

22ND COLLOQUIUM


FOR INFORMATION SYSTEMS SECURITY EDUCATION



June 12, 2018

New Orleans, Louisiana



Tuesday, June 12th

8:00 AM **Breakfast**
9:00 AM  La Salle A

9:00 AM **Welcome**
9:30 AM Welcome / Conference Updates
 La Salle A

9:30 AM **EC-Council: STORM Mobile Security Toolkit**
10:00 AM Kevin Cardwell will take you through the basics of setting up pre-configured Raspberry Pi devices, custom tool-kits and STORM kits to introduce what most classrooms are lacking.
 La Salle A  Kevin Cardwell

keynote

10:05 AM **NSA: Not-so-secret Things NSA is Doing in Cybersecurity Education**
11:05 AM This panel will outline the NSA designation programs, cybersecurity resources, describe funding opportunities for various cybersecurity and cybersecurity curriculum development.
 La Salle A  Blair Taylor, Steve LaFountain, Maureen Turney, Lori Pfannenstein

panel

11:05 AM **Break**
11:15 AM

11:15 AM
11:45 AM

Envisioning Alternate Futures Will Change Our Thinking About Cybersecurity

The world is changing in profound ways. These changes will significantly alter how the cybersecurity workforce will do its job in the future and will require creative, collaborative thinking and action.

 La Salle A  Deep Kakkar, Lori Gordon

keynote

12:00 PM
12:30 PM

DHS: Developing Cybersecurity Talent through Education, Training, and Workforce Development

The demand for experienced cybersecurity professionals is at an all-time high. How can the Nation address the growing need for a knowledgeable and skilled cybersecurity workforce?

 La Salle A  Benjamin Scribner

briefing

1:00 PM
2:00 PM

Lunch

 Frenchman Ballroom

1:30 PM
1:45 PM

Author's Corner

Dr. Loyce Pailen will describe our 2nd annual Author's Corner during lunch.

 Frenchman Ballroom  Loyce Best Pailen

briefing

2:00 PM
2:45 PM

Learn & Earn Dual Model Apprenticeships in Cybersecurity Education

In this presentation, I make the case that the *time is now* for rapid national expansion of an innovative government / industry / academic collaboration to launch *Learn and Earn* dual model apprenticeships in cybersecurity education.

 Acadian I & II  Girish Seshagiri

breakout

2:00 PM
2:45 PM

ABET: Toward a New Era of Undergraduate Cybersecurity Education

In this presentation, we present the ABET accreditation criteria and provide an opportunity for the audience to provide a critique and suggestions for continuous improvement.

 Poydras  Allen Parrish, Rajendra K. Raj, Lawrence Jones

breakout

2:00 PM
3:00 PM

NIST: District-wide / State Implementation of Cybersecurity in the K12 Setting

The session organizers will share how school districts and states in several locations have taken different approaches to implementation, each with its own set of benefits and challenges.

 Pelican I  Davina Pruitt-Mentle

breakout

2:00 PM
3:15 PM

Reverse Engineer Cybersecurity Professionals

Participants in this workshop will use backward mapping techniques to *reverse engineer* how we develop future cybersecurity professionals in a community school setting.

 Pelican II  Jim Smith

workshop

3:00 PM
3:30 PM

Establishing Partnerships for Workforce Development

Discuss opportunities for developing local, regional or national collaborations that focus on cybersecurity education and career pipeline.

 Acadian I & II  Larry Wilson

breakout

3:00 PM
4:00 PM

ABET, NSA/DHS CAEs and CSEC Collaboration

Making Sense of the Alphabet Soup of Cybersecurity Education Standards.

 Poydras  Art Conklin, Lori Pfannenstien, Lawrence Jones, Allen Parrish

panel


3:00 PM

K-12 and Outreach at the State Level

4:30 PM

This session focuses on several ways states can reach down into the K-12 space and encourage awareness and help seed the education and career pipeline with a diverse student population.

 Pelican I

 Yenny Yi, Tom Hendricks, David Raymond, Tamara Shoemaker, Thomas Kaczmarek, Chuck Gardner, Marrci Conner

panel

3:15 PM

Circadence: Creating a Culture of Cybersecurity - Strategies for Awareness and Development

4:30 PM

In our session we look forward to sharing insights around solving the *security is everyone's problem* problem by unpacking two main threads.

 Pelican II  Fred Wright, Ric Messier

breakout

3:30 PM

Break

4:00 PM

4:00 PM

POGIL Teaching Methods

5:30 PM

A demonstration of Process Oriented Guided Inquiry Learning (POGIL) method, applied to materials that teach both cybersecurity domain knowledge and soft skills.

 Acadian I & II  Xiaohong Yuan, Li Yang, Wu He

workshop

4:15 PM

AI to Develop Curriculum

4:45 PM

Gain knowledge of innovative approaches in developing cybersecurity curriculum, working with industry partners, and designing innovative cybersecurity programs.

 Poydras  Paul Wang, Wayne Summers, Shamim Khan, Rania Hodhod

breakout

4:30 PM

CIAS: CyberSec Card Game

5:30 PM

Cyber Threat Defender teaches students digital concepts using a collectible card game. It provides a turnkey solution for teachers introducing cybersecurity concepts to students.

 Pelican II  Larry Sjelin

workshop

4:30 PM

Community College Collaborative Discussion

5:30 PM

This informal discussion provides community college administrators and faculty and opportunity to discuss what's working and what's not at their own institution.

 Pelican I  Ken Sigler

panel

6:00 PM

Awards Dinner



8:00 PM

 La Salle A

Academic Papers - Tuesday, June 12th

2:00 PM **Unplugged Robotics as a Platform for Cybersecurity Education in the Elementary Classroom**
2:35 PM

Robotics may be an ideal way to teach cybersecurity concepts to young students in the elementary classroom. Research shows robots can be an engaging experience and benefit learning in ways useful in other areas of education.

 La Salle A  Shannon Gorman, Shamik Sengupta, David Feil-Seifer

2:35 PM **Cyber Security Education for Liberal Arts Institutions**
3:05 PM


In this paper we describe a set of labs that have been implemented using the Global Environment for Network Innovations (GENI) cloud infrastructure as a solution to teaching experientially with low overhead.

 La Salle A  Xenia Mountroudou, Xiangyang Li

3:05 PM **Modules for Teaching Secure in Android Application Development**
3:35 PM

The goal of this project is to develop teaching modules that highlight the need for security in app development. These modules are based on CERT Java secure coding rules applicable to developing Android applications published by the Software Engineering Institute at Carnegie Mellon University.

 La Salle A

 Christopher C. Doss, Xiaohong Yuan, Varshar Chennakeshva, Aakiel Abernath, Kenneth Ford

3:35 PM **Cybersecurity Education with POGIL: Experiences with Access Control Instruction**
4:05 PM

In this paper, we introduced cybersecurity education materials we developed with Process-Oriented Guided Inquiry Learning (POGIL) which provides a promising educational framework for re-envisioning a holistic methodology for technical studies, specifically for the discipline of cybersecurity.

 La Salle A  Li Yang, Xiaohong Yuan, Wu He, Jennifer Ellis, Jonathan Land

4:05 PM

Engaging Airmen with Cyber Education and Training: Designing a Platform Using

4:35 PM

Gamification

This paper proposes several ideas of implementing gamification and human-focused design concepts on the platform and includes an analysis of how this can affect Airmen at different tiers of cyber development.

 La Salle A  Landon Tomcho, Lt. Col. Mark Reith

Presentations - Tuesday, June 12th

2:00 PM **The Cyber Cube: A Multifaceted Approach for a Living Cybersecurity Curriculum Library**
2:30 PM


The global cybersecurity crisis has forced academic institutions to build and grow cybersecurity programs. This paper focuses on the need for a living digital library, surveys current cybersecurity repositories, and discusses factors that determine the success of a digital library.

 La Salle B  Blair Taylor, Siddharth Kaza, Melissa Dark, Steven LaFountain

2:30 PM **Power and Responsibility in CS**
3:00 PM


Cybersecurity education cultivates powerful capabilities in students. We maintain that the immense reach of cyber, cyber-physical, and cyber-social systems now requires cybersecurity education to develop its own distinct focus on ethics.

 La Salle B

 Jane Heather Blanken-Webb, Nicholas C. Burbules, Roy Campbell, Imani Palmer, Masooda N. Bashir

3:00 PM **A Bluetooth LE Security Investigation**
3:30 PM

Bluetooth LE (Low Energy), otherwise known as Bluetooth Smart, has seen widespread adoption in various technological fields since its release in 2010. We discuss the impact on users that a security-absent manufacturing practice has. As the technology stands, Bluetooth Low Energy (LE) severely falters with regards to security in commercial implementations, and private user data is at risk.

 La Salle B  Gabriel Bello, Yesem Kurt Peker

3:30 PM
4:00 PM

Evaluating Prevalence, Perceptions, and Effectiveness of Cyber Security and Privacy Education, Training and Awareness Programs

Cyber security and privacy issues continue to mount, particularly for non-experts. This has largely been the catalyst for several different types of cyber security and privacy education, training, and awareness programs. We discuss these various programs, followed by a discussion on a large-scale survey that was conducted to learn more about the perceived effectiveness of these programs.

 La Salle B  Marc Dupuis

4:00 PM
4:30 PM

Cybersecurity is like Medicine, Users are Patients, Let's Communicate That Way

Compliance comes from trust, which is built on a foundation of competence and caring. Cybersecurity experts can utilize the same formula to engender the trust of their users, leading to superior outcomes in compliance with network policies to achieve the goal of robust cybersecurity defense.

 La Salle B  Seth Martin, Lt. Col. Mark Reith

4:30 PM
5:00 PM

Implementing Lightweight Intrusion Detection Systems Based on Network Function Virtualization

This paper introduces a method of implementing intrusion detection systems (IDS) based on the concept of NFV by using ClickOS, an open source NFV project.


 La Salle B  Young Park, Nikhil Vijayakumar Kengalahalli, Suhas Janardhan

5:00 PM
5:30 PM

The Evolution of Cybersecurity Education in Four-Year Undergraduate Programs

To meet enormous workforce demand, cybersecurity is being rapidly integrated into undergraduate computing curricula in baccalaureate programs across the world. This paper discusses the existing and potential impacts of such curriculum recommendations, designations and accreditations on baccalaureate cybersecurity education.

 La Salle B

 Allen Parrish, Rajendra Raj, Edward Sobiesk, Andrew Hall, J.J. Ekstrom, Shannon Gorman

Lightning Talks - Tuesday, June 12th

2:00 PM

Anatomy of Attack

2:20 PM

This presentation provides an overview of frequent and straightforward Level 1 and 2 IoT attack vectors that challenge most organizations, equipped with Building Internet of Things (BIoT).

 La Salle C  Mangaya Sivagnanam

2:25 PM

Creating an Anchor Hands-on Cyber Sec Course using Raspberry Pi

2:40 PM

We propose the creation of an anchor course, called the Core Hands-on Raspberry Pi Based Lab that is designed to satisfy multiple objectives including cybersecurity needs as well as basic engineering needs such as understanding sensing and control.

 La Salle C  Ravi Rao

2:45 PM

Professionalization of Cyber Security Education Experience: Creating a Dynamic Highly Nimble Cyber Workforce

3:00 PM

In order to provide our students needed experience and knowledge in cyber security, the educational curriculum must be updated. The authors are proposing that cyber based degrees at the Masters level should incorporate a program similar in nature in what doctors and lawyers complete prior to their beginning their practices.

 La Salle C  Steven Fulton

3:05 PM

Challenge-Based Education: Bringing Cybersecurity to K-12

3:20 PM

We identify a variety of challenges to the introduction of cybersecurity topics in high school including lack of qualified teachers, limited number of students motivated to study IT topics, large number of prerequisite topics and scarcity of computing resources required for such topics.

 La Salle C  Joe Chase, Premchand Uppuluri

3:25 PM

Identity Theft Education: Engaging Students in the Age of Cybercrime

3:40 PM

The tidal wave of financial losses due to identity theft is staggering. The focus of this paper is to discuss methods to integrate identity theft education into the curriculum at the post-secondary level across disciplines.

 La Salle C  Susan Helser

3:45 PM

Guiding Healthcare Adoption Implementation via the Consolidated Framework Approach

4:00 PM

Implementation science continues to emerge as a valuable tool for providing benchmarks and metrics for the successful deployment of healthcare technology adoption. This paper presents the results of a tool-based evaluation administered to key stakeholders of a large-scale hospital information system.

 La Salle C  Subrata Acharya

4:05 PM

The Security Risk and Protection on Social Media

4:20 PM

Over the last two decades, there has been a great evolvement and growth in technology. With this emergence comes the knowledge of Social Media. The author will focus on the different security threats of the social media and how these threats can be curbed or reduced.

 La Salle C

 Abidemi Lawal,  Vinitha Subburaj,  Daniel Thomas Loughran,  Mayar Kefah Salih

4:25 PM

Big Data Technology for Cybersecurity Lab Design

4:40 PM

This work illustrates application of big data software systems for distributed scalable computing in several settings pursuing design and subsequent distribution of lab exercises aim in the development of data analysis skills for tracing attacks and forensics.

 La Salle C  Alex Rudniy

4:45 PM

Augmented Reality Mobile Forensic Laboratory (AMFL)

5:00 PM

In this paper, we describe ongoing research which explores the potential of augmented reality technology-based teaching and learning approach to enhance cybersecurity and forensics education.

 La Salle C  Nikitha Reddy, Faisal Kaleem

5:05 PM

Programming Projects for Undergraduate Information Security Education

5:20 PM

In this paper, I discuss the design and implementation of a set of pedagogical programming projects that supplement an undergraduate semester-long introductory course on information security, which I helped design at my institution.

 La Salle C  Mohamed Said Aboutabl

5:25 PM

Cloud-based Environments for Cybersecurity Education

5:40 PM

The supply of qualified cybersecurity professionals has not kept pace with increased demand in government and industry. To address this shortfall, Virginia and other states have worked to increase educational opportunities in cybersecurity, requiring a corresponding increase in infrastructure for hands-on student experiences.

 La Salle C  David Raymond, Sandra Schiavo