Siemens S7-300 and S7-400 PLCs,
<https://cert-portal.siemens.com/productcert/pdf/ssa-381684.pdf>
- CVE-2018-7790, Schneider Electric Modicon M221 PLC,
<https://ics-cert.us-cert.gov/advisories/ICSA-18-240-01>
- CVE-2018-7791, Schneider Electric Modicon M221 PLC,
<https://ics-cert.us-cert.gov/advisories/ICSA-18-240-01>
- CVE-2018-7792, Schneider Electric Modicon M221 PLC,
<https://ics-cert.us-cert.gov/advisories/ICSA-18-240-01>

THESIS/RESEARCH ADVISOR

Postdocs/Visiting Scholars:

- Wooyeon Jo Aug 2022 - Present
PhD from Ajou University, South Korea
- Hyunguk Yoo Aug 2017 - July 2018
PhD from Ajou University, South Korea
First employment: Assistant Professor at University of New Orleans

PhD Students:

- Ashwini Vasudev Aug 2022 - to-date
- Nehal Ameen Aug 2022 - to-date
- Muhammad Ahsan Aug 2021 - to-date
- Adeen Ayub Jan 2020 - to-date
Awards: 1) Best Paper Award at DFRWS'22, 2) Best Poster Award at WiCyS'21, and 3) Outstanding Early Career Student Researcher Award from the Department of Computer Science at VCU
- Muhammad Haris Rais Jan 2019 - to-date
Awards: 1) Best Student Paper Award at DFRWS'22, and 2) Winner of 3MT competition at VCU College of Engineering
- Syed Ali Qasim Aug 2017 - to-date
Awards: Best Student Paper Award at DFRWS'20
- Aisha Ibrahim Ali-Gombe August 2013 - May 2017
Thesis Title: Malware Analysis and Privacy Policy Enforcement Techniques for Android Applications
Co-supervised by: Dr. Golden G. Richard III
Awards: Outstanding Poster Award at CODASPY'16
First employment: Assistant Professor at Towson University, MD
- Eesa Alsolami Mar 2011-Aug 2012
Thesis Title: Continuous Biometric Authentication: Keystroke Dynamics
Co-supervised by: Dr. Colin Boyd
First employment: Assistant Professor at University of Jeddah, Saudi Arabia

Master Students:

- Pranita Deshpande May 2017 - Aug 2018
Assessment of Two Pedagogical Tools for Cybersecurity Education
Publications: ACM SIGCSE'19 (a), and ACM SIGCSE'19 (b)

- Sharon Elizabeth Blake Aug 2016 - July 2018
MAnanA: A Heuristic Scoring Framework for Concept Map Analysis in Cybersecurity Education
- Sushma Kalle Aug 2017 - July 2018
Semantic-aware Stealthy Control Logic Infection Attack
Publications: NDSS BAR'19, and DIMVA'19
- Jonathan Grimm Sept 2015 - Aug 2017
Automatic Mitigation of Kernel Rootkits in Cloud Environments
Publications: WISA'18
- Saranyan Senthivel June 2016 - July 2017
Automatic Forensic Analysis of PCCC Network Traffic Log
Publications: ACSAC ICSS'16, DFRWS'17, and CODASPY'18
- William Eldon Johnson July 2015 - May 2017
Development of Peer Instruction Material for a Cybersecurity Curriculum
Publications: ACSAC ICSS'16, USENIX ASE'16, and USENIX ASE'17
- Anjila Tamrakar June 2014 - April 2016
SPICE: A Software Tool for Studying End-user's Insecure Cyber Behavior and Personality-traits
Publications: CODASPY'18
- Dalbir Kaur Chhabra Jan 2014 - Aug 2014
Feature selection and clustering for malicious and benign software characterization

Undergraduate Students:

- Vishaal Mehta March 2022 - To-Date
- Joseph Dinsmoor June 2021 - To-Date
- Nixy Camacho Oct 2020 - Aug 2021
- Max Safo Feb 2021 - Aug 2021
- Masrik Dahir June 2020 - May 2021
Publications: IEEE Access Journal 2021
- Francisco Perez Feb 2021 - May 2021
- Amrita Harshini Kondeti June 2020 - Aug 2020
- Byron Stearns Feb 2020 - Aug 2020
- Jose Rene Berlioz Rivera Aug 2017 - May 2018
- Shrey Dhungana May 2017 - May 2018
Publications: ACM CODASPY'18
- Nabeel Gulzar Rana Aug 2017 - July 2018
- Manish Bhatt Dec 2016 - May 2017
Publications: WISA'17
- Banan Ibrahim Oct 2016 - Jun 2017
- Phillip Bradley Reason Feb 2016 - Jul 2016
- Philip Schwartz May 2014 - Aug 2014

High School Students:

- Arjun Majety Jan 2022 - to-date
- Chythra Malapati Jan 2022 - to-date
- Bradley King July 2020 - June 2021

Other Graduate Research Assistants:

- Manish Bhatt May 2017 - Jul 2018
Publications: SIGCSE'18, and DFRWS'18
- Nehal Ameen January 2018 - Aug 2018
Publications: NDSS BAR'19
- Sneha Sudhakaran June 2016 - Aug 2017
Publications: ACSAC ICSS'16, and IEEE S&P'17
- Allison Luzader June 2015 - Dec 2015
Publications: USENIX ASE'16
- Nishchal Kush Mar 2011-Sept 2011
Publications: ICRC'11

THESIS COMMITTEE MEMBER

PhD Students:

- Ramyapandian Vijayakanthan Current
Towson University, MD
- Douglas Krug Current
Code Beats - Teaching Computer Programming Coding via Hip Hop Beats
Virginia Commonwealth University, VA
- Santosh Kumar Nukavarapu May 2022
AI-assisted Tools for the Security and Privacy of Edge Devices
Virginia Commonwealth University, VA
- Joseph T. Sylve May 2017
Towards Real-Time Volatile Memory Forensics: Frameworks, Methods, and Analysis
University of New Orleans, LA

Master Students:

- Shane McCulley May 2017
Forensic Analysis of G-Suite Collaborative Services
University of New Orleans, LA
- Vivek Oliparambil Shanmughan May 2017
Lightweight Environment for Cyber Security Education
University of New Orleans, LA
- Andrew Case June 2016
Detecting Objective-C Malware through Memory Forensics
University of New Orleans, LA
- Elyse Bond June 2015
Creating Volatility Support for FreeBSD
University of New Orleans, LA
- Andres E. Barreto June 2015
API-Based Acquisition of Evidence from Cloud Storage Providers
University of New Orleans, LA
- Robert Strickland June 2015
GPU Keystroke Logging and Detection on Microsoft Windows with Kernel Mode Drivers
University of New Orleans, LA
- Salman Javaid Aug 2014
Analysis and Detection of Heap-base Malware Using Introspection in a Virtualized Environment
University of New Orleans, LA

- Christopher Stelly Nov 2013
Dynamic User Defined Permissions for Android Devices
University of New Orleans, LA
- Deekshit Kura Nov 2013
Categorization of Large Corpora of Malicious Software
University of New Orleans, LA

ACADEMIC SERVICES

Funding Proposal Peer-reviewer

- The US Department of Defense (DoD) SMART (Science, Mathematics, and Research for Transformation) Scholarship for Service Program - 2022
- UTSA Limited Submission for NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) - 2021
- National Science Foundation (NSF) CyberTraining – 2021 (small), 2022 (medium)
- National Nuclear Security Administration (NNSA) - Minority Serving Institution Partnership Program (MSIPP), 2020, 2021, 2022
- ORAU Ralph E. Powe Junior Faculty Award, 2020
- Department of Homeland Security (DHS) - Office of University Programs for Criminal Investigations and Network Analysis (CINA) - Biennial Review, 2019
- DHS Office of University Programs for Terrorism Prevention and Counterterrorism Research (TPCR) Center of Excellence (COE), 2019
- University of Texas at San Antonio (UTSA) Limited Submission for Department of Defense’s Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) Science Program for basic research, 2019
- Florida Center for Cybersecurity - Collaborative Seed Awards and Capacity Building Awards, 2018, 2019, 2020
- UTSA Limited Submission for the NSF Major Research Instrumentation (MRI), 2018
- UTSA Limited Submission for Johnson & Johnson Scholars Program, 2018
- DHS Scientific Leadership Awards at Minority Serving Institutions, 2016
- VCU Breakthroughs Funding Program, 2022

Keynote Speaker, Panel Moderator and Panelist

- **Keynote Speaker**, “Searching for digital evidence in SCADA systems”, In the 18th Annual IFIP WG 11.9 International Conference on Digital Forensics, January 2022 (*virtual*)
- **Moderator**, a panel on “Industrial Cybersecurity Education”, In the 7th Industrial Control System Security (ICSS) Workshop, In conjunction with Annual Computer Security Applications Conference (ACSAC), Dec 2021
- **Panelist**, “Infrastructure Cybersecurity: Industry, Government, and Academia Viewpoints”, University of New Orleans Engineering Forum, and Southeast Symposium on Contemporary Engineering Topics (SSCET), New Orleans LA, Sept 2017.
- **Moderator**, a panel on “SCADA System Security: Challenges and Future Directions”, Annual Computer Security Applications Conference (ACSAC), New Orleans LA, Dec 2014

General Chair/Program Chair/Track Chair of Conference/Workshop

- **Program Co-Chair**, *Digital Forensics Research Conference USA (DFRWS USA)*
– 23rd annual conference on July, 2023
<https://dfrws.org/conferences/dfrws-usa-2023>
- **Program Chair**, *Industrial Control System Security (ICSS) Workshop*, In conjunction with Annual Computer Security Applications Conference (ACSAC)

- 8th workshop on December, 2022 at Austin, TX
<https://www.acsac.org/2022/workshops/icss/>
- 7th workshop on December, 2021 (virtual)
<https://www.acsac.org/2021/workshops/icss/>
- 6th workshop on December, 2020 at Austin, TX
<https://www.acsac.org/2020/workshops/icss/>
- 5th workshop on December, 2019 at San Juan, Puerto Rico, USA
<https://www.acsac.org/2019/workshops/icss/>
- 4st workshop on December, 2018 at San Juan, Puerto Rico, USA
<https://www.acsac.org/2018/workshops/icss/>
- 3rd workshop on December, 2017 at Orlando, FL
<https://www.acsac.org/2017/workshops/icss/>
- 2nd workshop on December, 2016 at Los Angeles, California
<http://acsac.org/2016/workshops/icss/>
- 1st workshop on December, 2015 at Los Angeles, California
<http://acsac.org/2015/workshops/icss/>
- **General Co-chair**, 10th *EAI International Conference on Digital Forensics & Cyber Crime (ICDF2C)*, September 2018, New Orleans, USA
<http://d-forensics.org/>
- **Program Chair**, *Malware Memory Forensics Workshop (MMF)*, In conjunction with 30th Annual Computer Security Applications Conference (ACSAC'14), December 2014, New Orleans, LA, USA.
<https://www.acsac.org/2014/workshops/mmf/>
- **Track Chair**, *Intrusion Detection and Forensics Track*
IEEE World Congress on Information and Communication Technologies (WICT 2011), 11-14 December 2011, Mumbai, India
<http://www.mirlabs.net/wict11/>

Technical Program Committee Member

- American Academy of Forensic Sciences (AAFS) - 2023
- International Workshop on Additive Manufacturing Security (AMSec), in conjunction with ACM CCS - 2022
- IEEE International Conference on Machine Learning and Applications (ICMLA), 2021, 2022
- ACM Conference on Data and Application Security and Privacy (CODASPY) – 2019, 2020, 2021
- IFIP Working Group 11.10 International Conference on Critical Infrastructure Protection (ICCIP) - 2021, 2022
- Digital Forensics Research Conference (DFRWS USA) – 2015, 2016, 2020, 2021, 2022, 2023
- Digital Forensics Research Conference (DFRWS Europe) – 2021, 2022, 2023
- International Workshop on Critical Infrastructure and Manufacturing System Security (CIMSS), in conjunction with ACNS – 2021, 2022
- IEEE International Conference on Big Data (IEEE BigData) – 2019, 2020, 2021, 2022
- ACM Technical Symposium on Computer Science Education (SIGCSE) – 2017, 2018, 2019, 2020, 2021, 2022
- Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE) – 2020, 2021, 2022
- International Conference on Smart City and Informatization (iSCI) – 2019, 2020
- International Conference on Internet Monitoring and Protection (ICIMP) – 2018, 2019
- International Conference on Digital Forensics & Cyber Crime (ICDF2C) – 2013, 2014, 2015, 2016, 2017, 2018
- International Conference on High Performance Computing and Communications (HPCC) – 2014
- International Conference on Emerging Technologies (ICET) – 2012, 2013, 2017

- Annual Cyber and Information Security Research Conference (CISRC), held at Oak Ridge National Laboratory – 2018
- International Workshop on Cyber-Physical Systems (IWCPS), held with IEEE TrustCom – 2018
- International Conference on Cyber-Technologies and Cyber-Systems (CYBER) – 2018
- The Northwest Cybersecurity Symposium at Pacific Northwest National Laboratory (Cybersec) – 2020
- IEEE Top Picks Workshop in Hardware and Embedded Security, Co-located with the International Conference On Computer Aided Design (ICCAD) – 2021
- Cloud S&P in conjunction with ACNS – 2022
- IARIA International Conference on Data Analytics – 2022

External Cybersecurity Curriculum Reviewer

- Consultant on developing a process for reviewing the relevancy of the curriculum materials in the CLARK library, <https://clark.center>, 2021
- Chair, External Curriculum Reviewer Team, Master of Science (MS) in Cybersecurity Engineering, University of New Hampshire, 2019
- External Reviewer, NSA National Cybersecurity Curriculum (NCCP) Program - Two courses on the Cybersecurity of Industrial Control Systems, 2018

Tenure and Promotion (T&P) Case Evaluator

- Department of Computer & Electrical Engineering and Computer Science at the Florida Atlantic University, 2021

PhD/Master Thesis - External Examiner/Reviewer

- [PhD Thesis] *Shahab Tahzeeb*, “Machine Learning Techniques for Analysis of Protein Sequences”, NED University of Engineering & Technology, Pakistan, 2022
- [PhD Thesis] *Sana Shokat*, “An Analysis Of Braille On Accessible Touch Screen Using Deep Learning Methods”, Department of CS & IT, University of Azad Jammu and Kashmir, Pakistan, 2021
- [PhD Thesis] *Zareen Abbas*, “Incorporating Memristors for Efficient Processor Design”, NED University of Engineering & Technology, Pakistan, 2021
- [PhD Thesis] *Nazim Uddin Sheikh*, “Quantifying Privacy Threats in Aggregated Energy Data Analytics”, Macquarie University, Australia, 2021
- [PhD Thesis] *Beenish Ayesha Akram*, “Context Aware Services Portal for the Global Access of Sensing-Based Applications in Cellular Networks and Internet”, Department of Computer Science and Engineering, University of Engineering and Technology, Lahore Pakistan, 2019
- [PhD Thesis] *Nicholas R. Rodofile*, “Generating Attacks and Labelling Attack Datasets for Industrial Control Intrusion Detection Systems”, Queensland University of Technology, Brisbane, Australia, 2018
- [PhD Thesis] *Abdur Rehman*, “Development of Feature Extraction Algorithms for Classification of Text Documents”, Department of Computer Science and Engineering, University of Engineering and Technology, Lahore Pakistan, 2016

Editorial Work

- **Distinguished Editorial Board Member**, In International Journal of Cyber Forensics and Advanced Threat Investigations (CFATI) (2021 - To-date)
<https://conceptechint.net/index.php/CFATI/index>
- **Review Editor**, *Cybersecurity and Privacy Section*, In Frontiers in Big Data (2018 - To-date)
<https://www.frontiersin.org/journals/big-data#>
- **Guest Editor**, *Special Issue on Advances in Pervasive Computing and Communication Technologies*, In Computers, Materials & Continua (CMC), Tech Science Press, 2022
- **Guest Editor**, *Special Issue on Pervasive Computing and Communication: Challenges, Technologies & Opportunities*, In Computers, Materials & Continua (CMC), Tech Science Press, 2021

- **Guest Editor**, *Special Issue on SCADA and Control System Security*, In International Journal of Information Security (IJIS), Springer, Vol. 11, No. 4, August 2012
- **Guest Editor**, *Special Issue on Applications of Machine Learning Techniques on Intrusion Detection and Digital Forensics*, In Security and Communication Networks Journal, Wiley, May 2011
<http://onlinelibrary.wiley.com/doi/10.1002/sec.344/full>

Journal Reviewer

- IEEE Transactions on Dependable and Secure Computing
<https://www.computer.org/csdl/journal/tq>
- IEEE Security & Privacy www.computer.org/security-and-privacy
- IEEE Computer www.computer.org/computer
- IEEE Transactions on Computers <http://www.computer.org/web/tc>
- IEEE Transactions on Education
<https://ieeexplore.ieee.org/xpl/aboutJournal.jsp?punumber=13>
- IEEE Transactions on Cloud Computing <https://www.computer.org/web/tcc>
- IEEE Transactions on Engineering Management
<https://www.ieee-tems.org/ieee-transactions-on-engineering-management/>
- IEEE Embedded Systems Letters,
<https://iee-ceda.org/publication/ieee-embedded-systems-letters-esl>
- ACM Transactions on Cyber-Physical Systems <http://tcps.acm.org>
- ACM Transactions on Privacy and Security <https://tops.acm.org/>
- Computers & Security, Elsevier www.journals.elsevier.com/computers-and-security
- IEEE Access <http://ieeaccess.ieee.org>
- Future Internet, MDPI <https://www.mdpi.com/journal/futureinternet>
- Journal of Forensic and Legal Medicine, Elsevier
<https://www.journals.elsevier.com/journal-of-forensic-and-legal-medicine>
- Journal of Network and Computer Application, Elsevier
<http://www.journals.elsevier.com/journal-of-network-and-computer-applications/>
- Frontiers of Information Technology & Electronic Engineering, Springer
<https://www.springer.com/journal/11714/>
- Crime Science, Springer <https://crimesciencejournal.springeropen.com>
- The Journal of Supercomputing, Springer <https://link.springer.com/journal/11227>
- IETE Technical Review Journal <http://tr.ietejournals.org>
- International Journal of Network Security <http://ijns.femto.com.tw>
- Journal of Applied Mathematics, Hindawi <http://www.hindawi.com/journals/jam/>
- MDPI Future Internet <http://www.mdpi.com/journal/futureinternet>
- Journal of Defense Modeling and Simulation, SAGE Publications,
<https://journals.sagepub.com/home/dms>
- Security and Communication Networks, Wiley
[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1939-0122](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1939-0122)
- Engineering Reports, Wiley <https://onlinelibrary.wiley.com/journal/25778196>
- Computer Communications, Elsevier
<https://www.journals.elsevier.com/computer-communications>

Book Proposal Reviewer

- Cybersecurity and Digital Forensics for the (Criminal Justice and other) Nontechnical Major(s), Jones & Bartlett Learning, 2019.
- Cyber Security And Applications, CRC Press, 2020

Invited Talks

- [ICOSST]. “Digital Forensics of Industrial Control Systems”, In 15th IEEE International Conference on Open Source Systems And Technologies (ICOSST 2021), December 2021

- [ARPCON]. “Using RAM as a Playground to Explore OS Kernel-level Attacks”, In ARPCON, October 2020
- [RAEE & CS]. “A Tale of a New PLC in Town: Exploitation and Mitigation of Modicon M221 Programmable Logic Controller, In International Symposium on Recent Advances in Electrical Engineering and Computer Sciences, Islamabad, Pakistan October 2020
- [ACSAC ICSS]. “Control Logic Injection Attacks and Defenses”, In 5th Annual Industrial Control System Security Workshop (ICSS’19), In conjunction with 35th Annual Computer Security Applications Conference (ACSAC’19), December 2019, San Juan, Puerto Rico.
- [UET Lahore]. “Research Topics in Cybersecurity”, University of Engineering and Technology, Lahore, <https://uet.edu.pk/>, Jan 2020, Lahore, Pakistan. (*Duration: 90 minutes*)
- [PIEAS]. “Research Topics in Cybersecurity”, Pakistan Institute of Engineering and Applied Sciences (PIEAS), <http://www.pieas.edu.pk/>, Jan 2020, Islamabad, Pakistan. (*Duration: 90 minutes*)
- [NEDUET]. “Research Topics in Cybersecurity”, NED University of Engineering and Technology, <https://www.neduet.edu.pk/>, Dec 2019, Karachi, Pakistan. (*Duration: 90 minutes*)
- [ACSAC ICSS]. “Programmable Logic Controller Forensics”, In 3rd Annual Industrial Control System Security Workshop (ICSS’17), In conjunction with 33rd Annual Computer Security Applications Conference (ACSAC’17), December 2017, Orlando, FL USA.
- [Sacred Heart University]. “Modern Critical Infrastructure at the Risk of Cyberattacks”, Sacred Heart University, <http://www.sacredheart.edu>, Oct 2017, Fairfield, CT, USA. (*Duration: 90 minutes*)
- [NOLASec]. “An Industrial Control System Testbed for Cybersecurity and Forensic Research and Pedagogy”, NOLASec computer security group, <https://sites.google.com/site/nolasecurity>, Aug 2017, New Orleans, LA, USA. (*Duration: 60 minutes*)
- [NSRI]. “Digital Forensics of Industrial Control System: An Academia Viewpoint”, National Security Research Institute (NSRI), http://www.nst.re.kr/nst_en/member/03_12.jsp, August 2017, Yuseong-gu, Daejeon, South Korea. (*Duration: 2 hours*)
- [Soonchunhyang University]. “Digital Forensics of Industrial Control System: An Academia Viewpoint”, Soonchunhyang University, <http://sgee.sch.ac.kr/>, August 2017, Chungcheongnam-do, South Korea. (*Duration: 60 minutes*)
- [Ajou University]. “Digital Forensics of Industrial Control System: An Academia Viewpoint”, Ajou University, <https://www.ajou.ac.kr/en/>, August 2017, Suwon, Gyeonggi-do, South Korea. (*Duration: 60 minutes*)
- [Workshop] “Supervisory Control and Data Acquisition (SCADA) System Security”, Workshop (Duration: 4 hours), Fordham University, New York, USA, Jun 2016
- [ACSAC MMF]. “Reliable In-Memory Code Identification Using Relocatable Pointers”, In Malware Memory Forensics Workshop (MMF), In conjunction with 30th Annual Computer Security Applications Conference (ACSAC’14), December 2014, New Orleans, LA, USA.
- [ACSAC NGMAD]. “Integrity Checking of Function Pointers in Kernel Pools – A Virtual Machine Introspection based Approach”, In the Next Generation Malware Attacks and Defense Workshop (NGMAD), In conjunction with 29th Annual Computer Security Applications Conference (ACSAC’13), December 2013, New Orleans, LA, USA.
- [Guest Lecture] “Network Forensics”, Guest Lecture (Duration: 1 hour), Queensland University of Technology, Brisbane, Australia, Jun 2011
- [BIDM]. “Computer Forensics with Data Mining: File-Type Identification”, In the Business Intelligence and Data Mining Conference (BIDM 2010), pp. 110-123, April, 2010, Seoul, South Korea.

University/College/Department Service

Virginia Commonwealth University:

- Faculty Advisor, VCU Cybersecurity Club, 2022 - to-date
- Search Committee Member for the Department Chair of Computer Science, 2021-2022
- Team Lead to apply for the DHS/NSA National Center for Academic Excellence in Research (CAE-R), 2020

- *Team Member* to apply for the DHS/NSA National Center for Academic Excellence in Cyber Defense (CAE-CD), 2019
- *Graduate Committee Member* to oversee master and PhD programs, 2018-to-date
- *Team Member of High School Programming Contest* to organize the VCU annual programming contest, 2018-to-date
- *Search Committee Chair for Adjunct Faculty* to find a suitable adjunct faculty candidate for the CS department, 2021
- *Search Committee Member for Tenure-track Faculty* to find a suitable tenure-track faculty candidate for the CS department, 2019-2021
- Midterm Tenure Review Committee Member, 2022

University of New Orleans:

- *Faculty Search Committee Member* to find a suitable faculty candidate for the CS department, 1 year (2017 - 2018)
- *Departmental Seminar Coordinator* to organize departmental seminars regularly, 3 years (2014-2017)
- *Graduate Grade Appeal Committee* to resolve grading issues raised by a student, 4 years (2014-2018)
- *Undergraduate Grade Appeal Committee* to resolve grading issues raised by a student, 4 years (2014-2018)
- *Team Member* to apply for the DHS/NSA National Center for Academic Excellence in Research (CAE-R), 2013
- *Team Member* to apply for the DHS/NSA National Center for Academic Excellence in Cyber Operations (CAE-CO), 2014