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JAELYN ROLLINS

Cyber-security of SCADA and Other Industrial Control Systems John Wiley & Sons
This book documents recent advances in the field of modeling, simulation, control, security and reliability of Cyber- Physical Systems (CPS) in power grids. The aim of this book is to help the reader gain insights into working of CPSs and understand their potential in transforming the power grids of tomorrow. This book will be useful for all those who are interested in design of cyber-physical systems, be they students or researchers in power systems, CPS modeling software developers, technical marketing professionals and business policy-makers.
Cyber Security Research and Development Springer Nature
This textbook provides an introduction to probabilistic reliability analysis of power systems. It discusses a range of probabilistic methods used in reliability modelling of power system components, small systems and large systems. It also presents the benefits of probabilistic methods for modelling renewable energy sources. The textbook describes real-life studies, discussing practical examples and providing interesting problems, teaching students the methods in a thorough and hands-on way. The textbook has chapters dedicated to reliability models for components (reliability functions, component life cycle, two-state Markov model, stress-strength model), small systems (reliability networks, Markov models, fault/event tree analysis) and large systems (generation adequacy, state enumeration, Monte-Carlo simulation). Moreover, it contains chapters about probabilistic optimal power flow, the reliability of underground cables and cyber-physical power systems. After reading this book, engineering students will be able to apply various methods to model the reliability of power system components, smaller and larger systems. The textbook will be accessible to power engineering students, as well as students from mathematics, computer science, physics, mechanical engineering, policy & management, and will allow them to apply reliability analysis methods to their own areas of expertise.
Cyber Security of Industrial Control Systems in the Future Internet Environment Springer Nature
This book constitutes the proceedings of the 9th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities, TridentCom 2014, held in Guangzhou, China, in May 2014. The 49 revised full papers presented were carefully selected out of 149 submissions. The conference consisted of 6 symposia covering topics such as testbed virtualization, Internet of Things, vehicular networks, SDN, NDN, large-scale testbed federation, mobile networks, wireless networks.
Summary of Activities of the Committee on Science, U.S. House of Representatives for the ... Congress Performing Cyber Security Analysis Using a Live Virtual and Constructive (LVC) TestbedEssential Cybersecurity Science
Terrorism: Commentary on Security Documents is a series that provides primary source documents and expert commentary on various topics relating to the worldwide effort to combat terrorism, as well as efforts by the United States and other nations to protect their national security interests. Volume 140, The Cyber Threat considers U.S. policy in relation to cybersecurity and cyberterrorism, and examines opposing views on cybersecurity and international law by nations such as Russia and China. The documents in this volume include testimony of FBI officials before Congressional committees, as well as detailed reports from the Strategic Studies Institute/U.S. Army War College Press and from the Congressional Research Service. The detailed studies in this volume tackling the core issues of cybersecurity and cyberterrorism include: Legality in Cyberspace; An Adversary View and Distinguishing Acts of War in Cyberspace; and Assessment Criteria, Policy Considerations, and Response Implications.
Cyber Security in India Springer Nature
CYBER-PHYSICAL SYSTEMS The 13 chapters in this book cover the various aspects associated with Cyber-Physical Systems (CPS) such as algorithms, application areas, and the improvement of existing technology such as machine learning, big data and robotics. Cyber-Physical Systems (CPS) is the interconnection of the virtual or cyber and the physical system. It is realized by combining three well-known technologies, namely “Embedded Systems,” “Sensors and Actuators,” and “Network and Communication Systems.” These technologies combine to form a system known as CPS. In CPS, the physical process and information processing are so tightly connected that it is hard to distinguish the individual contribution of each process from the output. Some exciting innovations such as autonomous cars, quadcopter, spaceships, sophisticated medical devices fall under CPS. The scope of CPS is tremendous. In CPS, one sees the applications of various emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), machine learning (ML), deep learning (DL), big data (BD), robotics, quantum technology, etc. In almost all sectors, whether it is education, health, human resource development, skill improvement, startup strategy, etc., one sees an enhancement in the quality of output because of the emergence of CPS into the field. Audience Researchers in Information technology, artificial intelligence, robotics, electronics and electrical engineering.

Cyber-Physical Systems Springer
This book constitutes the proceedings of the 4th International Conference on Computational Intelligence, Cyber Security, and Computational Models, ICC3 2019, which was held in Coimbatore, India, in December 2019. The 9 papers presented in this volume were carefully reviewed and selected from 38 submissions. They were organized in topical sections named: computational intelligence; cyber security; and computational models.
Advances in Cyber Security WIT Press
This book presents refereed proceedings of the Third International Conference on Advances in Cyber Security, ACeS 2021, held in Penang, Malaysia, in August 2021. The 36 full papers were carefully reviewed and selected from 92 submissions. The papers are organized in the following topical sections: Internet of Things, Industry 4.0 and Blockchain, and Cryptology; Digital Forensics and Surveillance, Botnet and Malware, DDoS, and Intrusion Detection/Prevention; Ambient Cloud and Edge Computing, SDN, Wireless and Cellular Communication; Governance, Social Media, Mobile and Web, Data Privacy, Data Policy and Fake News.
Cyber Physical Systems Approach to Smart Electric Power Grid IGI Global
This SpringerBrief presents a brief introduction to probabilistic risk assessment (PRA), followed by a discussion of abnormal event detection techniques in industrial control systems (ICS). It also provides an introduction to the use of game theory for the development of cyber-attack response models and a discussion on the experimental testbeds used for ICS cyber security research. The probabilistic risk assessment framework used by the nuclear industry provides a valid framework to understand the impacts of cyber-attacks in the physical world. An introduction to the PRA techniques such as fault trees, and event trees is provided along with a discussion on different levels of PRA and the application of PRA techniques in the context of cybersecurity. A discussion on machine learning based fault detection and diagnosis (FDD) methods and cyber-attack detection methods for industrial control systems are introduced in this book as well. A dynamic Bayesian networks based method that can be used to detect an abnormal event and classify it as either a component fault induced safety event or a cyber-attack is discussed. An introduction to the stochastic game formulation of the attacker-defender interaction in the context of cyber-attacks on industrial control systems to compute optimal response strategies is presented. Besides supporting cyber-attack response, the analysis based on the game model also supports the behavioral study of the defender and the attacker during a cyber-attack, and the results can then be used to analyze the risk to the system caused by a cyber-attack. A brief review of the current state of experimental testbeds used in ICS cybersecurity research and a comparison of the structures of various testbeds and the attack scenarios supported by those testbeds is included. A description of a testbed for nuclear power applications, followed by a discussion on the design of experiments that can be carried out on the testbed and the associated results is covered as well. This SpringerBrief is a useful resource tool for researchers working in the areas of cyber security for industrial control systems, energy systems and cyber physical systems. Advanced-level students that study these topics will also find this SpringerBrief useful as a study guide.
Risk Analysis XI Springer
These proceedings represent the work of contributors to the 19th European Conference on Cyber Warfare and Security (ECCWS 2020), supported by University of Chester, UK on 25-26 June 2020. The Conference Co-chairs are Dr Thaddeus Eze and Dr Lee Speakman, both from University of Chester and the Programme Chair is Dr Cyril Onwubiko from IEEE and Director, Cyber Security Intelligence at Research Series Limited. ECCWS is a well-established event on the academic research calendar and now in its 19th year the key aim remains the opportunity for participants to share ideas and meet. The conference was due to be held at University of Chester, UK, but due to the global Covid-19 pandemic it was moved online to be held as a virtual event. The scope of papers will ensure an interesting conference. The subjects covered illustrate the wide range of topics that fall into this important and ever-growing area of research.
Budget of the United States Government Springer Nature
In today’s modernized market, many fields are utilizing internet technologies in their everyday methods of operation. The industrial sector is no different as these technological solutions have provided several benefits including reduction of costs, scalability, and efficiency improvements. Despite this, cyber security remains a crucial risk factor in industrial control systems. The same public and corporate solutions do not apply to this specific district because these security issues are more complex and intensive. Research is needed that explores new risk assessment methods and security mechanisms that professionals can apply to their modern technological procedures. Cyber Security of Industrial Control Systems in the Future Internet Environment is a pivotal reference source that provides vital research on current security risks in critical infrastructure schemes with the implementation of information and communication technologies. While highlighting topics such as intrusion detection systems, forensic challenges, and smart grids, this publication explores specific security solutions within industrial sectors that have begun applying internet technologies to their current methods of operation. This book is ideally designed for researchers, system engineers, managers, networkers, IT professionals, analysts, academicians, and students seeking a better understanding of the key issues within securing industrial control systems that utilize internet technologies.
Cyber-Security Threats and Response Models in Nuclear Power Plants Springer Nature
This book constitutes the refereed proceedings of the Second Conference on Security of Industrial Control Systems and Cyber-Physical Systems, CyberICPS 2016, held in Crete, Greece, in September 2016 in conjunction with ESORICS 2016, the 21st annual European Symposium on Research in Computer Security. The 5 revised full papers 2 invited papers presented were carefully reviewed and selected from 18 initial submissions. CyberICPS 2016 focuses on topics related to the management of cyber security in industrial control systems and cyber-physical systems, including security monitoring, trust management, security policies and measures.
John Wiley & Sons
This book presents the implementation of novel concepts and solutions, which allows to enhance the cyber security of administrative and industrial systems and the resilience of economies and societies to cyber and hybrid threats. This goal can be achieved by rigorous information sharing, enhanced situational awareness, advanced protection of industrial processes and critical infrastructures, and proper account of the human factor, as well as by adequate methods and tools for analysis of big data, including data from social networks, to find best ways to counter hybrid influence. The

implementation of these methods and tools is examined here as part of the process of digital transformation through incorporation of advanced information technologies, knowledge management, training and testing environments, and organizational networking. The book is of benefit to practitioners and researchers in the field of cyber security and protection against hybrid threats, as well as to policymakers and senior managers with responsibilities in information and knowledge management, security policies, and human resource management and training.

Probabilistic Reliability Analysis of Power Systems Syngress

This book presents refereed proceedings of the First International Conference on Advances in Cyber Security, ACeS 2019, held in Penang, Malaysia, in July-August 2019. The 25 full papers and 1 short paper were carefully reviewed and selected from 87 submissions. The papers are organized in topical sections on internet of things, industry and blockchain, and cryptology; digital forensics and surveillance, botnet and malware, and DDoS and intrusion detection/prevention; ambient cloud and edge computing, wireless and cellular communication.

Proceedings of International Conference on Network Security and Blockchain Technology Academic Conferences and publishing limited

This book constitutes revised selected papers from the 13th International Conference on Critical Information Infrastructures Security, CRITIS 2018, held in Kaunas, Lithuania, in September 2018.The 16 full papers and 3 short papers presented were carefully reviewed and selected from 61 submissions. They are grouped in the following topical sections: advanced analysis of critical energy systems, strengthening urban resilience, securing internet of things and industrial control systems, need and tool sets for industrial control system security, and advancements in governance and resilience of critical infrastructures.

Department of Homeland Security Appropriations for Fiscal Year 2005 Springer

This professional guide and reference examines the challenges of assessing security vulnerabilities in computing infrastructure. Various aspects of vulnerability assessment are covered in detail, including recent advancements in reducing the requirement for expert knowledge through novel applications of artificial intelligence. The work also offers a series of case studies on how to develop and perform vulnerability assessment techniques using start-of-the-art intelligent mechanisms. Topics and features: provides tutorial activities and thought-provoking questions in each chapter, together with numerous case studies; introduces the fundamentals of vulnerability assessment, and reviews the state of the art of research in this area; discusses vulnerability assessment frameworks, including frameworks for industrial control and cloud systems; examines a range of applications that make use of artificial intelligence to enhance the vulnerability assessment processes; presents visualisation techniques that can be used to assist the vulnerability assessment process. In addition to serving the needs of security practitioners and researchers, this accessible volume is also ideal for students and instructors seeking a primer on artificial intelligence for vulnerability assessment, or a supplementary text for courses on computer security, networking, and artificial intelligence.

Essential Cybersecurity Science "O'Reilly Media, Inc."

If you’re involved in cybersecurity as a software developer, forensic investigator, or network administrator, this practical guide shows you how to apply the scientific method when assessing techniques for protecting your information systems. You’ll learn how to conduct scientific experiments on everyday tools and procedures, whether you’re evaluating corporate security systems, testing your own security product, or looking for bugs in a mobile game. Once author Josiah Dykstra gets you up to speed on the scientific method, he helps you focus on standalone, domain-specific topics, such as cryptography, malware analysis, and system security engineering. The latter chapters include practical case studies that demonstrate how to use available tools to conduct domain-specific scientific experiments. Learn the steps necessary to conduct scientific experiments in cybersecurity Explore fuzzing to test how your software handles various inputs Measure the performance of the Snort intrusion detection system Locate malicious “needles in a haystack” in your network and IT environment Evaluate cryptography design and application in IoT products Conduct an experiment to identify relationships between similar malware binaries Understand system-level security requirements for enterprise networks and web services

ISGW 2017: Compendium of Technical Papers Springer Nature

This book provides a comprehensive overview of the fundamental security of Industrial Control Systems (ICSs), including Supervisory Control and Data Acquisition (SCADA) systems and touching on cyber-physical systems in general. Careful attention is given to providing the reader with clear and comprehensive background and reference material for each topic pertinent to ICS security. This book offers answers to such questions as: Which specific operating and security issues may lead to a loss of efficiency and operation? What methods can be used to monitor and protect my system? How can I design my system to reduce threats?This book offers chapters on ICS cyber threats, attacks, metrics, risk, situational awareness, intrusion detection, and security testing, providing an advantageous reference set for current system owners who wish to securely configure and operate their ICSs. This book is appropriate for non-specialists as well. Tutorial information is provided in two initial chapters and in the beginnings of other chapters as needed. The book concludes with advanced topics on ICS governance, responses to attacks on ICS, and future security of the Internet of Things.

The Network Security Test Lab Springer

This book constitutes the thoroughly refereed post-conference proceedings of the 4th International Workshop on the Security of Industrial Control Systems and Cyber-Physical Systems, CyberICPS 2018, and the Second International Workshop on Security and Privacy Requirements Engineering, SECPRE 2018, held in Barcelona, Spain, in September 2018, in conjunction with the 23rd European Symposium on Research in Computer Security, ESORICS 2018. The CyberICPS Workshop received 15 submissions from which 8 full papers were selected for presentation. They cover topics related to threats, vulnerabilities and risks that cyber-physical systems and industrial control systems face; cyber attacks that may be launched against such systems; and ways of detecting and responding to such attacks. From the SECPRE Workshop 5 full papers out of 11 submissions are included. The selected papers deal with aspects of security and privacy requirements assurance and evaluation; and security requirements elicitation and modelling.

Safety and Security Engineering V Springer Nature

Performing Cyber Security Analysis Using a Live Virtual and Constructive (LVC) TestbedEssential Cybersecurity Science"O'Reilly Media, Inc."

Department of Homeland Security Appropriations for Fiscal Year ... Springer Nature

This book offers a systematic explanation of cybersecurity protection of electricity supply facilities, including discussion of related costs, relevant standards, and recent solutions. The author explains the current state of cybersecurity in the electricity market, and cybersecurity standards that apply in that sector. He then offers a systematic approach to cybersecurity management, including new methods of cybersecurity assessment, cost evaluation and comprehensive defence. This monograph is suitable for practitioners, professionals, and researchers engaged in critical infrastructure protection.