

# 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 Thougard 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*

Sue Armstrong, Associate Director, Strategy, Performance and Resources, Cybersecurity and Infrastructure Security Agency, U.S. Department of Homeland Security, Washington, DC, USA

#### **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 Sheno, 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