S²ERC Showcase
Researcher/Presenter Biographies

Ahmed Abdelhadi

Ahmed Abdelhadi is a Research Assistant Professor at Virginia Tech. He received his Ph.D. in Electrical and Computer Engineering from the University of Texas at Austin in 2011. He was a member in Wireless Networking and Communications Group (WNCG) and Laboratory of Informatics, Networks and Communications (LINC) group during his Ph.D. In 2012, he joined Bradley Department of Electrical and Computer Engineering and Hume Center for National Security and Technology at Virginia Tech. He is a member of Wireless @ Virginia Tech. His research interests are in the areas of wireless communications and networks, spectrum sharing, cyber physical systems, and security. Dr. Abdelhadi coauthored more than 50 journal and conference papers, and 5 books in these research topics. He is a senior member of IEEE. His book Cellular Communications Systems in Congested Environments is bookplated in his honor as Virginia Tech Provost's Honor Book. He received silver contribution award from IEEE International Conference on Computing, Networking and Communications (ICNC) conference, 2016.

Paul Buis

Dr. Paul Buis is an Associate Professor and the Department Chairperson in the Department of Computer Science at Ball State University. He received a Ph.D. in Computer Science from Purdue University in 1991, a M.S. in Mathematics from Purdue University in 1986, and a B.S. in Physics and Math from Hope College in 1984. Dr. Buis published book chapters on security for the Internet and the Web in both Internet Security: Professional Reference, and Internet Security: Professional Reference. He has also taught courses at Ball State on Programming Languages, Programming for the Internet, and Systems Administration.

Eric Burger

Dr. Burger is on leave as the Director of the Georgetown site of the S²ERC. He is currently the Chief Technology Officer of the Federal Communications Commission, under the IPA. Prior to Georgetown he served as the CTO of two public companies, two private equity companies, and a VC-funded startup. He has an SBEE, MBA, and PhD from the Massachusetts Insitute of Technology, Katholieke Universiteit Leuven, and Illinois Institute of Technology. See http://people.cs.georgetown.edu/~eburger for more details on his background.

Tam Chantem

Tam Chantem is an assistant professor in ECE at Virginia Tech. Her primary areas of research are embedded systems and cyber-physical systems, with focuses on the hardware/software co-design of real-time embedded systems, integrated security, energy-aware and thermal-aware system-level design, and intelligent transportation systems. She received her Ph.D. and Master's degrees from the University of Notre Dame in 2011 and her Bachelor's degrees from Iowa State University in 2005. Before joining Virginia

Tech, Chantem was an assistant professor in ECE at Utah State University. Chantem received a U.S. Air Force Research Lab Summer Faculty Fellowship, Utah State University's 2016 ECE Advisor of the Year, and 2011 Outstanding Research Assistant Award from University of Notre Dame. She has also served as the TPC co-chair (ICESS 2017, RTSOPS 2017, and LPDC 2015) and technical program committee for several conferences such as RTAS, ECRTS, and RTSS.

T. Charles Clancy

Dr. Charles Clancy is an Associate Professor of Electrical and Computer Engineering at Virginia Tech and directs of the Hume Center for National Security and Technology. Additionally he serves as the co-director of the NSF Security and Software Engineering Research Center (S2ERC) Industry/University Cooperative Research Center (I/UCRC). Prior to joining Virginia Tech in 2010, he served as a senior researcher at the Laboratory for Telecommunications Sciences, an NSA research lab at the University of Maryland, where he led research programs in software-defined and cognitive radio, and wireless security. Dr. Clancy received his B.S. in Computer Engineering from the Rose-Hulman Institute of Technology, M.S. in Electrical Engineering from the University of Illinois, and his Ph.D. in Computer Science from the University of Maryland. He is a Senior Member of the IEEE and has over 200 peer-reviewed technical publications. His current research interests include cognitive communications and spectrum security, particularly as applied to cyber-physical-human systems.

Michael C. Fowler

Michael Fowler is research faculty for the Ted and Karyn *Hume Center for National Security and Technology* at Virginia Tech responsible for driving and providing thought leadership into the centers research on autonomous systems, mission orchestration, distributed intelligence, and security for wireless and unmanned systems. His research focus is on the convergence of distributed intelligence and machine learning for decision making under uncertainty for embedded applications including drones, satellites, IoT, and wireless communications. He has accumulated over 10 years of experience managing and performing research in security, wireless systems and artificial intelligence at Harris Corporation and as faculty at Virginia Tech. He has received a Master's Degree in Engineering Management from Old Dominion University and is currently a Ph.D. candidate in Computer Engineering at VT. During his professional career, he has obtained professional certifications in project management (PMP) and information security (CISSP) along with Six Sigma Black Belt training.

His research focuses on the convergence of distributed intelligence and machine learning for decision making under uncertainty for embedded multi-agent systems including drones, satellites, IoT, cyber physical systems, and wireless communications, including:

- Distributed intelligence for autonomous & large-scale systems
- Intelligent testing of cyber physical system security
- Intelligent security for cyber physical systems
- Distributed machine learning for multi-agent systems

Ryan Gerdes

Ryan M. Gerdes is an Assistant Professor at Virginia Tech, in the Electrical and Computer Engineering Department, Dr. Gerdes' work focuses on designing dependable and usable computing systems, with an emphasis on the operation of cyber physical systems in adversarial environments and leveraging the physical layer for system defense and offensive purposes. Prof. Gerdes received his PhD. in electrical engineering from Iowa State University for his work on device fingerprinting in August 2011. From 2011—

2016 he was an Assistant Professor at Utah State University. His current and past research interests include cyber-physical systems security, with an emphasis on intelligent and automated transportation, embedded systems security, physical layer security, and integrated circuit security.

Tom Krauss

Tom Krauss is a senior member of the research faculty at the Hume Center joining Hume in August 2015 with a focus on radar, communications, and software development, specifically Synthetic Aperture Radar, electromagnetic modeling, signal propagation and waveform analysis. Dr. Krauss has more than two decades of experience with space-based and airborne imaging radar systems at Syracuse Research Corporation (SRC), General Dynamics, and ERIM focused on system performance characterization and image quality measurement, improvement, and interference removal. He has also worked radar image quality measurements including algorithm design and code implementation as well as SAR system performance analysis predictions including image quality equation evaluation, requirements flowdown, and subsystem analysis. Dr. Krauss is passionate about mission-critical and high-performance software engineering as well as the languages/environments supporting it. Currently at the Hume Center he is working on machine learning as it applies to radar as well as packetized wireless communications.

Daniel Krutz

Daniel is an Assistant Professor at the Rochester Institute of Technology in the Department of Software Engineering. Daniel's primary research interests are in self adaptive systems and mobile security. Daniel leads a research group that focuses on these topics. Daniel's research group is working on making self adaptive systems more efficient. One area in self adaptive systems they are focusing on is how path analysis techniques can be used to enhance the self adaptive process. However, they are also pursuing several other areas in self adaptive systems as well. Daniel is making Android apps more secure through the use of concolic analysis to discover malware and potential vulnerabilities. He has led the creation of several concolic analysis tools that analyze apps for vulnerabilities and redundant functionality. He is also pursuing the use of concolic analysis on other platforms to make them more secure and reliable. Daniel has previously researched how to make apps more secure through proper permission usage and adaptation. Before joining academia, Daniel worked as an R&D Software developer for Xerox.

Ratnesh Kumar

Ratnesh Kumar is a Professor of Electrical & Computer Engineering at the Iowa State University, and prior to which he was with the ECE Dept. at the Univ. of Kentucky. He received B.Tech. in Electrical Eng. from Indian Institute of Technology, Kanpur (IITK) in 1987, and M.S. and Ph.D. in Electrical & Computer Engineering from the Univ. of Texas, Austin (UTAustin) in 1989 and 1991, respectively. Ratnesh's research interest spans sensors, networks, controls and software with application domains of cyberphysical (hybrid) systems, embedded and real-time systems, model-based software and web-services, power systems, energy harvesting, and sensors for sustainable agriculture. Ratnesh received Fellowships from NASA-Ames, Applied Research Lab---Penn State Univ, Idaho National Lab (DoE lab), United Technologies Research Center, Air Force Research Lab and several research awards from NSF (including Research Initiation Award), DoE, ONR, General Motors, General Electric, Honeywell, Rockwell, Texas Instruments, Magnatech, and Adobe. Prof. Kumar is or has been an Associate Editor of the IEEE Transactions on Systems, Man and Cybernetics, ACM Transactions on Embedded Computing Systems, the SIAM Journal on Control and Optimization, the IEEE Transactions on Robotics and Automation, IET Cyber-Physical Systems: Theory & Applications, the Journal of Discrete Event Dynamical Systems, the IEEE Control Systems Society, the IEEE Robotics and Automation Systems Society, and the IEEE Workshop on Software

Cybernetics. Ratnesh received the Gold Medals for the Best EE Undergrad and the Best All Rounder from IIT Kanpur, and the Best Dissertation Award from UT Austin. He is a Fellow of the IEEE, a Distinguished Lecturer for the IEEE Control Systems Society, Best Paper Award recipient from IEEE Transactions on Automation Science and Engineering, and Best Paper Finalist at 2014 IEEE ICNSC (Int. Conf. on Networking, Sensing and Control) and 2016 IEEE Sensors.

Ville Leppänen

Ville Leppänen is a professor in software engineering and software security at the University of Turku (UTU), Finland. He has over 200 international conference and journal publications. His research interests are related broadly to software engineering and security, ranging from software engineering methodologies, project management practices, and tools to security and quality issues, and to programming languages, parallelism, and architectural design topics. Leppänen is currently (co-)leading seven research and development projects. He acts as the head of Software Engineering (UTU) and leader of Software Development Laboratory of Turku Centre for Computer Science. He is also vice-leader of the IT department (UTU).

Samuel Laurén

Samuel Laurén acts as a project researcher at the University of Turku while pursuing a doctoral degree there. His research interests include cyber security, trusted computing and operating systems. As a part of this project, he has worked to develop a platform for advanced virtual machine introspection. Going forward, he wishes to find new applications for introspection techniques and work towards bringing these solutions to mainstream use. Samuel has a Master of Science degree in the field of Computer Science from the Department of Future Technologies at the University of Turku.

Lan Lin

Dr. Lan Lin is an Assistant Professor of Computer Science at Ball State University. She earned her M.Sc. and Ph.D. in Computer Science from the University of British Columbia (2001) and the University of Tennessee, Knoxville (2006), respectively. Prior to joining Ball State she worked as a Research Scientist in the Software Quality Research Laboratory (SQRL) at the University of Tennessee. Her research has been focused on rigorous software specification and automated, model-based statistical testing, and funded by Lockheed Martin, Northrop Grumman, Rockwell Collins, Air Force Research Laboratory, and Ontario Systems, through the NSF Security and Software Engineering Research Center. Her recently funded project titled "Towards Scalable Modeling for Rigorous Software Specification and Testing" was nominated and selected to be published in the 2016 NSF Industry & University Cooperative Research Center Technological Breakthrough Compendium.

Bob McGwier

Dr. Robert McGwier is the Director of Research of the Ted and Karyn Hume Center for National Security and Technology, and Research Professor in the Bradley Department of Electrical and Computer Engineering at Virginia Tech. He leads the overall execution of the Center's research mission, Blacksburg operations, and lead's the university's program development efforts in national security applications of wireless and space systems. His area of expertise is in radio frequency communications and digital signal processing.

Before joining Virginia Tech, Dr. McGwier spent 26 years as a member of the technical staff at the Institute for Defense Analyses' Center for Communications Research in Princeton, NJ, where he worked on advanced research topics in mathematics and communications supporting the federal government. He

received his Ph.D. in applied mathematics from Brown University in 1988. His work on behalf of the federal government has earned him many awards, including one of the intelligence community's highest honor in 2002.

Alan Michaels

Dr. Alan J. Michaels serves as the Director for Electronic Systems research at the Hume Center. At Hume, his research covers a variety of topics related to special communications, SIGINT, RF machine learning, cryptography, EW, and non-traditional hardware. Prior to joining VT, Alan spent a decade at the Harris Corporation in roles ranging from research in LPI/D spread spectrum and GPS; PI for 47 R&D projects; technical lead for multiple $30M-$50M DoD programs, and functional manager for >100 engineers. Dr. Michaels earned his BS/MS/PhD in ECE, a BS/MS in Applied Mathematics, and MS in Operations Research from Georgia Tech and an MBA from Carnegie Mellon. He has received 40 U.S. patents, written >30 conference/journal publications, and holds active clearances.

Mehdi Mirakhorli

Dr. Mehdi Mirakhorli is an Assistant Professor at Rochester Institute of Technology with a research background in software architecture design, requirements engineering, and application of data mining in software engineering. Previously, he worked as a software architect on large data-intensive software systems in the banking, meteorological and health care domains. He has served on the Program Committees for several conferences and as associate editor for IEEE Software Blog or Software Architecture and Requirements. Dr. Mirakhorli has received two ACM SIGSOFT Distinguished Paper Awards at the International Conference on Software Engineering and has engaged in research projects with the US Department of Homeland Security (DHS). Furthermore, Dr. Mirakhorli has been a speaker in several technical venues such as ALTA Distinguished Speaker at Alcatel-Lucent and a technical briefing hold by the Department of Homeland Security on issues related to Security Architecture.

Jeffrey Reed

Dr. Jeffrey H. Reed is the founder of Wireless @ Virginia Tech, and served as its Director until 2014. He is the Founding Faculty member of the Ted and Karyn Hume Center for National Security and Technology and served as its interim Director when founded in 2010. His book, Software Radio: A Modern Approach to Radio Design was published by Prentice Hall and his latest textbook Cellular Communications: A Comprehensive and Practical Guide was published by Wiley-IEEE in 2014. He is co-founder of Cognitive Radio Technologies (CRT), a company commercializing of the cognitive radio technologies; Allied Communications, a company developing spectrum sharing technologies; and for PFP Cybersecurity, a company specializing in security for embedded systems. In 2005, Dr. Reed became Fellow to the IEEE for contributions to software radio and communications signal processing and for leadership in engineering education. In 2013 he was awarded the International Achievement Award by the Wireless Innovations Forum. In 2012 he served on the President's Council of Advisors of Science and Technology Working Group that examine ways to transition federal spectrum for commercial use. Dr. Reed is a past member CSMAC a group that provides advice to the NTIA on spectrum issues.

Joanna Cecilia da Silva Santos

Joanna is currently a Ph.D. student at Rochester Institute of Technology (RIT). She graduated in Computer Engineering at Federal University of Sergipe - UFS, Brazil (2013) and received a masters degree from Rochester Institute of Technology-RIT, USA (2016). Her main research interests are: Software Architecture and Software Security.

Andrew Stewart

Andrew Stewart is a current graduate student at Georgetown University pursuing a Master's of Science in Mathematics and Statistics. He completed his undergraduate work at California State University - Sacramento, majoring in Applied Mathematics and Statistics. Andrew is also a Marine Corps veteran who completed three combat tours in support of Operations Iraqi Freedom and Enduring Freedom. Before coming to Georgetown, he worked in defense contracting as a C4ISR subject matter expert, as well as statistics consulting for an international economic development firm. Andrew is currently working with Professor Eric Burger on the Economic Impact of AES and is a data scientist with Elder Research in Arlington, VA.

Jianan Su

Jianan Su is a graduate student at Georgetown University pursuing a Master of Science degree in Computer Science. Jianan is currently working with Dr. Eric Burger and Professor Shin'ichiro Matsuo on research of Blockchain.

Clare Sullivan

Dr. Clare Sullivan is cyber-law lawyer specializing in digital identity, privacy, and cyber security. She is a Professor at the Law Center and a Fellow at the Centre on National Security and the Law at Georgetown University. Prior to joining the academy, Professor Sullivan was in academia in Australia and in legal practice in Australia and internationally with Baker & McKenzie.

Professor Sullivan has a PhD in cyber-law and has been awarded both a Fulbright scholarship and an Australian government Endeavour Fellowship for her research in this field. She is currently a Fulbright Ambassador. Professor Sullivan is the author of internationally published articles on digital identity, privacy, and cyber security. She authored the first report on international trade-based money laundering, and 'Digital Identity,' the first international legal study of the legal implications of digital identity for individuals, businesses and government. In 2016, Professor Sullivan was appointed consultant to the Commonwealth Secretariat to examine the privacy and data security issues for the 54 Commonwealth countries implementing the United Nations' Sustainable Development Goal 16.9 'A Legal Identity for All by 2030.' Following this work, Professor Sullivan was engaged to develop best practice data handling guidelines for USAID for its international aid and development activities.

Professor Sullivan is currently undertaking research for the U.S. Department of Defense on the implications of e-residency on U.S. national and international security. She is also doing a number of projects for the private sector including a major project for a consortium of U.S. multinationals that examines the legal implications of business-to-business sharing of cyber-threat information internationally. This research involves examination of the privacy and data protection laws of 34 OECD countries. Other private sector projects include consideration of the international privacy and data protection implications of the IoT era and the impact of international data protection regulation and privacy law on artificial intelligence (AI) and deep learning. The latter project considers the operation of current regulation and the obligations imposed on businesses that use AI and deep learning to analyze and use big data.

Fu-Shing Sun

Dr. Fu-Shing Sun received his PhD in Computer Science from the University of Texas at Dallas in 1998. He then worked in the telecommunication industry and later joined Ball State Computer Science Department in 2002. At Ball State, he regularly teaches database, data analytics, and data mining courses. His research interests are in the areas of big data, data mining, and data visualizations.

Xin Sun

Dr. Xin Sun joined the Computer Science Department at Ball State University in fall 2016 as an assistant professor. From 2012 to 2016 he was an assistant professor with Florida International University in Miami, Florida. In summer 2014 he was a visiting researcher at IBM T.J. Watson Research Center. He received his Ph.D. from Purdue University, West Lafayette, in 2012. His research interest lies in computer networking and networked systems, with a focus on network management and operations. The overarching goal of his research is to develop rigorous scientific approaches and automated software tools for managing and securing large and complex data networks, which today are kept running entirely by manual effort and human intelligence and are thus prone to human errors. Dr. Sun is also very passionate about Computer Science education and loves working with students. Dr. Sun is a recipient of the Computer and Information Science and Engineering Research Initiation Initiative (CRII) Award from National Science Foundation, and his research has been funded by National Science Foundation, the State of Florida, and the Security and Software Engineering Research Center.

Eli Tilevich

Eli Tilevich is an Associate Professor in the Dept. of Computer Science and the College of Engineering Faculty Fellow at Virginia Tech. Tilevich's research interests lie in the System's end of Software Engineering (mobile/IoT computing, cloud/edge computing, middleware, software refactoring, energy efficiency, and security/privacy), CS Education, and Music Informatics. He has published over 80 refereed research papers on these subjects. His research awards include a Microsoft Research Software Engineering Innovation Foundation Award and an IBM Faculty Award. Tilevich holds a Ph.D. in Computer Science from Georgia Tech. At Virginia Tech, Tilevich leads the Software Innovations lab. The lab's research projects have been supported by major US government funding agencies and private industry. Tilevich is also a professionally trained classical clarinetist, with experience in orchestral, chamber, and solo performances.

Shaoen Wu

Prof. Shaoen Wu is currently an Associate Professor (early promoted) of computer science with Ball State University, Muncie, IN, USA. He was an Assistant Professor with the School of Computing, University of Southern Mississippi, Hattiesburg, MS, USA, a Research Scientist with ADTRAN Inc., Huntsville, AL, USA, and a Senior Software Engineer with Bell Laboratories, China. He received the Ph.D. degree in computer science from Auburn University, Auburn, AL, USA, in 2008. Shaoen's current research interests include cyber security, Internet of Things, cyber-physical systems, and intelligent communication and sensing. His research has been generously sponsored by NSF, NASA, NVIDIA, Dell, Intel, Microsoft, ARM and Cypress Inc. He was a recipient of the Best Paper Award of the IEEE ISCC 2008 and the ANSS 2011. His research was featured as the spotlight story at the BSU Research Magazine 2015. Prof. Wu has served on the chairs and the committees of various conferences, such as the IEEE INFOCOM, ICC, Globecom, Mobimedia, and an Editor for several journals.

Dolores Zage

Dolores M. Zage is a faculty member in the Computer Science Department at Ball State University and the Research Coordinator of the Security and Software Engineering Research Center (S^2ERC). Dolores' research interests are in software metrics and models and their application during the design and maintenance phases of software development. She has been a co-principal investigator on over 40 projects funded by the National Science Foundation, Motorola, Telcordia, Northrop Grumman, Computer Sciences Corporation, Harris Corporation, Magnavox Electronics Systems Division, GTE Data Services, NASA, Raytheon, Rockwell Collins, iconectiv, Beulah Works, the U.S. Air Force Research Lab and the U.S. Army Research Lab.

Wayne Zage

Wayne M. Zage is the George and Frances Ball Distinguished Professor of Computer Science at Ball State University. Wayne has been conducting research in the Security and Software Engineering Research Center (S2ERC) and previously in the Software Engineering Research Center (SERC) since it began in 1986. His research in design metrics and models has led to the Zages' design metrics being used at Center industrial sites as indicators of good software design, to identify error-prone modules during the design phase of development, and as indicators of where to place effort during software testing. During his 41 years at Ball State, Wayne has won three university-wide awards: the Outstanding Young Faculty Award in the 1980s, the Outstanding Research Award in the 1990s, and the Ball State University Outstanding Faculty Award in 2002. He and Dolores Zage were also the co-recipients of the National Science Foundation I/UCRC Association's Award entitled the Alexander Schwarzkopf Prize for Technological Innovation for their work in software design metrics, which they received in 2007. Wayne is in his 17th year as a Director of an NSF Industry/University Cooperative Research Center.