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MEDINFO 2019: Health and Wellbeing e-Networks for All - L. Ohno-Machado 2019-11-12
Combining and integrating cross-institutional data remains a challenge for both researchers and those involved in patient care. Patient-generated data can contribute precious information to healthcare professionals by enabling monitoring under normal life conditions and also helping patients play a more active role in their own care. This book presents the proceedings of MEDINFO 2019, the 17th World Congress on Medical and Health Informatics, held in Lyon, France, from 25 to 30 August 2019. The theme of this year's conference was 'Health and Wellbeing: E-Networks for All', stressing the increasing importance of networks in healthcare on the one hand, and the patient-centered perspective on the other. Over 1100 manuscripts were submitted to the conference and, after a thorough review process by at least three reviewers and assessment by a scientific program committee member, 285 papers and 296 posters were accepted, together with 47 podium abstracts, 7 demonstrations, 45 panels, 21 workshops and 9 tutorials. All accepted paper and poster contributions are included in these proceedings. The papers are grouped under four thematic tracks: interpreting health and biomedical data, supporting care delivery, enabling precision medicine and public health, and the human element in medical informatics. The posters are divided into the same four groups. The book presents an overview of state-of-the-art informatics projects from multiple regions of the world; it will be of interest to anyone working in the field of medical informatics.
Electrical Installations in Ships - Standards Australia Limited 2019

IoT Fundamentals - David Hanes 2017-05-30
Today, billions of devices are Internet-connected, IoT standards and protocols are stabilizing, and technical professionals must increasingly solve real problems with IoT technologies. Now, five leading Cisco IoT experts present the first comprehensive, practical reference for making IoT work. IoT Fundamentals brings together knowledge previously available only in white papers, standards documents, and other hard-to-find sources—or nowhere at all. The authors begin with a high-level overview of IoT and introduce key concepts needed to successfully design IoT solutions. Next, they walk through each key technology, protocol, and technical building block that combine into complete IoT solutions. Building on these essentials, they present several detailed use cases, including manufacturing, energy, utilities, smart+connected cities, transportation, mining, and public safety. Whatever your role or existing infrastructure, you'll gain deep insight what IoT applications can

do, and what it takes to deliver them. Fully covers the principles and components of next-generation wireless networks built with Cisco IOT solutions such as IEEE 802.11 (Wi-Fi), IEEE 802.15.4-2015 (Mesh), and LoRaWAN Brings together real-world tips, insights, and best practices for designing and implementing next-generation wireless networks Presents start-to-finish configuration examples for common deployment scenarios Reflects the extensive first-hand experience of Cisco experts

Internet-of-Things (IoT) Systems - Dimitrios Serpanos 2017-11-24

This book covers essential topics in the architecture and design of Internet of Things (IoT) systems. The authors provide state-of-the-art information that enables readers to design systems that balance functionality, bandwidth, and power consumption, while providing secure and safe operation in the face of a wide range of threat and fault models. Coverage includes essential topics in system modeling, edge/cloud architectures, and security and safety, including cyberphysical systems and industrial control systems.

The Security Development Lifecycle - Michael Howard 2006

Your customers demand and deserve better security and privacy in their software. This book is the first to detail a rigorous, proven methodology that measurably minimizes security bugs--the Security Development Lifecycle (SDL). In this long-awaited book, security experts Michael Howard and Steve Lipner from the Microsoft Security Engineering Team guide you through each stage of the SDL--from education and design to testing and post-release. You get their first-hand insights, best practices, a practical history of the SDL, and lessons to help you implement the SDL in any development organization. Discover how to: Use a streamlined risk-analysis process to find security design issues before code is committed Apply secure-coding best practices and a proven testing process Conduct a final security review before a product ships Arm customers with prescriptive guidance to configure and deploy your product more securely Establish a plan to respond to new security vulnerabilities Integrate security discipline into agile methods and processes, such as Extreme Programming and Scrum Includes a CD featuring: A six-part security class video conducted by the authors and other Microsoft security experts Sample SDL documents and fuzz testing tool PLUS--Get book updates on the Web. For customers who purchase an ebook version of this title, instructions for downloading the CD files can be found in the ebook.

COBIT 5 for Risk - ISACA 2013-09-25

Information is a key resource for all enterprises. From the time information is created to the moment it is destroyed, technology plays a significant role in containing, distributing and analysing information. Technology is increasingly advanced and has become pervasive in enterprises and the social, public and business environments.

Risks and Security of Internet and Systems - Akka Zemmari 2019-01-24

This book constitutes the revised selected papers from the 13th International Conference on Risks and Security of Internet and Systems, CRiSIS 2018, held in Arcachon, France, in October 2018. The 12 full papers and 6 short papers presented in this volume were carefully reviewed and selected from 34 submissions. They cover diverse research themes that range from classic topics, such as vulnerability analysis and classification; apps security; access control and filtering; cloud security; cyber-insurance and cyber threat intelligence; human-centric security and trust; and risk analysis.

Automatisierte, minimalinvasive Sicherheitsanalyse und Vorfallreaktion für industrielle Systeme - Patzer, Florian 2022-10-17

Automatisierte Abwehr- und Präventionsmaßnahmen zum Schutz industrieller Systeme gefährden oft deren Echtzeitverarbeitung, Ausfallsicherheit und Redundanz. Daher müssen sie so wenig invasiv wie möglich durchgeführt werden. Dennoch sind gerade die minimalinvasive Sicherheitsanalyse und Vorfallreaktion noch wenig erforscht. In dieser Arbeit werden auf neuen semantischen- und SDN-basierten Ansätzen beruhende Lösungen für einige der wichtigsten Probleme in diesen Bereichen vorgestellt. - Automated defense and prevention measures designed to protect industrial automation and control systems often compromise their real-time processing, resilience and redundancy. Therefore, they need to be performed as non-invasively as possible.

Nevertheless, particularly minimally invasive security analysis and incident response are still poorly researched. This work presents solutions based on new semantic- and SDN-based approaches to some of the most important problems in these areas.

Risks and Security of Internet and Systems - Slim Kallel 2020-02-28

This book constitutes the revised selected papers from the 14th International Conference on Risks and Security of Internet and Systems, CRiSIS 2019, held in Hammamet, Tunisia, in October 2019. The 20 full papers and 4 short papers presented in this volume were carefully reviewed and selected from 64 submissions. They cover diverse research themes that range from classic topics, such as risk analysis and management; access control and permission; secure embedded systems; network and cloud security; information security policy; data protection and machine learning for security; distributed detection system and blockchain.

Industrial Network Security - Eric D. Knapp 2014-12-09

As the sophistication of cyber-attacks increases, understanding how to defend critical infrastructure systems—energy production, water, gas, and other vital systems—becomes more important, and heavily mandated. Industrial Network Security, Second Edition arms you with the knowledge you need to understand the vulnerabilities of these distributed supervisory and control systems. The book examines the unique protocols and applications that are the foundation of industrial control systems, and provides clear guidelines for their protection. This how-to guide gives you thorough understanding of the unique challenges facing critical infrastructures, new guidelines and security measures for critical infrastructure protection, knowledge of new and evolving security tools, and pointers on SCADA protocols and security implementation. All-new real-world examples of attacks against control systems, and more diagrams of systems Expanded coverage of protocols such as 61850, Ethernet/IP, CIP, ISA-99, and the evolution to IEC62443 Expanded coverage of Smart Grid security New coverage of signature-based detection, exploit-based vs. vulnerability-based detection, and signature reverse engineering

Smart Service Management - Maria Maleshkova 2021-01-26

This book presents the main theoretical foundations behind smart services as well as specific guidelines and practically proven methods on how to design them. Furthermore, it gives an overview of the possible implementation architectures and shows how the designed smart services can be realized with specific technologies. Finally, it provides four specific use cases that show how smart services have been realized in practice and what impact they have within the businesses. The first part of the book defines the basic concepts and aims to establish a shared understanding of terms, such as smart services, service systems, smart service systems or cyber-physical systems. On this basis, it provides an analysis of existing work and includes insights on how an organization incorporating smart services could enhance and adjust their management and business processes. The second part on the design of smart services elaborates on what constitutes a successful smart service and describes experiences in the area of interdisciplinary teams, strategic partnerships, the overall service systems and the common data basis. In the third part, technical reference architectures are presented in detail, encompassing topics on the design of digital twins in cyber physical systems, the communication between entities and sensors in the age of Industry 4.0 as well as data management and integration. The fourth part then highlights a number of analytical possibilities that can be realized and that can constitute or be part of smart services, including machine learning and artificial intelligence methods. Finally, the applicability of the introduced design and development method is demonstrated by considering specific real-world use cases. These include services in the industrial and mobility sector, which were developed in direct cooperation with industry partners. The main target audience of this book is industry-focused readers, especially practitioners from industry, who are involved in supporting and managing digital business. These include professionals working in business development, product management, strategy, and development, ranging from middle management to Chief Digital Officers. It conveys all the basics needed for developing smart services and successfully placing them on the

market by explaining technical aspects as well as showcasing practical use cases.

Secure Operations Technology - Andrew Ginter 2019-01-03

IT-SEC protects the information. SEC-OT protects physical, industrial operations from information, more specifically from attacks embedded in information. When the consequences of compromise are unacceptable - unscheduled downtime, impaired product quality and damaged equipment - software-based IT-SEC defences are not enough. Secure Operations Technology (SEC-OT) is a perspective, a methodology, and a set of best practices used at secure industrial sites. SEC-OT demands cyber-physical protections - because all software can be compromised. SEC-OT strictly controls the flow of information - because all information can encode attacks. SEC-OT uses a wide range of attack capabilities to determine the strength of security postures - because nothing is secure. This book documents the Secure Operations Technology approach, including physical offline and online protections against cyber attacks and a set of twenty standard cyber-attack patterns to use in risk assessments.

Framework for Improving Critical Infrastructure Cybersecurity - 2018

The Framework focuses on using business drivers to guide cybersecurity activities and considering cybersecurity risks as part of the organization’s risk management processes. The Framework consists of three parts: the Framework Core, the Implementation Tiers, and the Framework Profiles. The Framework Core is a set of cybersecurity activities, outcomes, and informative references that are common across sectors and critical infrastructure. Elements of the Core provide detailed guidance for developing individual organizational Profiles. Through use of Profiles, the Framework will help an organization to align and prioritize its cybersecurity activities with its business/mission requirements, risk tolerances, and resources. The Tiers provide a mechanism for organizations to view and understand the characteristics of their approach to managing cybersecurity risk, which will help in prioritizing and achieving cybersecurity objectives.

Using Computational Intelligence for the Dark Web and Illicit Behavior Detection - Rawat, Romil 2022-05-06

The Dark Web is a known hub that hosts myriad illegal activities behind the veil of anonymity for its users. For years now, law enforcement has been struggling to track these illicit activities and put them to an end. However, the depth and anonymity of the Dark Web has made these efforts difficult, and as cyber criminals have more advanced technologies available to them, the struggle appears to only have the potential to worsen. Law enforcement and government organizations also have emerging technologies on their side, however. It is essential for these organizations to stay up to date on these emerging technologies, such as computational intelligence, in order to put a stop to the illicit activities and behaviors presented in the Dark Web. Using Computational Intelligence for the Dark Web and Illicit Behavior Detection presents the emerging technologies and applications of computational intelligence for the law enforcement of the Dark Web. It features analysis into cybercrime data, examples of the application of computational intelligence in the Dark Web, and provides future opportunities for growth in this field. Covering topics such as cyber threat detection, crime prediction, and keyword extraction, this premier reference source is an essential resource for government organizations, law enforcement agencies, non-profit organizations, politicians, computer scientists, researchers, students, and academicians.

Cybersecurity Risk Management - Cynthia Brumfield 2021-12-09

Cybersecurity Risk Management In Cybersecurity Risk Management: Mastering the Fundamentals Using the NIST Cybersecurity Framework, veteran technology analyst Cynthia Brumfield, with contributions from cybersecurity expert Brian Haugli, delivers a straightforward and up-to-date exploration of the fundamentals of cybersecurity risk planning and management. The book offers readers easy-to-understand overviews of cybersecurity risk management principles, user, and network infrastructure planning, as well as the tools and techniques for detecting cyberattacks. The book also provides a roadmap to the development of a continuity of operations plan in the event of a cyberattack. With incisive insights into the Framework for Improving Cybersecurity of Critical

Infrastructure produced by the United States National Institute of Standards and Technology (NIST), Cybersecurity Risk Management presents the gold standard in practical guidance for the implementation of risk management best practices. Filled with clear and easy-to-follow advice, this book also offers readers: A concise introduction to the principles of cybersecurity risk management and the steps necessary to manage digital risk to systems, assets, data, and capabilities A valuable exploration of modern tools that can improve an organization's network infrastructure protection A practical discussion of the challenges involved in detecting and responding to a cyberattack and the importance of continuous security monitoring A helpful examination of the recovery from cybersecurity incidents Perfect for undergraduate and graduate students studying cybersecurity, Cybersecurity Risk Management is also an ideal resource for IT professionals working in private sector and government organizations worldwide who are considering implementing, or who may be required to implement, the NIST Framework at their organization.

Orchestrating and Automating Security for the Internet of Things - Anthony Sabella 2018

Cybersecurity in the Electricity Sector - Rafał Leszczyna 2019-08-30
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.

Security, Privacy, and Anonymity in Computation, Communication, and Storage - Guojun Wang 2019-07-10
This book constitutes the refereed proceedings of six symposiums and two workshops co-located with SpaCCS 2019, the 12th International Conference on Security, Privacy, and Anonymity in Computation, Communication, and Storage. The 26 full papers were carefully reviewed and selected from 75 submissions. This year's symposiums and workshops are: SPIoT 2019 – Security and Privacy of Internet of Things; TSP 2019 – Trust, Security and Privacy for Emerging Applications; SCS 2019 – Sensor-Cloud Systems; UbiSafe 2019 – UbiSafe Computing; ISSR 2019 – Security in e-Science and e-Research; CMRM 2019 – Cybersecurity Metrics and Risk Modeling.

Protective Security - Jim Seaman 2021-04-03
This book shows you how military counter-intelligence principles and objectives are applied. It provides you with valuable advice and guidance to help your business understand threat vectors and the measures needed to reduce the risks and impacts to your organization. You will know how business-critical assets are compromised: cyberattack, data breach, system outage, pandemic, natural disaster, and many more. Rather than being compliance-concentric, this book focuses on how your business can identify the assets that are most valuable to your organization and the threat vectors associated with these assets. You will learn how to apply appropriate mitigation controls to reduce the risks within suitable tolerances. You will gain a comprehensive understanding of the value that effective protective security provides and how to develop an effective strategy for your type of business. What You Will Learn Take a deep dive into legal and regulatory perspectives and how an effective protective security strategy can help fulfill these ever-changing requirements Know where compliance fits into a company-wide protective security strategy Secure your digital footprint Build effective 5 D network architectures: Defend, detect, delay, disrupt, deter Secure manufacturing environments to balance a minimal impact on productivity Securing your supply chains and the measures needed to ensure that risks are minimized Who This Book Is For Business owners, C-suite, information security practitioners, CISOs, cybersecurity practitioners, risk managers, IT operations managers, IT auditors, and military enthusiasts

CompTIA Security+ Study Guide - Emmett Dulaney 2017-10-05

Some copies of CompTIA Security+ Study Guide: Exam SY0-501 (9781119416876) were printed without discount exam vouchers in the front of the books. If you did not receive a discount exam voucher with your book, please visit http://media.wiley.com/product_ancillary/5X/11194168/DOWNLOAD/CompTIA_Coupon.pdf to download one. Expert preparation covering 100% of Security+ exam SY0-501 objectives CompTIA Security+ Study Guide, Seventh Edition offers invaluable preparation for Exam SY0-501. Written by an expert author team, this book covers 100% of the exam objectives with clear, concise explanation. You'll learn how to handle threats, attacks, and vulnerabilities using industry-standard tools and technologies, while understanding the role of architecture and design. From everyday tasks like identity and access management to complex topics like risk management and cryptography, this study guide helps you consolidate your knowledge base in preparation for the Security+ exam. Practical examples illustrate how these processes play out in real-world scenarios, allowing you to immediately translate essential concepts to on-the-job application. You also gain access to the Sybex online learning environment, which features a robust toolkit for more thorough prep: flashcards, glossary of key terms, practice questions, and a pre-assessment exam equip you with everything you need to enter the exam confident in your skill set. This study guide is approved and endorsed by CompTIA, and has been fully updated to align with the latest version of the exam. Master essential security technologies, tools, and tasks Understand how Security+ concepts are applied in the real world Study on the go with electronic flashcards and more Test your knowledge along the way with hundreds of practice questions To an employer, the CompTIA Security+ certification proves that you have the knowledge base and skill set to secure applications, devices, and networks; analyze and respond to threats; participate in risk mitigation, and so much more. As data threats loom larger every day, the demand for qualified security professionals will only continue to grow. If you're ready to take the first step toward a rewarding career, CompTIA Security+ Study Guide, Seventh Edition is the ideal companion for thorough exam preparation.

Demystifying Internet of Things Security - Sunil Cheruvu 2019-08-13
Break down the misconceptions of the Internet of Things by examining the different security building blocks available in Intel Architecture (IA) based IoT platforms. This open access book reviews the threat pyramid, secure boot, chain of trust, and the SW stack leading up to defense-in-depth. The IoT presents unique challenges in implementing security and Intel has both CPU and Isolated Security Engine capabilities to simplify it. This book explores the challenges to secure these devices to make them immune to different threats originating from within and outside the network. The requirements and robustness rules to protect the assets vary greatly and there is no single blanket solution approach to implement security. Demystifying Internet of Things Security provides clarity to industry professionals and provides and overview of different security solutions What You'll Learn Secure devices, immunizing them against different threats originating from inside and outside the networkGather an overview of the different security building blocks available in Intel Architecture (IA) based IoT platformsUnderstand the threat pyramid, secure boot, chain of trust, and the software stack leading up to defense-in-depth Who This Book Is For Strategists, developers, architects, and managers in the embedded and Internet of Things (IoT) space trying to understand and implement the security in the IoT devices/platforms.

The Basics of IT Audit - Stephen D. Gantz 2013-10-31
The Basics of IT Audit: Purposes, Processes, and Practical Information provides you with a thorough, yet concise overview of IT auditing. Packed with specific examples, this book gives insight into the auditing process and explains regulations and standards such as the ISO-27000, series program, CoBIT, ITIL, Sarbanes-Oxley, and HIPPA. IT auditing occurs in some form in virtually every organization, private or public, large or small. The large number and wide variety of laws, regulations, policies, and industry standards that call for IT auditing make it hard for organizations to consistently and effectively prepare for, conduct, and respond to the results of audits, or to comply with audit requirements. This guide provides you with all the necessary information if you're

preparing for an IT audit, participating in an IT audit or responding to an IT audit. Provides a concise treatment of IT auditing, allowing you to prepare for, participate in, and respond to the results Discusses the pros and cons of doing internal and external IT audits, including the benefits and potential drawbacks of each Covers the basics of complex regulations and standards, such as Sarbanes-Oxley, SEC (public companies), HIPAA, and FFIEC Includes most methods and frameworks, including GAAS, COSO, COBIT, ITIL, ISO (27000), and FISCAM

3D Imaging Technologies—Multidimensional Signal Processing and Deep Learning - Lakhmi C. Jain 2021-08-29

This book presents high-quality research in the field of 3D imaging technology. The second edition of International Conference on 3D Imaging Technology (3DDIT-MSP&DL) continues the good traditions already established by the first 3DIT conference (IC3DIT2019) to provide a wide scientific forum for researchers, academia and practitioners to exchange newest ideas and recent achievements in all aspects of image processing and analysis, together with their contemporary applications. The conference proceedings are published in 2 volumes. The main topics of the papers comprise famous trends as: 3D image representation, 3D image technology, 3D images and graphics, and computing and 3D information technology. In these proceedings, special attention is paid at the 3D tensor image representation, the 3D content generation technologies, big data analysis, and also deep learning, artificial intelligence, the 3D image analysis and video understanding, the 3D virtual and augmented reality, and many related areas. The first volume contains papers in 3D image processing, transforms and technologies. The second volume is about computing and information technologies, computer images and graphics and related applications. The two volumes of the book cover a wide area of the aspects of the contemporary multidimensional imaging and the related future trends from data acquisition to real-world applications based on various techniques and theoretical approaches.

Network and System Security - John R. Vacca 2013-08-26

Network and System Security provides focused coverage of network and system security technologies. It explores practical solutions to a wide range of network and systems security issues. Chapters are authored by leading experts in the field and address the immediate and long-term challenges in the authors' respective areas of expertise. Coverage includes building a secure organization, cryptography, system intrusion, UNIX and Linux security, Internet security, intranet security, LAN security; wireless network security, cellular network security, RFID security, and more. Chapters contributed by leaders in the field covering foundational and practical aspects of system and network security, providing a new level of technical expertise not found elsewhere Comprehensive and updated coverage of the subject area allows the reader to put current technologies to work Presents methods of analysis and problem solving techniques, enhancing the reader's grasp of the material and ability to implement practical solutions

IoT Automation - Jerker Delsing 2017-02-17

This book presents an in-depth description of the Arrowhead Framework and how it fosters interoperability between IoT devices at service level, specifically addressing application. The Arrowhead Framework utilizes SOA technology and the concepts of local clouds to provide required automation capabilities such as: real time control, security, scalability, and engineering simplicity. Arrowhead Framework supports the realization of collaborative automation; it is the only IoT Framework that addresses global interoperability across multiplet SOA technologies. With these features, the Arrowhead Framework enables the design, engineering, and operation of large automation systems for a wide range of applications utilizing IoT and CPS technologies. The book provides application examples from a wide number of industrial fields e.g. airline maintenance, mining maintenance, smart production, electro-mobility, automative test, smart cities—all in response to EU societal challenges. Features Covers the design and implementation of IoT based automation systems. Industrial usage of Internet of Things and Cyber Physical Systems made feasible through Arrowhead Framework. Functions as a design cookbook for building automation systems using IoT/CPS and Arrowhead Framework. Tools, templates, code etc. described in the book

will be accessible through open sources project Arrowhead Framework Wiki at forge.soa4d.org/ Written by the leading experts in the European Union and around the globe.

The Agile Safety Case - Thor Myklebust 2018-01-29

The safety case (SC) is one of the railway industry's most important deliverables for creating confidence in their systems. This is the first book on how to write an SC, based on the standard EN 50129:2003. Experience has shown that preparing and understanding an SC is difficult and time consuming, and as such the book provides insights that enhance the training for writing an SC. The book discusses both "regular" safety cases and agile safety cases, which avoid too much documentation, improve communication between the stakeholders, allow quicker approval of the system, and which are important in the light of rapidly changing technology. In addition, it discusses the necessity of frequently updating software due to market requirements, changes in requirements and increased cyber-security threats. After a general introduction to SCs and agile thinking in chapter 1, chapter 2 describes the majority of the roles that are relevant when developing railway-signaling systems. Next, chapter 3 provides information related to the assessment of signaling systems, to certifications based on IEC 61508 and to the authorization of signaling systems. Chapter 4 then explains how an agile safety plan satisfying the requirements given in EN 50126-1:1999 can be developed, while chapter 5 provides a brief introduction to safety case patterns and notations. Lastly, chapter 6 combines all this and describes how an (agile) SC can be developed and what it should include. To ensure that infrastructure managers, suppliers, consultants and others can take full advantage of the agile mind-set, the book includes concrete examples and presents relevant agile practices. Although the scope of the book is limited to signaling systems, the basic foundations for (agile) SCs are clearly described so that they can also be applied in other cases.

Critical Infrastructure Security and Resilience - Dimitris Gritzalis 2019-01-01

This book presents the latest trends in attacks and protection methods of Critical Infrastructures. It describes original research models and applied solutions for protecting major emerging threats in Critical Infrastructures and their underlying networks. It presents a number of emerging endeavors, from newly adopted technical expertise in industrial security to efficient modeling and implementation of attacks and relevant security measures in industrial control systems; including advancements in hardware and services security, interdependency networks, risk analysis, and control systems security along with their underlying protocols. Novel attacks against Critical Infrastructures (CI) demand novel security solutions. Simply adding more of what is done already (e.g. more thorough risk assessments, more expensive Intrusion Prevention/Detection Systems, more efficient firewalls, etc.) is simply not enough against threats and attacks that seem to have evolved beyond modern analyses and protection methods. The knowledge presented here will help Critical Infrastructure authorities, security officers, Industrial Control Systems (ICS) personnel and relevant researchers to (i) get acquainted with advancements in the field, (ii) integrate security research into their industrial or research work, (iii) evolve current practices in modeling and analyzing Critical Infrastructures, and (iv) moderate potential crises and emergencies influencing or emerging from Critical Infrastructures.

Building an Effective Security Program for Distributed Energy Resources and Systems - Mariana Hentea 2021-04-09

Building an Effective Security Program for Distributed Energy Resources and Systems Build a critical and effective security program for DERs Building an Effective Security Program for Distributed Energy Resources and Systems requires a unified approach to establishing a critical security program for DER systems and Smart Grid applications. The methodology provided integrates systems security engineering principles, techniques, standards, and best practices. This publication introduces engineers on the design, implementation, and maintenance of a security program for distributed energy resources (DERs), smart grid, and industrial control systems. It provides security professionals with understanding the specific requirements of industrial control systems

and real-time constrained applications for power systems. This book: Describes the cybersecurity needs for DERs and power grid as critical infrastructure Introduces the information security principles to assess and manage the security and privacy risks of the emerging Smart Grid technologies Outlines the functions of the security program as well as the scope and differences between traditional IT system security requirements and those required for industrial control systems such as SCADA systems Offers a full array of resources— cybersecurity concepts, frameworks, and emerging trends Security Professionals and Engineers can use Building an Effective Security Program for Distributed Energy Resources and Systems as a reliable resource that is dedicated to the essential topic of security for distributed energy resources and power grids. They will find standards, guidelines, and recommendations from standards organizations, such as ISO, IEC, NIST, IEEE, ENISA, ISA, ISACA, and ISF, conveniently included for reference within chapters.

The Common Information Model CIM - Mathias Uslar 2012-02-01

Within the Smart Grid, the combination of automation equipment, communication technology and IT is crucial. Interoperability of devices and systems can be seen as the key enabler of smart grids. Therefore, international initiatives have been started in order to identify interoperability core standards for Smart Grids. IEC 62357, the so called Seamless Integration Architecture, is one of these very core standards, which has been identified by recent Smart Grid initiatives and roadmaps to be essential for building and managing intelligent power systems. The Seamless Integration Architecture provides an overview of the interoperability and relations between further standards from IEC TC 57 like the IEC 61970/61968: Common Information Model - CIM. CIM has proven to be a mature standard for interoperability and engineering; consequently, it is a cornerstone of the IEC Smart Grid Standardization Roadmap. This book provides an overview on how the CIM developed, in which international projects and roadmaps is has already been covered and describes the basic use cases for CIM. This book has been written for both Power Engineers trying to get to know the EMS and business IT part of Smart Grid and for Computer Scientist finding out where ICT technology is applied in EMS and DMS Systems. The book is divided into two parts dealing with the theoretical foundations and a practical part describing tools and use cases for CIM.

Computer Safety, Reliability, and Security - Alexander Romanovsky 2019-09-02

This book constitutes the proceedings of the Workshops held in conjunction with SAFECOMP 2019, 38th International Conference on Computer Safety, Reliability and Security, in September 2019 in Turku, Finland. The 32 regular papers included in this volume were carefully reviewed and selected from 43 submissions; the book also contains two invited papers. The workshops included in this volume are: ASSURE 2019: 7th International Workshop on Assurance Cases for Software-Intensive Systems DECSoS 2019: 14th ERCIM/EWICS/ARTEMIS Workshop on Dependable Smart Embedded and Cyber-Physical Systems and Systems-of-Systems SASSUR 2019: 8th International Workshop on Next Generation of System Assurance Approaches for Safety-Critical Systems STRIVE 2019: Second International Workshop on Safety, securiTy, and pRivacy In automotiVe systEms WAISE 2019: Second International Workshop on Artificial Intelligence Safety Engineering

The Risk IT Framework - Isaca 2009

Information Compliance - William Saffady 2023-06-15

Here is a clear explanation and analysis of the fundamental principles, concepts, and issues associated with information compliance, which is broadly defined as the act or process of conforming to, acquiescing to, or obeying rules, regulations, orders, or other requirements that apply to the data, documents, images, and other information.

Engineering Safe and Secure Cyber-Physical Systems - Roman Gumzej 2016-01-22

This book introduces the concept of holistic design and development of cyber physical systems to achieve their safe and secure operation. It shows that by following the standards for embedded system’s safety and using appropriate hardware and software components inherently safe system’s architectures can be devised and certified. While the standards

already enable testing and certification of inherently safe and sound hardware, this is still not the case with software. The book demonstrates that Specification PEARL(SPEARL) addresses this issue and proposes appropriate solutions from the viewpoints of software engineering as well as concrete program components. By doing so it reduces the complexity of cyber physical systems design in an innovative way. Three ultimate goals are being followed in the course of defining this new PEARL standard, namely: 1. simplicity over complexity, 2. inherent real-time ability, and 3. conformity to safety integrity and security capability levels.

Information Systems for Business - France Bélanger, PhD 2011-11-29

Information Systems: An Experiential Approach is a brief,inexpensive, paperback alternative for professors who want anexperiential approach for the undergraduate or first year graduatelevel Intro to IS course. Offering a learner-centeredapproach and using a learn-do-reflect model,Bélanger/Van Slyke provides a focused treatment of topics andengaging activities. The authors have used this model in theirclasses to great success. The authors found that students performedbetter on exams, class discussions became more animated andattendance improved as engagement with the material increased.

Cyber-Physical Threat Intelligence for Critical Infrastructures Security - John Soldatos 2021-07-31

Modern critical infrastructures can be considered as large scale Cyber Physical Systems (CPS). Therefore, when designing, implementing, and operating systems for Critical Infrastructure Protection (CIP), the boundaries between physical security and cybersecurity are blurred. Emerging systems for Critical Infrastructures Security and Protection must therefore consider integrated approaches that emphasize the interplay between cybersecurity and physical security techniques. Hence, there is a need for a new type of integrated security intelligence i.e., Cyber-Physical Threat Intelligence (CPTI). This book presents novel solutions for integrated Cyber-Physical Threat Intelligence for infrastructures in various sectors, such as Industrial Sites and Plants, Air Transport, Gas, Healthcare, and Finance. The solutions rely on novel methods and technologies, such as integrated modelling for cyber-physical systems, novel reliance indicators, and data driven approaches including BigData analytics and Artificial Intelligence (AI). Some of the presented approaches are sector agnostic i.e., applicable to different sectors with a fair customization effort. Nevertheless, the book presents also peculiar challenges of specific sectors and how they can be addressed. The presented solutions consider the European policy context for Security, Cyber security, and Critical Infrastructure protection, as laid out by the European Commission (EC) to support its Member States to protect and ensure the resilience of their critical infrastructures. Most of the co-authors and contributors are from European Research and Technology Organizations, as well as from European Critical Infrastructure Operators. Hence, the presented solutions respect the European approach to CIP, as reflected in the pillars of the European policy framework. The latter includes for example the Directive on security of network and information systems (NIS Directive), the Directive on protecting European Critical Infrastructures, the General Data Protection Regulation (GDPR), and the Cybersecurity Act Regulation. The sector specific solutions that are described in the book have been developed and validated in the scope of several European Commission (EC) co-funded projects on Critical Infrastructure Protection (CIP), which focus on the listed sectors. Overall, the book illustrates a rich set of systems, technologies, and applications that critical infrastructure operators could consult to shape their future strategies. It also provides a catalogue of CPTI case studies in different sectors, which could be useful for security consultants and practitioners as well.

Hacking Exposed Industrial Control Systems: ICS and SCADA Security Secrets & Solutions - Clint Bodungen 2016-09-22

Learn to defend crucial ICS/SCADA infrastructure from devastating attacks the tried-and-true Hacking Exposed way This practical guide reveals the powerful weapons and devious methods cyber-terrorists use to compromise the devices, applications, and systems vital to oil and gas pipelines, electrical grids, and nuclear refineries. Written in the battle-tested Hacking Exposed style, the book arms you with the skills and tools

necessary to defend against attacks that are debilitating—and potentially deadly. Hacking Exposed Industrial Control Systems: ICS and SCADA Security Secrets & Solutions explains vulnerabilities and attack vectors specific to ICS/SCADA protocols, applications, hardware, servers, and workstations. You will learn how hackers and malware, such as the infamous Stuxnet worm, can exploit them and disrupt critical processes, compromise safety, and bring production to a halt. The authors fully explain defense strategies and offer ready-to-deploy countermeasures. Each chapter features a real-world case study as well as notes, tips, and cautions. Features examples, code samples, and screenshots of ICS/SCADA-specific attacks Offers step-by-step vulnerability assessment and penetration test instruction Written by a team of ICS/SCADA security experts and edited by Hacking Exposed veteran Joel Scambray

Cyber-Physical Security - Robert M. Clark 2016-08-10

This book focuses on the vulnerabilities of state and local services to cyber-threats and suggests possible protective action that might be taken against such threats. Cyber-threats to U.S. critical infrastructure are of growing concern to policymakers, managers and consumers. Information and communications technology (ICT) is ubiquitous and many ICT devices and other components are interdependent; therefore, disruption of one component may have a negative, cascading effect on others. Cyber-attacks might include denial of service, theft or manipulation of data. Damage to critical infrastructure through a cyber-based attack could have a significant impact on the national security, the economy, and the livelihood and safety of many individual citizens. Traditionally cyber security has generally been viewed as being focused on higher level threats such as those against the internet or the Federal government. Little attention has been paid to cyber-security at the state and local level. However, these governmental units play a critical role in providing services to local residents and consequently are highly vulnerable to cyber-threats. The failure of these services, such as waste water collection and water supply, transportation, public safety, utility services, and communication services, would pose a great threat to the public. Featuring contributions from leading experts in the field, this volume is intended for state and local government officials and managers, state and Federal officials, academics, and public policy specialists.

Critical Information Infrastructure Protection and Resilience in the ICT Sector - Théron, Paul 2013-02-28

With the progression of technological breakthroughs creating dependencies on telecommunications, the internet, and social networks connecting our society, CIIP (Critical Information Infrastructure Protection) has gained significant focus in order to avoid cyber attacks, cyber hazards, and a general breakdown of services. Critical Information Infrastructure Protection and Resilience in the ICT Sector brings together a variety of empirical research on the resilience in the ICT sector and critical information infrastructure protection in the context of uncertainty and lack of data about potential threats and hazards. This book presents a variety of perspectives on computer science, economy, risk analysis, and social sciences; beneficial to academia, governments, and other organisations engaged or interested in CIIP, Resilience and Emergency Preparedness in the ICT sector.

Pervasive Computing and the Networked World - Qiaohong Zu 2014-07-24

This book constitutes the thoroughly refereed post-conference proceedings of the Joint International Conference on Pervasive Computing and Web Society, ICPCA/SWS 2013, held in Vina de Mar, Chile, in December 2013. The 56 revised full papers presented together with 29 poster papers were carefully reviewed and selected from 156 submissions. The papers are organized in topical sections on infrastructure and devices; service and solution; data and knowledge; as well as community.

The Oxford Handbook of Energy Politics - Kathleen J. Hancock 2020-10-15

"In many ways, everything we once knew about energy resources and technologies has been impacted by: the longstanding scientific consensus on climate change and related support for renewable energy; the affordability of extraction of unconventional fuels; increasing demand for

energy resources by middle- and low-income nations; new regional and global stakeholders; fossil fuel discoveries and emerging renewable technologies; awareness of (trans)local politics; and rising interest in corporate social responsibility (CSR) and the need for energy justice. Research on these and related topics now appears frequently in social science academic journals-in broad-based journals, such as International Organization, International Studies Quarterly, and Review of International Political Economy, as well as those focused specifically on energy (e.g., Energy Research & Social Science and Energy Policy), the environment (Global Environmental Politics), natural resources (Resources Policy), and extractive industries (Extractive Industries and Society). The Oxford Handbook of Energy Politics synthesizes and aggregates this substantively diverse literature to provide insights into, and a foundation for teaching and research on, critical energy issues primarily in the areas of international relations and comparative politics. Its primary goals are to further develop the energy politics scholarship and community, and generate sophisticated new work that will benefit a variety of scholars working on energy issues"--