Fourteenth Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection

SRI International
1100 Wilson Boulevard, Suite 2800 (28th Floor)
Arlington, Virginia 22209
March 16-17, 2020

March 16, 2020 (Monday)

8:15am - 8:50am: Breakfast

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

9:10am - 10:10am: Keynote Lecture

*Electric Sector Security – Defense and Response*
David Batz, Senior Director, Cyber and Infrastructure Security, Edison Electric Institute, Washington, DC, USA

10:10am - 10:40am: Session 1: Aviation Systems Security I
Chair: David Balenson, SRI International, Arlington, Virginia, USA

*Cyber Security Risk Assessment of Small Unmanned Aerial Vehicles*
Dillon Pettit and Scott Graham
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

10:40am - 11:00am: Break

11:00am - 12:00pm: Session 2: Infrastructure Security I
Chair: Patrick Sweeney, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

*A Cross-Domain Simulation Model for Supporting Risk Analyses of Large Cities*
Stefan Schauer and Stefan Rass
Austrian Institute of Technology, Klagenfurt, Austria
Alpen Adria University, Klagenfurt, Austria

*A Model-Based Safety-Security Risk Analysis Framework for Interconnected Infrastructures*
Rajesh Kumar
Birla Institute of Technology and Science, Pilani, India

12:00pm - 1:00pm: Lunch

1:10pm - 2:10pm: Session 3: Transportation Infrastructure Security
Chair: Jason Staggs, University of Tulsa, Tulsa, Oklahoma, USA

*Cyber State Requirements for Design and Validation of Trust in Critical Transportation Infrastructure*
Timothy Ellis, Michael Locasto and David Balenson
SRI International, San Diego, California, USA
SRI International, New York, New York, USA
SRI International, Arlington, Virginia, USA

*A Truncated Blockchain Authentication Scheme for Vehicular Ad-Hoc Networks*
Matthew Wagner and Bruce McMillin
Missouri University of Science and Technology, Rolla, Missouri, USA

2:10pm - 3:10pm: Session 4: Cyber-Physical Systems Security
Chair: Dennis-Kenji Kipker, University of Bremen, Bremen, Germany

*Cyber Resilient SCADA Systems via Secure State Restoration*
Zachary Birnbaum, Matthew Davis, Salman Salman, James Schaffter, Lanier Watkins, Saikiran Yamajala and Shruti Paul
Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA
Johns Hopkins University Information Security Institute, Baltimore, Maryland, USA
March 16, 2020 (Monday) (continued)

2:10pm - 3:10pm: Session 4: Cyber-Physical Systems Security (continued)
Chair: Dennis-Kenji Kipker, University of Bremen, Bremen, Germany

Distributed Bias Detection in Cyber-Physical Systems
Simon Thougaard and Bruce McMillin
Missouri University of Science and Technology, Rolla, Missouri, USA

3:10pm - 3:30pm: Break

3:30pm - 5:00pm: Session 5: Infrastructure Attack Modeling and Detection
Chair: Stefan Schauer, Austrian Institute of Technology, Klagenfurt, Austria

Constructing Constrained Attack-Fault Trees to Derive Control System Hazards and Attacks
Matthew Jablonski and Duminda Wijesekera
George Mason University, Fairfax, Virginia, USA

Comparison of Design-Centric and Data-Centric Methods for Distributed Attack Detection
Jennifer Leopold, Bruce McMillin, Rachel Stiffler and Nathan Lutes
Missouri University of Science and Technology, Rolla, Missouri, USA

Empirical Dynamic Modeling as a Basis for Intrusion Detection
David Crow, Scott Graham, Brett Borghetti and Patrick Sweeney
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

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

5:30pm - 7:30pm: Conference Reception
March 17, 2020 (Tuesday)

8:15am - 8:45am: Breakfast

8:45am - 9:45am: Keynote Lecture
A Future Look at Critical Infrastructure Security and Resilience

9:45am - 10:45pm: Session 6: Telecommunications Infrastructure Security
Chair: Richard George, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

Modeling Telecommunications Infrastructures Using the CISIApro 2.0 Simulator
Chiara Foglietta and Stefano Panzieri
University of Roma Tre, Rome, Italy

Implications of Securing an InfiniBand Network
Lucas Mireles, Scott Graham, Stephen Dunlap, Patrick Sweeney and Matthew Dallmeyer
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

10:45am - 11:00am: Break

11:00am - 12:00pm: Session 7: Infrastructure Security II
Chair: Bruce McMillin, Missouri University of Science and Technology, Rolla, Missouri, USA

Vulnerability Assessment of a Smart Building Management System
Raymond Chan, Forest Tan, Ulric Teo and Brandon Kow
Singapore Institute of Technology, Singapore

On the Use of Information Security Management Systems by German Energy Providers
Sebastian Pape, Christopher Schmitz, Dennis-Kenji Kipker and Andre Sekulla
Goethe University, Frankfurt, Germany
University of Bremen, Bremen, Germany
University of Siegen, Siegen, Germany

12:00pm - 1:00pm: Lunch

1:00pm - 2:00pm: Keynote Lecture
Preventing and Eradicating Threats to Industrial Control Systems
Clinton McKay, Technical Director, Critical Network Defense, National Security Agency, Fort Meade, Maryland, USA

2:00pm - 3:00pm: Session 8: Aviation Systems Security II
Chair: Raymond Chan, Singapore Institute of Technology, Singapore

Detecting Logic Bombs in the Autopilot Code of Unmanned Aerial Vehicles
Jake Magness, Patrick Sweeney, Scott Graham and Nicholas Kovach
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA

Cyber-Physical Security of the ADS-B System
Anusha Thudimilla and Bruce McMillin
Missouri University of Science and Technology, Rolla, Missouri, USA

3:00pm - 3:30pm: Break

3:30pm - 4:30pm: Session 9: Infrastructure Security III
Chair: Sujeet Shenoi, University of Tulsa, Tulsa, Oklahoma, USA

Forensic Investigation of a Hacked Universal Robot
Yanan Gong, Kam-Pui Chow, Yonghao Mai and Jun Zhang
University of Hong Kong, Hong Kong, China
Hubei Police University, Wuhan, China

Multi-Channel Security via Data Fragmentation
Micah Hayden, Scott Graham, Addison Betances and Robert Mills
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA