

Curriculum Vitae of Irfan Ahmed

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New Orleans LA 70148

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PERSONAL

I am a Permanent Resident (Green Card Holder) of the USA.

RESEARCH INTERESTS

Digital Forensics
Industrial Control System (ICS) Security
Malware Detection and Analysis
Security via Virtualization
Cybersecurity Education

CURRENT PROFESSIONAL AFFILIATIONS

Canizaro-Livingston Endowed Assistant Professor in Cybersecurity Tenure-track Assistant Professor Department of Computer Science University of New Orleans (UNO)	August 2017 - To-date August 2013 - To-date www.cs.uno.edu
Director, Cyber-Physical Systems (CyPhy) Lab Department of Computer Science University of New Orleans	August 2015 - To-date cyphy.cs.uno.edu
Associate Director Research Affiliation Greater New Orleans Center for Information Assurance (GNOCIA) University of New Orleans	January 2017 - To-date January 2012 - To-date gnocia.cs.uno.edu
Member ACM Special Interest Group on Computer Science Education (SIGCSE)	January 2017 - To-date sigcse.org/sigcse
Associate Member American Academy of Forensic Sciences (AAFS)	April 2015 - To-date www.aafs.org

PROFESSIONAL PREPARATION

<i>Postdoctoral Research Associate (Postdoc)</i> 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
<i>Postdoctoral Research Associate (Postdoc)</i> Queensland University of Technology, Brisbane, Australia http://www.qut.edu.au	Sept 2010-Sept 2011

Project: Forensic Readiness in Control Systems: Tools and Methods
Funded by: Department of Prime Minister and Cabinet's Research Support for National Security

Doctor of Philosophy (PhD), Computer Science June 2010
Ajou University, Suwon, South Korea
<http://www.ajou.ac.kr>

Master of Science (M.S.), Computer Science April 2005
SZABIST, Karachi, Pakistan
<http://szabist.edu.pk>

Bachelor of Engineering (B.E.), Computer System Feb 2003
NED University of Engineering and Technology, Karachi, Pakistan
<http://www.neduet.edu.pk>

Oracle Certified Professional (OCP), Database Administration May 2001
<http://www.oracle.com/education/professional.html>

HONORS AND AWARDS

Canizaro-Livingston Endowed Professorship in Cybersecurity August 2017
University of New Orleans, New Orleans, LA

Early Career Research Prize December 2016
University of New Orleans, New Orleans, LA

Outstanding Poster Award March 2016
6th ACM Conference on Data and Application Security and Privacy (CODASPY'16), New Orleans, LA

Outstanding Research Award February 2014
66th Annual Meeting of the American Academy of Forensic Sciences, Washington, USA

Best Paper Award November 2013
16th Information Security Conference (ISC'13), Dallas, Texas, USA

Best Paper Award August 2011
International Cyber Resilience Conference, Perth, Australia

Korean Government Scholarship Sept 2006 - Aug 2010
Institute of Information Technology Advancement (IITA), South Korea

Ajou University Full Tuition Scholarship Sept 2006 - Aug 2008
Ajou University, South Korea

Silver Medalist 1993
23rd International Art Exhibition, Tokyo, Japan

GRANTS/CONTRACTS

(My Share: \$2,515,343, Total Funding: \$2,721,256)

Funded Grants:

NSF	DoD	ONR	LA-BoR	UNO	Others
4	7	1	4	4	3

- National Science Foundation (NSF)
- Department of Defense (DoD)
- Office of Naval Research (ONR)
- Louisiana State Board of Regents (LA-BoR)
- University of New Orleans (UNO)

*Principal Investigator (PI)

*Co-Principal Investigator (Co-PI)

Research (R)

- R-1: [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, Funding: \$15,000, Project Duration: 1 year (January 2018 - February 2019)
- R-2: [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, Funding: \$12,000, Project Duration: 1 year (July 2016 - June 2017)
- R-3: [ONR]. “Digital Forensic Toolkit for Machine Control Systems (TRACE)”, Office of Naval Research - STTR Phase 1, Role: PI (with Intelligent Automation Inc.), Funding: \$80,000 (My Share: \$24,000), Project Duration: 7 Months (2016-2017)
- R-4: [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, Funding: \$20,000, Project Duration: 8 Months (2015 - 2016)
- R-5: [DoD]. “Automatic Run-time Mitigation of Kernel Exploits in Cloud Environments”, Department of Defense (DoD), Role: PI (Co-PIs: Vassil Roussev and Golden G. Richard III), Funding: \$75,000, Project Duration: 1 year (2015 - 2016)
- R-6: [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, Funding: \$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*)
- R-7: [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), Funding: \$223,022, Project Duration: 4 years (2014 - 2018) Award No.: 1358723
- R-8: [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, Funding: \$12,000, Project Duration: 3 months (May 2014 - Aug 2014)

Education (E)

- E-9: [DoD]. “Automated Platform for Comprehensive Hands-on Cybersecurity Training”, Department of Defense, Role: Co-PI (with Vassil Roussev), Funding: \$274,370, Project Duration: 1 year (2017 - 2018)

- E-10: **[DoD]**. “Portable Hands-on Training Environment for SCADA Security”, Department of Defense, Role: PI (Co-PI: Vassil Roussev), Funding: \$280,310, Project Duration: 1 year (2017 - 2018)
- E-11: **[DoD]**. “Instructional Material for SCADA Security Course”, Department of Defense, Role: PI (Co-PI: Vassil Roussev from UNO and Sajal Bhatia from Fordham University), Funding: \$187,964, Project Duration: 1 year (2017 - 2018)
- E-12: **[DoD]**. “Concept Maps for Cybersecurity Education”, Department of Defense, Role: PI (Co-PI: Vassil Roussev), Funding: \$163,803, Project Duration: 1 year (2017 - 2018)
- E-13: **[DoD]**. “GenCyber@UNO: An Intensive Cybersecurity Bootcamp for Secondary School Teachers”, Department of Defense (DoD), Role: Co-PI (with Vassil Roussev), Funding: \$116,418, Project Duration: 1 year (2017 - 2018)
- E-14: **[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 University of Texas at Dallas), Funding: \$299,913 (UNO Share: \$150,000), Project Duration: 3 years (2016 - 2019) *Award No.: 1623276*
- E-15: **[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), Funding: \$300,000, Project Duration: 4 years (2015 - 2019) *Award No.: 1500101*
- E-16: **[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), Funding: \$299,846, Project Duration: 3 years (2014 - 2017) *Award No.: 1419358*

Equipment (Q)

- Q-17: **[BoR]**. “UNO CyberRange: An Advanced Platform for Cybersecurity Workforce Training”, LA Board of Regents (BoR) Departmental Enhancement, Role: Co-PIs (with Vassil Roussev and Minhaz Zibran), Funding: \$195,400, Project Duration: 1 year (2018 - 2019)
- Q-18: **[DoD]**. “SCADA Testbed for Security and Forensics Research”, Department of Defense (DoD) Army Research Office (ARO)- Defense University Research Instrumentation Program (DURIP), Role: PI (Co-PIs: Golden G. Richard III and Vassil Roussev), Funding: \$96,310, Project Duration: 1 year (2015 - 2016)

Travel (T)

- T-19: **[BoR]**. Travel Grants for Emerging Faculty (TGEF)”, Board of Regents - Louisiana, Funding: \$1,200, 2016
- T-20: **[BoR]**. Travel Grants for Emerging Faculty (TGEF)”, Board of Regents - Louisiana, Funding: \$1,200, 2014

Others (O)

- O-21: \$50,000 from UNO Foundation for ICS Equipment in 2016
- O-22: \$7,500 from UNO ORSP for Early Career Research Prize in December 2016
- O-23: \$10,000 from UNO CS Department for Equipment (PLC Trainers) in 2015

PEER-REVIEWED PUBLICATIONS

Journals/Book Chapters:

- J-1: [**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.
- J-2: [**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.
- J-3: [**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*)
- J-4: [**IEEE S&P**]. **Irfan Ahmed**, Sebastian Obermeier, Sneha Sudhakaran, Vassil Roussev, “Programmable Logic Controller Forensics”, IEEE Security & Privacy, Vol. 15, No. 6, November 2017. (*Impact Factor: 1.38 in 2017*)
- J-5: [**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.
- J-6: [**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*)
- J-7: [**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*)
- J-8: [**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*)
- J-9: [**Springer JCV**]. **Irfan Ahmed**, Kyung-suk Lhee, “Classification of Packet Contents for Malware Detection”, In Journal in Computer Virology, Springer, Vol. 7, No. 4, pp. 279-295, October 2011. (*Impact Factor: 0.368 in 2016*)
- J-10: [**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*)

Conferences/Workshops:

- C-11: [**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 (31.8%): 14 full-papers / 44 full-paper submissions)
- C-12: [**ACM 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, USA.
(Acceptance rate (20.9%): 23 full papers / 110 submissions)
- C-13: [**ACM 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 full papers / 459 submissions)

- C-14: [**Springer 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
- C-15: [**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
- C-16: [**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 full-papers / 41 full-paper submissions)
- C-17: [**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.
- C-18: [**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
- C-19: [**ACM 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 full-papers / 51 full-paper submissions)
- C-20: [**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, January 2016, New Delhi, India
- C-21: [**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.
- C-22: [**ACM 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 full papers / 91 submissions)
- C-23: [**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 regular papers / 52 submissions)
- C-24: [**Springer 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 regular papers / 70 submissions) (*Best Paper Award*)
- C-25: [**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.
- C-26: [**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.

- C-27: **[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.
- C-28: **[IEEE 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.
- C-29: **[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*)
- C-30: **[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.
- C-31: **[ACM 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.
- C-32: **[Springer 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 regular papers / 106 submissions)
- C-33: **[IEEE 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.
- C-34: **[IEEE 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 regular papers / 141 submissions)

Posters/Extended Abstracts/Work-in-progress Presentations:

- P-35: **[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*)
- P-36: **[ACM 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.
(*Outstanding Poster Award*)
- P-37: **[ACM 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.
- P-38: **[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*)

- P-39: [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*)
- P-40: [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*)
- P-41: [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.
- P-42: [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**)
- P-43: [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.

PhD Dissertation:

- D-44: **Irfan Ahmed**, “Fast and Accurate Content-classification Techniques for Malware Detection and File-type Identification”, Ajou University, South Korea, June 2010

INVITED TALKS

Conferences/Workshops:

- I-1: [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.
- I-2: [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.
- I-3: [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.
- I-4: [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.

Universities/Research Centers/Institutes:

- I-5: [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*)
- I-6: [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*)

I-7: [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*)

I-8: [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*)

TEACHING

University of New Orleans, New Orleans, USA

Jan 2013 - July 2018

Term	Course Number	Course Name	Student Population	Student Evaluation
Spring 2013	CSCI 4621/5621	Introduction to Computer Security	21	4.64 / 5.00
Fall 2013	CSCI 4311/5311	Computer Networks	26	4.13 / 5.00
Spring 2014	CSCI 4311/5311	Computer Networks	23	
Fall 2014	CSCI 4401/5401	Operating System	37	4.71 / 5.00
Fall 2014	CSCI 4621/5621	Introduction to Computer Security	33	4.88 / 5.00
Spring 2015	CSCI 4311/5311	Computer Networks	45	
Spring 2015	CSCI 4621/5621	Introduction to Computer Security	34	
Fall 2015	CSCI 6627	Industrial Control System Security	38	4.91 / 5.00
Fall 2015	CSCI 4621/5621	Introduction to Computer Security	26	4.95 / 5.00
Spring 2016	CSCI 6627	Industrial Control System Security	19	4.45 / 5.00
Spring 2016	CSCI 6621	Topics in Network Security and Forensics	20	4.56 / 5.00
Fall 2016	CSCI 4623/5623	Introduction to Computer Forensics	15	4.89 / 5.00
Fall 2016	CSCI 4621/5621	Introduction to Computer Security	25	4.42 / 5.00
Spring 2017	CSCI 6627	Industrial Control System Security	14	4.72 / 5.00
Spring 2017	CSCI 6621	Topics in Network Security and Forensics	10	4.71 / 5.00
Fall 2017	CSCI 4621/5621	Introduction to Computer Security	35	4.78 / 5.00
Spring 2018	CSCI 4621/5621	Introduction to Computer Security	48	4.56 / 5.00

WORKSHOP/TUTORIALS/GUEST LECTURES

W-1: “Supervisory Control and Data Acquisition (SCADA) System Security”, Workshop (Duration: 4 hours), Fordham University, New York, USA, Jun 2016

W-2: “Network Forensics”, Guest Lecture (Duration: 1 hour), Queensland University of Technology, Brisbane, Australia, Jun 2011

THESIS/RESEARCH ADVISOR

Postdocs

- Hyunguk Yoo Aug 2017 - to-date
PhD from Ajou University, South Korea

PhD Students:

- Syed Ali Qasim Aug 2017 - to-date
- Manish Bhatt June 2017 - to-date

- Aisha Ibrahim Ali-Gombe August 2013 - May 2017
Malware Analysis and Privacy Policy Enforcement Techniques for Android Applications
(co-supervised with Dr. Golden G. Richard III)
First employment: Assistant Professor at Towson University, MD

Master Students:

- Pranita Deshpande May 2017 - to-date
- Sharon Elizabeth Blake Aug 2016 - to-date
- Sushma Kalle Aug 2017 - July 2018
Semantic-aware Stealthy Control Logic Infection Attack
- Jonathan Grimm Sept 2015 - Aug 2017
Automatic Mitigation of Kernel Rootkits in Cloud Environments
- Saranyan Senthivel June 2016 - July 2017
Automatic Forensic Analysis of PCCC Network Traffic Log
- William Eldon Johnson July 2015 - May 2017
Development of Peer Instruction Material for a Cybersecurity Curriculum
- Anjila Tamrakar Summer 2014 - April 2016
SPICE: A Software Tool for Studying End-user's Insecure Cyber Behavior and Personality-traits
- Dalbir Kaur Chhabra Jan 2014 - Aug 2014
Feature selection and clustering for malicious and benign software characterization

Undergraduate Students:

- Jose Rene Berlioz Rivera Aug 2017 - to-date
- Shrey Dhungana May 2017 - to-date
- Manish Bhatt Dec 2016 - May 2017
- Banan Ibrahim Oct 2016 - Jun 2017
- Phillip Bradley Reason Feb 2016 - Jul 2016
- Philip Schwartz May 2014 - Aug 2014

Queensland University of Technology, Brisbane, Australia

PhD Students:

- Eesa Alsolami - co-supervised with Dr. Colin Boyd Mar 2011-Aug 2012
Continuous Biometric Authentication: Keystroke Dynamics
- Nishchal Kush - co-supervised with Dr. Ernest Foo Mar 2011-Sept 2011
Smart Grid Security

THESIS COMMITTEE MEMBER

University of New Orleans, New Orleans, USA

PhD Students:

- Joseph T. Sylve May 2017
Towards Real-Time Volatile Memory Forensics: Frameworks, Methods, and Analysis

Master Students:

- Shane McCulley May 2017
Forensic Analysis of G-Suite Collaborative Services

- Vivek Oliparambil Shanmughan May 2017
Lightweight Environment for Cyber Security Education
- Andrew Case June 2016
Detecting Objective-C Malware through Memory Forensics
- Elyse Bond June 2015
Creating Volatility Support for FreeBSD
- Andres E. Barreto June 2015
API-Based Acquisition of Evidence from Cloud Storage Providers
- Robert Strickland June 2015
GPU Keystroke Logging and Detection on Microsoft Windows with Kernel Mode Drivers
- Salman Javaid Aug 2014
Analysis and Detection of Heap-base Malware Using Introspection in a Virtualized Environment
- Christopher Stelly Nov 2013
Dynamic User Defined Permissions for Android Devices
- Deekshit Kura Nov 2013
Categorization of Large Corpora of Malicious Software

ACADEMIC SERVICES

Conference/Workshop General Chair/Program Chair

- *Industrial Control System Security (ICSS) Workshop*, In conjunction with 34th Annual Computer Security Applications Conference (ACSAC'18), December 2018, San Juan, Puerto Rico, USA.
<https://www.acsac.org/2018/workshops/icss/>
- 10th *EAI International Conference on Digital Forensics & Cyber Crime (ICDF2C)*, September 2018, New Orleans, USA
<http://d-forensics.org/>
- *Industrial Control System Security (ICSS) Workshop*, In conjunction with 33rd Annual Computer Security Applications Conference (ACSAC'17), December 2017, Orlando, FL, USA.
<https://www.acsac.org/2017/workshops/icss/>
- *Industrial Control System Security (ICSS) Workshop*, In conjunction with 32nd Annual Computer Security Applications Conference (ACSAC'16), December 2016, Los Angeles, California.
<http://acsac.org/2016/workshops/icss/>
- *Industrial Control System Security (ICSS) Workshop*, In conjunction with 31st Annual Computer Security Applications Conference (ACSAC'15), December 2015, Los Angeles, California.
<http://acsac.org/2015/workshops/icss/>
- *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 of *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

- International Conference on Internet Monitoring and Protection (ICIMP) – 2018
- ACM Technical Symposium on Computer Science Education (SIGCSE) – 2017
- Digital Forensics Research Conference (DFRWS) – 2015, 2016
- International Conference on Digital Forensics & Cyber Crime (ICDF2C) – 2013, 2014, 2015, 2016, 2017
- 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

Panel/Session Moderator and Panelist

- Panelist on "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 of a panel on "SCADA System Security: Challenges and Future Directions", Annual Computer Security Applications Conference (ACSAC), New Orleans LA, Dec 2014

Editorial Work

- Review Editor of the *Cybersecurity and Privacy Section*, In *Frontiers in Big Data* (2018 - To-date) <https://www.frontiersin.org/journals/big-data#>
- Guest Editor of the *Special Issue on SCADA and Control System Security*, In *International Journal of Information Security* (IJIS), Springer, Vol. 11, No. 4, August 2012
- Guest Editor of the *Special Issue on Applications of Machine Learning Techniques on Intrusion Detection and Digital Forensics*, In *Security and Communication Networks Journal*, Wiley <http://onlinelibrary.wiley.com/doi/10.1002/sec.344/full>

Journal Reviewer

- IEEE Security & Privacy www.computer.org/security-and-privacy
- IEEE Computer www.computer.org/computer
- Computers & Security, Elsevier www.journals.elsevier.com/computers-and-security
- ACM Transactions on Cyber-Physical Systems <http://tcps.acm.org>
- IEEE Transactions on Computers <http://www.computer.org/web/tc>
- Journal of Network and Computer Application, Elsevier <http://www.journals.elsevier.com/journal-of-network-and-computer-applications/>
- IETE Technical Review Journal <http://tr.ietejournals.org>
- International Journal of Network Security <http://ijns.femto.com.tw>
- 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)
- Journal of Applied Mathematics, Hindawi <http://www.hindawi.com/journals/jam/>
- The Journal of Supercomputing, Springer <https://link.springer.com/journal/11227>
- IEEE Access <http://ieeeaccess.ieee.org>
- MDPI Future Internet <http://www.mdpi.com/journal/futureinternet>
- IEEE Transactions on Cloud Computing <https://www.computer.org/web/tcc>