

Contents

Stealth Low-Level Manipulation of Programmable Logic Controllers I/O by Pin Control Exploitation	1
<i>Ali Abbasi, Majid Hashemi, Emmanuele Zambon, and Sandro Etalle</i>	
Developing a Cyber Incident Communication Management Exercise for CI Stakeholders.	13
<i>Tomomi Aoyama, Kenji Watanabe, Ichiro Koshijima, and Yoshihiro Hashimoto</i>	
On Auxiliary Entity Allocation Problem in Multi-layered Interdependent Critical Infrastructures	25
<i>Joydeep Banerjee, Arunabha Sen, and Chenyang Zhou</i>	
Cyber Targets Water Management.	38
<i>Pieter Burghouwt, Marinus Maris, Sjaak van Peski, Eric Luijff, Imelda van de Voorde, and Marcel Spruit</i>	
Integrated Safety and Security Risk Assessment Methods: A Survey of Key Characteristics and Applications	50
<i>Sabarathinam Chockalingam, Dina Hadžiosmanović, Wolter Pieters, André Teixeira, and Pieter van Gelder</i>	
Railway Station Surveillance System Design: A Real Application of an Optimal Coverage Approach	63
<i>Francesca De Cillis, Stefano De Muro, Franco Fiumara, Roberto Setola, Antonio Sforza, and Claudio Sterle</i>	
A Synthesis of Optimization Approaches for Tackling Critical Information Infrastructure Survivability	75
<i>Annunziata Esposito Amideo and Maria Paola Scaparra</i>	
A Dataset to Support Research in the Design of Secure Water Treatment Systems	88
<i>Jonathan Goh, Sridhar Adepu, Khurum Nazir Junejo, and Aditya Mathur</i>	
Human Vulnerability Mapping Facing Critical Service Disruptions for Crisis Managers.	100
<i>Amélie Grangeat, Julie Sina, Vittorio Rosato, Aurélie Bony, and Marianthi Theocharidou</i>	

A Methodology for Monitoring and Control Network Design 111
István Kiss and Béla Genge

Effective Defence Against Zero-Day Exploits Using Bayesian Networks 123
Tingting Li and Chris Hankin

Power Auctioning in Resource Constrained Micro-grids: Cases of Cheating. . . . 137
Anesu M. C. Marufu, Anne V. D. M. Kayem, and Stephen D. Wolthusen

Using Incentives to Foster Security Information Sharing
and Cooperation: A General Theory and Application to Critical
Infrastructure Protection. 150
*Alain Mermoud, Marcus Matthias Keupp, Solange Ghernaoui,
and Dimitri Percia David*

Dynamic Risk Analyses and Dependency-Aware Root Cause Model
for Critical Infrastructures 163
*Steve Muller, Carlo Harpes, Yves Le Traon, Sylvain Gombault,
Jean-Marie Bonnin, and Paul Hoffmann*

Selecting Privacy Solutions to Prioritise Control in Smart
Metering Systems 176
Juan E. Rubio, Cristina Alcaraz, and Javier Lopez

A Six-Step Model for Safety and Security Analysis
of Cyber-Physical Systems. 189
Giedre Sabaliauskaite, Sridhar Adepu, and Aditya Mathur

Availability Study of the Italian Electricity SCADA System in the Cloud. . . . 201
Stefano Sebastio, Antonio Scala, and Gregorio D’Agostino

Railway System Failure Scenario Analysis. 213
*William G. Temple, Yuan Li, Bao Anh N. Tran, Yan Liu,
and Binbin Chen*

Tamper Resistant Secure Digital Silo for Log Storage
in Critical Infrastructures 226
Khan Ferdous Wahid, Helmut Kaufmann, and Kevin Jones

Access Control and Availability Vulnerabilities in the ISO/IEC 61850
Substation Automation Protocol 239
James G. Wright and Stephen D. Wolthusen

A Case Study Assessing the Effects of Cyber Attacks
on a River Zonal Dispatcher. 252
*Ronald Joseph Wright, Ken Keefe, Brett Feddersen,
and William H. Sanders*

Reliable Key Distribution in Smart Micro-Grids 265
Heinrich Strauss, Anne V. D. M. Kayem, and Stephen D. Wolthusen

Security Validation for Data Diode with Reverse Channel 271
Jeong-Han Yun, Yeop Chang, Kyoung-Ho Kim, and Woonyon Kim

Towards a Cybersecurity Game: Operation Digital Chameleon 283
Andreas Rieb and Ulrike Lechner

Cyber Security Investment in the Context of Disruptive Technologies:
 Extension of the Gordon-Loeb Model and Application to Critical
 Infrastructure Protection 296
*Dimitri Percia David, Marcus Matthias Keupp, Solange Ghernaouti,
 and Alain Mermoud*

Behavioral Intentions and Threat Perception During Terrorist,
 Fire and Earthquake Scenarios 302
Simona A. Popușoi, Cornelia Măirean, and Grigore M. Havârneanu

An Operator-Driven Approach for Modeling Interdependencies
 in Critical Infrastructures Based on Critical Services and Sectors. 308
Elisa Canzani, Helmut Kaufmann, and Ulrike Lechner

Domain Specific Stateful Filtering with Worst-Case Bandwidth 321
Maxime Puy, Jean-Louis Roch, and Marie-Laure Potet

Securing SCADA Critical Network Against Internal and External
 Threats: Short Paper 328
*Mounia El Anbal, Anas Abou El Kalam, Siham Benhadou,
 Fouad Moutaouakkil, and Hicham Medromi*

Simulation of Cascading Outages in (Inter)-Dependent Services
 and Estimate of Their Societal Consequences: Short Paper. 340
*Antonio Di Pietro, Luigi La Porta, Luisa Lavalle, Maurizio Pollino,
 Vittorio Rosato, and Alberto Tofani*

Author Index 347



<http://www.springer.com/978-3-319-71367-0>

Critical Information Infrastructures Security
11th International Conference, CRITIS 2016, Paris,
France, October 10–12, 2016, Revised Selected Papers
Havarneanu, G.; Setola, R.; Nassopoulos, H.;
Wolthusen, S. (Eds.)
2017, XI, 348 p. 103 illus., Softcover
ISBN: 978-3-319-71367-0