

BIO INFO CONTINUED

Dr. Glenn Lilly, Technical Director for the NSA's Cryptographic Assurance Operations

Dr. Glenn Lilly received his BA in Philosophy and Mathematics from West Virginia University in 1985. He received his PhD in Mathematics (special functions and combinatorics) from the University of Kentucky in 1991. He joined the National Security Agency in 1991 where he has held a variety of positions in design and evaluation. Currently, he is the technical director for the NSA's Cryptographic Assurance Operations organization within Cybersecurity Solutions. A primary focus of his is workforce technical health; he is a Senior Advocate for IC PRIDE, the Intelligence Community-wide LGBTQ+ affinity network group. For the five years prior to joining Cryptographic Assurance Operations, he was the Chief of the Mathematics Research Group. He has one patent, US Patent Serial 09/799,432, "Device For and Method of One-Way Cryptographic Hashing" for the SHA-2 family of hashing algorithms.



Mr. Charles Olden, Systems Engineer at CISCO

Charles Olden is a Systems Engineer with Cisco Systems. He specializes in providing network and security designs for U.S. Public Sector higher-education, K-12 and local government customers. He is an IT professional that has been in the industry for over 20 years. He is a native of western Pennsylvania and resides in the greater Pittsburgh area. His ultimate goal is to help businesses of all sizes transform how they connect, communicate and collaborate.



GUEST SPEAKERS TITLES AND ABSTRACTS

Dr. Adam Lee, Associate Dean for Academic Programs in the School of Computing and Information at the University of Pittsburgh

Title: NeXUS: Practical and Secure Access Control on Untrusted Storage Platforms using Client-side SGX

Abstract: In this talk we present NeXUS, a stackable filesystem that leverages trusted hardware to provide confidentiality and integrity for user files stored on untrusted platforms. NeXUS is explicitly designed to balance security, portability, and performance: it supports dynamic sharing of protected volumes on any platform exposing a file access API without requiring server-side support, enables the use of fine-grained access control policies to allow for selective sharing, and avoids the key revocation and file re-encryption overheads associated with other cryptographic approaches to access control. This combination of features is made possible by the use of a client-side Intel SGX enclave that is used to protect and share NeXUS volumes, ensuring that cryptographic keys never leave enclave memory and obviating the need to re-encrypt files upon revocation of access rights. We implemented a NeXUS prototype that runs on top of the AFS filesystem and show that it incurs modest overheads for a variety of common file and database operations.

Dr. Patrick McDaniel, Professor and Director of the Institute for Networking and Security, Penn State University

Title: The Challenges of Machine Learning in Adversarial Settings

Abstract: In this talk, I consider evolving use of machine learning in security-sensitive contexts and explore why many systems are vulnerable to nonobvious and potentially dangerous manipulation. Here, we examine sensitivity in any application whose misuse might lead to harm—for instance, forcing adaptive network in an unstable state, crashing an autonomous vehicle or bypassing an adult content filter. I explore the use of machine learning in this area particularly in light of recent discoveries in the creation of adversarial samples and defenses against them, and posit on future attacks on machine learning. The talk is concluded with a discussion of the unavoidable vulnerabilities of systems built on probabilistic machine learning, and outline areas for offensive and defensive research in the future.

Ms. Lisa Schlosser, City Commissioner and Technology/Cybersecurity Executive. Former White House Official

Title: Cybersecurity: The Future Threat and YOUR Opportunity

Abstract: This session will discuss the real hacking threats to our mobile phones, the Internet, and our ability to use new apps. What would happen if you could not text, or use Instagram, or any other application you use today? What can you do to protect yourself - and to get on a career path that will help you to investigate cyber hacks and cyber crime scenes.

Dr. Glenn Lilly, Technical Director for the NSA's Cryptographic Assurance Operations

Title: The changing landscape of cybersecurity from COMSEC to INFOSEC to Cybersecurity

Abstract: The field of cybersecurity is growing ever more complex with the advent of new technologies and new applications. However, cybersecurity finds its roots in the tenets of information security: Confidentiality, Integrity, Availability, and Non-repudiation. This talk will cover some of the mechanisms used to provide these services (for instance, encryption to provide confidentiality) and some of the challenges new or forecasted technologies pose. The talk will provide a broad-brush overview, accessible to the non-practitioner, and aims to be the first cybersecurity talk to discuss the Eastern painted turtle.

Mr. Charles Olden, Systems Engineer at CISCO

Title: Ransomware & Cybersecurity

Abstract: Businesses are losing the battle to secure their networks due to the complexity of IT solutions, the increasing diversity of the threat landscape and the fragmentation of today's security offerings. There has clearly been an evolution of the threat landscape over the past few decades from simple viruses and worms to very sophisticated malware and advanced persistent threats. Attackers are increasingly more well-funded and are improving their approaches to the point where hacking has become industrialized. There is a very vibrant, shadow industry that is outpacing the information security industry in terms of revenue generation, but profit is not the only driver in the hacking business. Nation states are becoming main actors in developing exploits for cyberwarfare and espionage.

THE 11TH ANNUAL CYBERSECURITY DAY AT IUP

OCTOBER 30, 2018

OHIO HUB
IUP MAIN CAMPUS



CYBERSECURITY DAY AT IUP

TIME SLOT	SPEAKER	TOPIC TITLE
9:00 - 9:10	Dr. Deanne Snavely, Dean, College of Natural Sciences and Mathematics	<i>Opening Remarks</i>
9:10 - 9:20	Dr. Francisco E. Alarcón, Chair, Department of Mathematical and Computer Sciences	<i>Welcome Message</i>
9:20 - 9:30	Dr. Waleed Farag, Professor of Computer Science and Director, Institute for Cybersecurity at IUP	<i>Event history, ICS work and recent achievements, and logistics</i>
9:30 - 10:20	Dr. Adam Lee, Associate Dean for Academic Programs in the School of computing and Information at University of Pittsburgh	<i>NeXUS: Practical and Secure Access Control on Untrusted Storage Platforms using Client-side SGX</i>
10:20 - 10:35	AM Break	
10:35 - 11:25	Dr. Patrick McDaniel, Professor of Information and Communications Technology in the School of Electrical Engineering and Computer Science at the Pennsylvania State University	<i>The Challenges of Machine Learning in Adversarial Settings</i>
11:25 - 12:50	Lunch Break	
12:50 - 1:00	Dr. Tim Moerland, IUP's Provost and Vice President for Academic Affairs	<i>Provost's Remarks</i>
1:00 - 1:50	Ms. Lisa Schlosser, City Commissioner and Technology/ Cyber Security Executive. Former White House Official	<i>Cybersecurity: The Future Threat and YOUR Opportunity</i>
1:50 - 2:00	PM Break	
2:00 - 2:50	Dr. Glenn Lilly, Technical Director for the NSA's Cryptographic Assurance Operations	<i>The Changing Landscape of Cybersecurity from COMSEC to INFOSEC to Cybersecurity</i>
2:50 - 3:00	PM Break	
3:00 - 3:50	Mr. Charles Olden, Systems Engineer at CISCO	<i>Ransomware & Cybersecurity</i>
3:50 - 4:00	Dr. Waleed Farag, Director, Institute for Cybersecurity at IUP	<i>Conclusions</i>

BIOGRAPHICAL INFORMATION ON GUEST SPEAKERS

Dr. Adam Lee, Associate Dean for Academic Programs in the School of Computing and Information at the University of Pittsburgh

Dr. Adam J. Lee is currently the Associate Dean for Academic Programs in the School of Computing and Information at the University of Pittsburgh. He is also an Associate Professor in the Department of Computer Science at the University of Pittsburgh, where he previously held the position of Assistant Professor (2008-2014). Prior to joining the University of Pittsburgh, he received the MS (2005) and PhD (2008) degrees in Computer Science from the University of Illinois at Urbana-Champaign, and received his BS in Computer Science from Cornell University (2003). His research interests lie at the intersection of the computer security, privacy, and distributed systems fields. Dr. Lee's research has been supported by the NSF and DARPA, and he is an NSF CAREER award recipient. For more information, please see <http://www.cs.pitt.edu/~adamlee>.



Dr. Patrick McDaniel, Professor of Information and Communications Technology and Director of the Institute for Networking and Security Research at Penn State University



Patrick McDaniel is the William L. Weiss Professor of Information and Communications Technology and Director of the Institute for Networking and Security Research in the School of Electrical Engineering and Computer Science at the Pennsylvania State University. Professor McDaniel is also a Fellow of the IEEE and ACM and serves as the program manager and lead scientist for the Army Research Laboratory's Cybersecurity Collaborative Research Alliance. Dr. McDaniel research centrally focuses on a wide range of topics in computer and network security and technical public policy. Prior to joining Penn State in 2004, he was a senior research staff member at AT&T Labs-Research.

Ms. Lisa Schlosser, City Commissioner and Technology/ Cybersecurity Executive. Former White House Official



Ms. Lisa Schlosser is a Technology and Cybersecurity Executive originally from Pittsburgh PA, who has served in the private sector; public sector; US military; and in academia. She currently serves as an elected Commissioner for the City of Rehoboth Beach, Delaware. Lisa is also: on the Board of Directors for VetSports; the Board of Advisors for Cylance; a consultant with Harrisburg University; on the CSFi Advisory Board; and is an instructor at Georgetown University and University of Maryland-College. She is also an animal welfare advocate, and volunteers at local dog shelters. Lisa most recently served full-time as the Federal Deputy Chief Information Officer, Executive Office of the President. In this role, she helped to oversee policy and budgeting for the \$86B information technology portfolio. She was also asked to serve a six-month temporary detail with the Office of Personnel Management as a Senior Advisor/Chief Information Officer following a major cybersecurity breach.

Lisa also worked as a Principal Deputy Associate Administrator and Office Director for the Environmental Protection Agency. Prior to EPA, Lisa was a Chief Information Officer (CIO), and the Associate Chief Information Officer/Chief Information Security Officer, at two Federal Government agencies. Before joining the Federal Government, Lisa worked in the private sector as a Senior Manager for Ernst & Young LLP, helping to establish the international Cybersecurity Practice; and as a Vice-President for Global Integrity. Lisa served in the US Army, and retired as a Lieutenant Colonel from the US Army Reserves. Lisa holds a B.A. degree in Political Science from Indiana University of Pennsylvania, and an M.S. degree in Administration from Central Michigan University. <https://www.linkedin.com/in/laschlosser/>.

For more information about Cybersecurity Day at IUP, please contact Dr. Waleed Farag, Director, Institute for Cybersecurity, at farag@iup.edu, 724-357-7995.