Eighth Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection
SRI International
1100 Wilson Boulevard, Suite 2800 (28th Floor)
Arlington, Virginia 22209
March 17-19, 2014

March 17, 2014 (Monday)

8:15am - 8:50am: Breakfast

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

9:10am - 10:10am: Keynote Lecture
Lieut. Gen. (Retd.) Robert Elder, George Mason University, Fairfax, Virginia, USA
Former Commander, 8th U.S. Air Force, Barksdale Air Force Base, Louisiana, USA

10:10am – 10:30am: Break

10:30am - 12:00pm: Session 1: Control Systems Security I
Chair: Zach Tudor, SRI International, Arlington, Virginia, USA

Impact of SHODAN on Internet-Facing Industrial Control Devices
Roland Bodenheim, Jonathan Butts, Stephen Dunlap and Barry Mullins
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Recovery of Structural Controllability for Process Control Systems
Cristina Alcaraz and Stephen Wolthusen
University of Malaga, Malaga, Spain
Royal Holloway – University of London, London, United Kingdom
Gjøvik University College, Gjøvik, Norway

Time Management for Cyber-Physical Attacks on Process Control Systems
Marina Krotofil, Alvaro Cardenas and Kishore Angrishi
Hamburg University of Technology, Hamburg, Germany
University of Texas at Dallas, Richardson, Texas, USA
3 T-Systems International, Hamburg, Germany

12:00pm - 1:00pm: Lunch

1:15pm - 2:15pm: Keynote Lecture
Automating Defenses – Don't Send a Human to do a Machine's Job
Richard Schaeffer, Riverbank Associates, Severna Park, Maryland, USA
Former Director, Information Assurance Directorate, National Security Agency, Fort Meade, Maryland, USA

2:15pm - 3:15pm: Session 2: Risk and Impact Assessment
Chair: Thomas Morris, Mississippi State University, Mississippi State, Mississippi, USA

Accuracy Assessment of Service Area Approximation Algorithms for Critical Infrastructure Recovery
Okan Pala, Russell Bent, David Wilson, Steve Linger and James Arnold
University of North Carolina at Charlotte, Charlotte, North Carolina, USA
Los Alamos National Laboratory, Los Alamos, New Mexico, USA

A Consequence Calculation Model for Assessing Potential Casualties in Critical Events
Simona Cavallini, Fabio Bisogni, Marco Bardoscia and Roberto Bellotti
FORMIT Foundation, Rome, Italy
Abdus Salam Center for Theoretical Physics, Trieste, Italy
University of Bari, Bari, Italy

March 17, 2014 (Monday) (continued)

3:15pm - 3:45pm: Break

3:45pm - 5:15pm: Session 3: Themes and Issues
Chair: Sebastian Hess, NATO Communications and Information Agency, Brussels, Belgium

A Survey of Critical Infrastructure Security
William Hurst, Madjid Merabti and Paul Fergus
Liverpool John Moores University, Liverpool, United Kingdom

The Anatomy of a Cyber Power
Jill Rowland, Mason Rice and Sujeet Shenoi
University of Tulsa, Tulsa, Oklahoma, USA

Whither Cyberpower?
Jill Rowland, Mason Rice and Sujeet Shenoi
University of Tulsa, Tulsa, Oklahoma, USA

5:30pm - 7:45pm: Conference Reception

March 18, 2014 (Tuesday)

8:15am - 8:45am: Breakfast

8:45am - 10:15am: Session 4: Infrastructure Protection I
Chair: Kam-Pui Chow, University of Hong Kong, Hong Kong, China

Phasor Measurement Unit Selection for Unobservable Smart Grid Data Integrity Attack Detection
Annarita Giani, Russell Bent and Feng Pan
Los Alamos National Laboratory, Los Alamos, New Mexico, USA

A System Dynamics Approach for Modeling Network Resilience
Simona Cavallini, Cristina d'Alessandro, Margherita Volpe, Stefano Armenia, Camillo Carlini, Alessandro Saullo,
Elisabeth Brein and Pierluigi Assogna
FORMIT Foundation, Rome, Italy
University of Rome La Sapienza, Rome, Italy
Erasmus University, Rotterdam, The Netherlands
Theorematica, Rome, Italy

Asynchronous Binary Byzantine Consensus over Graphs with Power Law Degree Sequences
Goitom Weldehawaryat and Stephen Wolthusen
Gjøvik University College, Gjøvik, Norway
Royal Holloway – University of London, London, United Kingdom

10:15am - 10:30am: Break

10:30am - 12:00pm: Session 5: Control Systems Security II
Chair: Alvaro Cardenas, University of Texas at Dallas, Richardson, Texas, USA

Programmable Logic Controller Modification Attacks
Carl Schuett, Jonathan Butts, Stephen Dunlap and Thomas Dube
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Industrial Control Network Traffic Datasets for Intrusion Detection System Research
Thomas Morris and Wei Gao
Mississippi State University, Mississippi State, Mississippi, USA

An Industrial Control System Testbed Based on Emulation, Physical Devices and Simulation Technology
Haihui Gao, Yong Peng, Zhonghua Dai, Ting Wang, Xuefeng Han and Hanjing Li
China Information Technology Security Evaluation Center, Beijing, China
Beijing University of Technology, Beijing, China

12:00pm - 1:00pm: Lunch

1:15pm - 2:15pm: Keynote Lecture
Towards Effective – not Ornamental – Protection of the Critical Infrastructure
Michael Caloyannides, Former Chief Scientist, Central Intelligence Agency, Langley, Virginia, USA

2:15pm - 2:30pm: Break

2:30pm - 4:30pm: Session 6: Infrastructure Protection II
Chair: Simona Cavallini, FORMIT Foundation, Rome, Italy

Impact Assessment of Cyber Attacks on Wireless Sensor Network Nodes that Monitor Interdependent Physical Systems
Valerio Formicola, Antonio Di Pietro, Abdullah Alsubaie, Salvatore D'Antonio and Jose Marti
University of Naples Parthenope, Naples, Italy
ENEA – Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Rome, Italy
University of British Columbia, Vancouver, Canada

A Computational Asset Vulnerability Model for the Strategic Protection of Critical Infrastructures
Richard White, Terrance Boult and Edward Chow
University of Colorado at Colorado Springs, Colorado Springs, Colorado, USA

March 18, 2014 (Tuesday) (continued)

Reinforcement Learning using Monte Carlo Policy Estimation for Disaster Mitigation
Mohammed Talat Khouj, Sarbjit Sarkaria, Cesar Lopez and Jose Marti
University of British Columbia, Vancouver, Canada

A Cyber Critical Infrastructure Tabletop Exercise
Richard George, Elizabeth Hoenicke, Andrew Krentz, Laura Nolan, Jody Patilla and Steven Taylor
Johns Hopkins Applied Physics Laboratory, Laurel, Maryland, USA

4:30pm - 5:00pm: IFIP WG 11.10 Business Meeting

March 19, 2014 (Wednesday)

8:15am - 8:45am: Breakfast

8:45am - 10:15am: Session 7: Advanced Techniques
Chair: Richard George, Johns Hopkins Applied Physics Laboratory, Laurel, Maryland, USA

Evidence Theory for Cyber-Physical Systems
Riccardo Santini, Chiara Foglietta and Stefano Panzieri
University of Rome Tre, Rome, Italy

Detecting Malicious Intrusions in a PLC using Power Fingerprinting
Carlos Aguayo Gonzalez and Alan Hinton
Power Fingerprinting, Reston, Virginia, USA

Byzantine Generals Attack Industrial Control Systems
Chad Arnold, Jonathan Butts and Krishnaprasad Thirunarayan
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

10:15am - 10:30am: Break

10:30am - 12:00pm: Session 8: Security Strategies and Systems
Chair: Sujeet Shenoi, University of Tulsa, Tulsa, Oklahoma, USA

A Decision-Support Tool for a Computational Unified Homeland Security Strategy
Richard White, Aaron Burkhart, Edward Chow and Logan Maynard
University of Colorado at Colorado Springs, Colorado Springs, Colorado, USA

Performance Analysis of Format-Preserving Encryption Algorithms for Critical Infrastructure Protection
Richard Agbeyibor, Jonathan Butts, Michael Grimaila and Robert F. Mills
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

An Automated Dialog System for Border Control
Mohammad Ababneh, Malek Athamnah, Duminda Wijesekera and Paulo Costa
George Mason University, Fairfax, Virginia, USA

12:00pm - 1:00pm: Lunch