Twelfth Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection

SRI International
1100 Wilson Boulevard, Suite 2800 (28th Floor)
Arlington, Virginia 22209
March 12-14, 2018

March 12, 2018 (Monday)

8:15am - 8:50am: Breakfast

9:00am - 9:10am: Welcoming Remarks
David Balenson, Conference General Chair, SRI International, Arlington, Virginia, USA

9:10am - 10:40am: Session 1: Themes and Issues
Chair: David Balenson, SRI International, Arlington, Virginia, USA

History of Cyber Threats and Incidents Related to Industrial Control Systems
Kevin Hemsley and Ronald Fisher
Idaho National Laboratory, Idaho Falls, Idaho, USA

Liability Exposure when 3D-Printed Parts Fall from the Sky
Lynne Graves, Mark Yampolskiy, Wayne King, Sofia Belikovetsky and Yuval Elovici
University of South Alabama, Mobile, Alabama, USA
Lawrence Livermore National Laboratory, Livermore, California, USA
Ben-Gurion University of the Negev, Beer-Sheva, Israel
Singapore University of Technology and Design, Singapore

Content Analysis of Cyber Insurance Policies: How do Carriers Price Cyber Risk?
Sasha Romanosky, Lillian Ablon, Andreas Kuehn and Therese Jones
RAND Corporation, Arlington, Virginia, USA

10:40am - 11:00am: Break

11:00am - 12:00pm: Session 2: Industrial Control Systems I
Chair: Janne Hagen, Norwegian Water Resources and Energy Directorate, Oslo, Norway

Abnormal Traffic Generation for Testing Intrusion Detection Systems for Industrial Control Networks
Joo-Yeop Song, Woomyo Lee, Jeong-Han Yun, Hyunjae Park, Sin-Kyu Kim and Young-June Choi
Ajou University, Suwon, South Korea
National Security Research Institute, Daejon, South Korea

An Integrated Control and Intrusion Detection System for a Smart Grid
Eniye Tebekaemi, Duminda Wijesekera and Paulo Costa
George Mason University, Fairfax, Virginia, USA

12:00pm - 1:00pm: Lunch

1:10pm - 2:10pm: Keynote Lecture
The Future of Technical Manpower in Industrial Control Systems Security
Alan Paller, Director of Research, SANS Institute; President, SANS Technology Institute, Bethesda, Maryland, USA

2:15pm - 3:15pm: Session 3: Cyber-Physical System Attacks
Chair: Scott Graham, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Optimal Sabotage Attack on Composite Material Parts
Bikash Ranabhat, Joseph Clements, Jacob Gatlin, Kuang-Ting Hsiao and Mark Yampolskiy
University of South Alabama, Mobile, Alabama, USA

Error Propagation after Re-Ordering Attacks in Hierarchical State Estimation
Ammara Gul and Stephen Wolthusen
Royal Holloway University of London, Egham, United Kingdom
Norwegian University of Science and Technology, Gjovik, Norway

March 12, 2018 (Monday) (continued)

3:15pm - 3:45pm: Break

3:45pm - 5:00pm: Panel Discussion
How Can We Really Protect the Critical Infrastructure?
Chair: Art Conklin, University of Houston, Houston, Texas, USA
Panelists:
Richard George, Senior Cyber Security Advisor, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA
Janne Hagen, Head Engineer, Norwegian Water Resources and Energy Directorate, Oslo, Norway
Alan Paller, Director of Research, SANS Institute; President, SANS Technology Institute, Bethesda, Maryland, USA
Leon Strous, Senior Policy Advisor, De Nederlandsche Bank, Amsterdam, The Netherlands

5:00pm - 5:30pm: IFIP WG 11.10 Business Meeting

5:30pm - 7:30pm: Conference Reception

March 13, 2018 (Tuesday)

8:15am - 8:50am: Breakfast

9:00am - 10:00am: Keynote Lecture
Security Mindedness and the Importance of Changing the Way Engineers Think
Government Security Advisor, Centre for the Protection of the National Infrastructure, London, United Kingdom

10:00am - 10:30am: Break

10:30am - 12:00pm: Session 4: Cyber Risk and Policy
Chair: Richard George, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

Critical Infrastructure Risk Assessment Framework for Enterprise Business Continuity
Cosimo Palazzo, Alessio Orlando and Stefano Panzieri
University of Roma Tre, Rome, Italy

An Evidence Quality Assessment Model for Cyber Security Policymaking
Atif Hussain and Siraj Shaikh
Coventry University, Coventry, United Kingdom

A Theory of Homeland Security
Richard White
University of Colorado at Colorado Springs, Colorado Springs, Colorado, USA

12:00pm - 1:00pm: Lunch

1:10pm - 2:10pm: Session 5: Infrastructure Data Protection I
Chair: Kam-Pui Chow, University of Hong Kong, Hong Kong, China

Protecting Critical Infrastructure Data via Enhanced Access Control, Blockchain and Differential Privacy
Asma Alnemari, Suchith Arodi, Valentina Rodriguez Sosa, Soni Pandey, Carol Romanowski, Rajendra Raj and Sumita Mishra
Rochester Institute of Technology, Rochester, New York, USA

Securing Data-in-Transit for Power-Limited Sensor Networks using Two-Channel Communications
Clark Wolfe, Scott Graham, Robert Mills, Scott Nykl and Paul Simon
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

2:10pm - 3:10pm: Session 6: Infrastructure Data Protection II
Chair: Richard White, University of Colorado at Colorado Springs, Colorado Springs, Colorado, USA

A New Security Content Automation Protocol (SCAP) Information Model and Data Model for Content Authors
Joshua Lubell
National Institute of Standards and Technology, Gaithersburg, Maryland, USA

Reversing a Lattice ECP3 FPGA for Bitstream Protection
Daniel Celebucki, Scott Graham and Sanjeev Gunawardena
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

3:10pm - 3:30pm: Break

3:30pm - 5:00pm: Session 7: Infrastructure Protection
Chair: Gerry Howser, Kalamazoo College, Kalamazoo, Michigan, USA

Securing Critical Infrastructure: A Ransomware Study
Blaine Jeffries, Barry Mullins and Scott Graham
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Modeling a Midstream Oil Terminal for Cyber Security Risk Evaluation
Rishabh Das and Thomas Morris
University of Alabama in Huntsville, Huntsville, Alabama, USA

A Cyber-Physical Test Bed for Measuring the Impacts of Cyber Attacks on Urban Road Networks
Marielba Urdaneta, Antoine Lemay, Nicolas Saunier and Jose Fernandez
Ecole Polytechnique de Montreal, Montreal, Canada

March 14, 2018 (Wednesday)

8:15am - 8:50am: Breakfast

9:00am - 10:00am: Keynote Lecture
Smart Cities and Critical Infrastructure Protection
Scott Tousley, Deputy Director, Cyber Security Division, Science and Technology Directorate, Department of Homeland Security, Washington, DC, USA

10:00am - 10:30am: Break

10:30am - 11:30am: Session 8: Industrial Control Systems II
Chair: Jason Staggs, University of Tulsa, Tulsa, Oklahoma, USA

Introducing Persistent Human Control into a Reservation-Based Autonomous Intersection Protocol
Karl Bentjen, Scott Graham and Scott Nykl
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Variable Speed Simulation for Accelerated Industrial Control System Cyber Training
Luke Bradford, Barry Mullins, Stephen Dunlap and Timothy Lacey
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

11:30am - 12:30pm: Lunch