

Resilience Assessment And Evaluation Of Computing Systems

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Software Engineering and Formal Methods - Antonio Cerone 2018-02-01

This book constitutes revised selected papers from the five workshops collocated with the 15th International Conference on Software

Engineering and Formal Methods, SEFM 2017. The 38 papers presented in this volume were carefully reviewed and selected from a total of 55 submissions. They stem from the following workshops: DataMod 2017 -- 6th International

Symposium "From Data to Models and Back"; FAACS 2017 -- 1st Workshop on Formal Approaches for Advanced Computing Systems; MSE 2017 -- 1st Workshop on Microservices: Science and Engineering; CoSim-CPS 2017 -- 1st Workshop on Formal Co-Simulation of Cyber-Physical Systems; FOCLASA 2017 -- 15th International Workshop on Foundations Of Coordination Languages and Self-Adaptive Systems.

Collaborative Networks of Cognitive Systems - Luis M. Camarinha-Matos 2018-09-06

This book constitutes the refereed proceedings of the 19th IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2018, held in Cardiff, UK, in September 2018. The 57 revised full papers were carefully reviewed and selected from 143 submissions. They provide a comprehensive overview of identified challenges and recent advances in various collaborative network (CN) domains and their applications, with a strong focus on the following areas:

blockchain in collaborative networks, industry transformation and innovation, semantics in networks of cognitive systems, cognitive systems for resilience management, collaborative energy services in smart cities, cognitive systems in agribusiness, building information modeling, industry 4.0 support frameworks, health and social welfare services, risk, privacy and security, collaboration platform issues, sensing, smart and sustainable enterprises, information systems integration, dynamic logistics networks, collaborative business processes, value creation in networks, users and organizations profiling, and collaborative business strategies.

Policy-Based Autonomic Data Governance - Seraphin Calo 2019-04-24

Advances in artificial intelligence, sensor computing, robotics, and mobile systems are making autonomous systems a reality. At the same time, the influence of edge computing is leading to more distributed architectures incorporating more autonomous elements. The

flow of information is critical in such environments, but the real time, distributed nature of the system components complicates the data protection mechanisms. Policy-based management has proven useful in simplifying the complexity of management in domains like networking, security, and storage; it is expected that many of those benefits would carry over to the task of managing big data and autonomous systems. This book aims at providing an overview of recent work and identifying challenges related to the design of policy-based approaches for managing big data and autonomous systems. An important new direction explored in the book is to make the major elements of the system self-describing and self-managing. This would lead to architectures where policy mechanisms are tightly coupled with the system elements. In such integrated architectures, we need new models for information assurance, traceability of information, and better provenance on

information flows. In addition when dealing with devices with actuation capabilities and, thus, being able to make changes to physical spaces, safety is critical. With an emphasis on policy-based mechanisms for governance of data security and privacy, and for safety assurance, the papers in this volume follow three broad themes: foundational principles and use-cases for the autonomous generation of policies; safe autonomy; policies and autonomy in federated environments.

Security and Trust Management - Rafael Accorsi 2013-09-04

This book constitutes the refereed proceedings of the 9th International Workshop on Security and Trust Management, STM 2013, held in Egham, UK, in September 2013 - in conjunction with the 18th European Symposium Research in Computer Security (ESORICS 2013). The 15 revised full papers including two invited talks were carefully reviewed and selected from 47 submissions. The papers are organized into

topical sections on policy enforcement and monitoring; access control; trust, reputation, and privacy; distributed systems and physical security; authentication and security policies. *Safety and Reliability – Safe Societies in a Changing World* - Stein Haugen 2018-06-15

Safety and Reliability – Safe Societies in a Changing World collects the papers presented at the 28th European Safety and Reliability Conference, ESREL 2018 in Trondheim, Norway, June 17-21, 2018. The contributions cover a wide range of methodologies and application areas for safety and reliability that contribute to safe societies in a changing world. These methodologies and applications include: - foundations of risk and reliability assessment and management - mathematical methods in reliability and safety - risk assessment - risk management - system reliability - uncertainty analysis - digitalization and big data - prognostics and system health management - occupational safety - accident and incident

modeling - maintenance modeling and applications - simulation for safety and reliability analysis - dynamic risk and barrier management - organizational factors and safety culture - human factors and human reliability - resilience engineering - structural reliability - natural hazards - security - economic analysis in risk management Safety and Reliability – Safe Societies in a Changing World will be invaluable to academics and professionals working in a wide range of industrial and governmental sectors: offshore oil and gas, nuclear engineering, aeronautics and aerospace, marine transport and engineering, railways, road transport, automotive engineering, civil engineering, critical infrastructures, electrical and electronic engineering, energy production and distribution, environmental engineering, information technology and telecommunications, insurance and finance, manufacturing, marine transport, mechanical engineering, security and protection, and policy making.

Computer Security - Sokratis Katsikas

2020-02-21

This book constitutes the refereed post-conference proceedings of the 5th International Workshop on Security of Industrial Control Systems and Cyber-Physical Systems, CyberICPS 2019, the Third International Workshop on Security and Privacy Requirements Engineering, SECPRE 2019, the First International Workshop on Security, Privacy, Organizations, and Systems Engineering, SPOSE 2019, and the Second International Workshop on Attacks and Defenses for Internet-of-Things, ADIoT 2019, held in Luxembourg City, Luxembourg, in September 2019, in conjunction with the 24th European Symposium on Research in Computer Security, ESORICS 2019. The CyberICPS Workshop received 13 submissions from which 5 full papers and 2 short 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 9 full papers out of 14 submissions are included. The selected papers deal with aspects of security and privacy requirements assurance and evaluation; and security requirements elicitation and modelling and to GDPR compliance. The SPOSE Workshop received 7 submissions from which 3 full papers and 1 demo paper were accepted for publication. They demonstrate the possible spectrum for fruitful research at the intersection of security, privacy, organizational science, and systems engineering. From the ADIoT Workshop 5 full papers and 2 short papers out of 16 submissions are included. The papers focus on IoT attacks and defenses and discuss either practical or theoretical solutions to identify IoT vulnerabilities and IoT security mechanisms.

Information Security Practice and Experience - Robert H. Deng 2013-11-18

This book constitutes the refereed proceedings of the 9th International Conference on Information Security Practice and Experience, ISPEC 2013, held in Lanzhou, China, in May 2013. The 27 revised full papers presented were carefully reviewed and selected from 71 submissions. The papers are organized in topical sections on network security; identity-based cryptography; cryptographic primitives; security protocols; system security; software security and DRM; and cryptanalysis and side channel attacks.

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 *Cloud Computing for Data-Intensive Applications* - Xiaolin Li 2014-12-02

This book presents a range of cloud computing platforms for data-intensive scientific applications. It covers systems that deliver infrastructure as a service, including: HPC as a service; virtual networks as a service; scalable and reliable storage; algorithms that manage

vast cloud resources and applications runtime; and programming models that enable pragmatic programming and implementation toolkits for eScience applications. Many scientific applications in clouds are also introduced, such as bioinformatics, biology, weather forecasting and social networks. Most chapters include case studies. Cloud Computing for Data-Intensive Applications targets advanced-level students and researchers studying computer science and electrical engineering. Professionals working in cloud computing, networks, databases and more will also find this book useful as a reference.

Benchmarking Transaction and Analytical Processing Systems - Anja Bog 2013-07-11
Systems for Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP) are currently separate. The potential of the latest technologies and changes in operational and analytical applications over the last decade have given rise to the unification of these systems, which can be of benefit for both

workloads. Research and industry have reacted and prototypes of hybrid database systems are now appearing. Benchmarks are the standard method for evaluating, comparing and supporting the development of new database systems. Because of the separation of OLTP and OLAP systems, existing benchmarks are only focused on one or the other. With the rise of hybrid database systems, benchmarks to assess these systems will be needed as well. Based on the examination of existing benchmarks, a new benchmark for hybrid database systems is introduced in this book. It is furthermore used to determine the effect of adding OLAP to an OLTP workload and is applied to analyze the impact of typically used optimizations in the historically separate OLTP and OLAP domains in mixed-workload scenarios.

Plant Hazard Analysis and Safety Instrumentation Systems - Swapan Basu
2016-10-21
Plant Hazard Analysis and Safety

Instrumentation Systems is the first book to combine coverage of these two integral aspects of running a chemical processing plant. It helps engineers from various disciplines learn how various analysis techniques, international standards, and instrumentation and controls provide layers of protection for basic process control systems, and how, as a result, overall system reliability, availability, dependability, and maintainability can be increased. This step-by-step guide takes readers through the development of safety instrumented systems, also including discussions on cost impact, basics of statistics, and reliability. Swapan Basu brings more than 35 years of industrial experience to this book, using practical examples to demonstrate concepts. Basu links between the SIS requirements and process hazard analysis in order to complete SIS lifecycle implementation and covers safety analysis and realization in control systems, with up-to-date descriptions of modern concepts, such as SIL, SIS, and Fault

Tolerance to name a few. In addition, the book addresses security issues that are particularly important for the programmable systems in modern plants, and discusses, at length, hazardous atmospheres and their impact on electrical enclosures and the use of IS circuits. Helps the reader identify which hazard analysis method is the most appropriate (covers ALARP, HAZOP, FMEA, LOPA) Provides tactics on how to implement standards, such as IEC 61508/61511 and ANSI/ISA 84 Presents information on how to conduct safety analysis and realization in control systems and safety instrumentation

Revisiting Supply Chain Risk - George A. Zsidisin 2018-12-18

This book offers a bridge between our current understanding of supply chain risk in practice and theory, and the monumental shifts caused by the emergence of the fourth industrial revolution. Supply chain risk and its management have experienced significant

attention in scholarship and practice over the past twenty years. Our understanding of supply chain risk and its many facets, such as uncertainty and vulnerability, has expanded beyond utilizing approaches such as deploying inventory to buffer the initial effects of disruptions. Even with our increased knowledge of supply chain risk, being in the era of lean supply chain practices, digitally managed global supply chains, and closely interconnected networks, firms are exposed as ever to supply chain uncertainties that can damage, or even destroy, their ability to compete in the marketplace. The book acknowledges the criticality of big data analytics in Supply Chain Risk Management (SCRM) processes and provides appropriate tools and approaches for creating robust SCRM processes. Revisiting Supply Chain Risk presents a state-of-the-art look at SCRM through current research and philosophical thought. It is divided into six sections that highlight established themes, as

well as provide new insights to developing areas of inquiry and contexts on the topic. Section 1 examines the first step in managing supply chain risk, risk assessment. The chapters in Section 2 encompass resiliency in supply chains, while Section 3 looks at relational and behavioral perspectives from varying units of analysis including consortiums, teams and decision makers. Section 4 focuses on examining supply chain risk in the contexts of sustainability and innovation. Section 5 provides insight on emerging typologies and taxonomies for classifying supply chain risk. The book concludes with Section 6, featuring illustrative case studies as real-world examples in assessing and managing supply chain risk.

Resilience of Critical Infrastructure Systems -
Zhishen Wu 2020-04-28

With rapid urbanization in developing countries and the emergence of smart systems and integrated intelligent devices, the new generation of infrastructure will be smarter and

more efficient. However, due to natural and anthropomorphic hazards, as well as the adverse impact of climate change, civil infrastructure systems are increasingly vulnerable. Therefore, future-proofing and designing resilience into infrastructure is one of the biggest challenges facing the industry and governments in all developing and industrialized societies. This book provides a comprehensive overview of infrastructure resiliency, new developments in this emerging field and its scopes, including ecology and sustainability, and the challenges involved in building more resilient civil infrastructure systems. Moreover, it introduces a strategic roadmap for effective and efficient methods needed for modeling, designing, and assessing resiliency. Features: Includes contributions from internationally recognized scholars in the emerging field of infrastructure resilience. Covers a broad range of topics in infrastructure resilience such as disaster assessment, civil infrastructure and lifeline

systems, natural hazard mitigation, and seismic protection. Includes practical global case studies and leading-edge research from several countries. Presents an interdisciplinary approach in addressing the challenges in the emerging field of infrastructure resilience
Resilience of Critical Infrastructure Systems: Emerging Developments and Future Challenges serves as a valuable resource for practicing professionals, researchers, and advanced students seeking practical, forward-looking guidance.

Nutritional Care of the Patient with Gastrointestinal Disease - Alan L Buchman
2015-08-06

This evidence-based book serves as a clinical manual as well as a reference guide for the diagnosis and management of common nutritional issues in relation to gastrointestinal disease. Chapters cover nutrition assessment; macro- and micronutrient absorption; malabsorption; food allergies; prebiotics and

dietary fiber; probiotics and intestinal microflora; nutrition and GI cancer; nutritional management of reflux; nutrition in IBS and IBD; nutrition in acute and chronic pancreatitis; enteral nutrition; parenteral nutrition; medical and endoscopic therapy of obesity; surgical therapy of obesity; pharmacologic nutrition, and nutritional counseling.

Resilience Assessment and Evaluation of Computing Systems - Katinka Wolter

2012-11-02

The resilience of computing systems includes their dependability as well as their fault tolerance and security. It defines the ability of a computing system to perform properly in the presence of various kinds of disturbances and to recover from any service degradation. These properties are immensely important in a world where many aspects of our daily life depend on the correct, reliable and secure operation of often large-scale distributed computing systems. Wolter and her co-editors grouped the 20

chapters from leading researchers into seven parts: an introduction and motivating examples, modeling techniques, model-driven prediction, measurement and metrics, testing techniques, case studies, and conclusions. The core is formed by 12 technical papers, which are framed by motivating real-world examples and case studies, thus illustrating the necessity and the application of the presented methods. While the technical chapters are independent of each other and can be read in any order, the reader will benefit more from the case studies if he or she reads them together with the related techniques. The papers combine topics like modeling, benchmarking, testing, performance evaluation, and dependability, and aim at academic and industrial researchers in these areas as well as graduate students and lecturers in related fields. In this volume, they will find a comprehensive overview of the state of the art in a field of continuously growing practical importance.

Reliability Engineering - Mangey Ram

2019-10-14

Over the last 50 years, the theory and the methods of reliability analysis have developed significantly. Therefore, it is very important to the reliability specialist to be informed of each reliability measure. This book will provide historical developments, current advancements, applications, numerous examples, and many case studies to bring the reader up-to-date with the advancements in this area. It covers reliability engineering in different branches, includes applications to reliability engineering practice, provides numerous examples to illustrate the theoretical results, and offers case studies along with real-world examples. This book is useful to engineering students, research scientist, and practitioners working in the field of reliability.

[From Action Systems to Distributed Systems](#) -

Luigia Petre 2016-04-27

Formal methods traditionally address the

question of transforming software engineering into a mature engineering discipline. This essentially refers to trusting that the software-intensive systems that form our society's infrastructures are behaving according to their specifications. More recently, formal methods are also used to understand properties and evolution laws of existing complex and adaptive systems—man-made such as smart electrical grids or natural ones such as biological networks. A tribute to Professor Kaisa Sere's contributions to the field of computer science, *From Action Systems to Distributed Systems: The Refinement Approach* is the first book to address the impact of refinement through a multitude of formal methods ranging from Action Systems to numerous related approaches in computer science research. It presents a state-of-the-art review on the themes of distributed systems and refinement. A fundamental part of Kaisa Sere's research consisted of developing Action Systems, a formalism for modeling,

analysing, and constructing distributed systems. Within the design of distributed systems, Kaisa Sere's main research focus was on refinement-based approaches to the construction of systems ranging from pure software to hardware and digital circuits. Presenting scientific contributions from renowned researchers around the world, this edited book consists of five sections: Modeling, Analysis, Proof, Refinement, and Applications. Each chapter has been thoroughly reviewed by experts in the field. The book covers both traditional aspects in formal methods research, as well as current and innovative research directions. It describes the transition from the strong theory of refinement to a methodology that can be applied in practice, with tool support. Examining industrial applications of the methods discussed, this book is a suitable resource for graduate students, researchers, and practitioners interested in using formal methods to develop distributed systems of quality.

Foundations of Software and System Performance Engineering - André B. Bondi
2014-07-05

The absence of clearly written performance requirements is the cause of much confusion and bad software architectures; this book's coverage of performance requirements engineering and domain-specific performance metrics at every stage of the software process addresses the problem. Application of the principles in this book will considerably mitigate the risks that performance pose to the success of a software system and lead to a better quality product with wider acceptance.

Complexity Challenges in Cyber Physical Systems - Saurabh Mittal 2019-11-28

Offers a one-stop reference on the application of advanced modeling and simulation (M&S) in cyber physical systems (CPS) engineering. This book provides the state-of-the-art in methods and technologies that aim to elaborate on the modeling and simulation support to cyber

physical systems (CPS) engineering across many sectors such as healthcare, smart grid, or smart home. It presents a compilation of simulation-based methods, technologies, and approaches that encourage the reader to incorporate simulation technologies in their CPS engineering endeavors, supporting management of complexity challenges in such endeavors. Complexity Challenges in Cyber Physical Systems: Using Modeling and Simulation (M&S) to Support Intelligence, Adaptation and Autonomy is laid out in four sections. The first section provides an overview of complexities associated with the application of M&S to CPS Engineering. It discusses M&S in the context of autonomous systems involvement within the North Atlantic Treaty Organization (NATO). The second section provides a more detailed description of the challenges in applying modeling to the operation, risk and design of holistic CPS. The third section delves in details of simulation support to CPS engineering

followed by the engineering practices to incorporate the cyber element to build resilient CPS sociotechnical systems. Finally, the fourth section presents a research agenda for handling complexity in application of M&S for CPS engineering. In addition, this text: Introduces a unifying framework for hierarchical co-simulations of cyber physical systems (CPS) Provides understanding of the cycle of macro-level behavior dynamically arising from spatiotemporal interactions between parts at the micro-level Describes a simulation platform for characterizing resilience of CPS Complexity Challenges in Cyber Physical Systems has been written for researchers, practitioners, lecturers, and graduate students in computer engineering who want to learn all about M&S support to addressing complexity in CPS and its applications in today's and tomorrow's world. [Resilience of Cyber-Physical Systems](#) - Francesco Flammini 2019-01-25 This book addresses the latest approaches to

holistic Cyber-Physical System (CPS) resilience in real-world industrial applications. Ensuring the resilience of CPSs requires cross-discipline analysis and involves many challenges and open issues, including how to address evolving cyber-security threats. The book describes emerging paradigms and techniques from two main viewpoints: CPSs' exposure to new threats, and CPSs' potential to counteract them. Further, the chapters address topics ranging from risk modeling to threat management and mitigation. The book offers a clearly structured, highly accessible resource for a diverse readership, including graduate students, researchers and industry practitioners who are interested in evaluating and ensuring the resilience of CPSs in both the development and assessment stages.

Security and Resilience in Intelligent Data-Centric Systems and Communication

Networks - Massimo Ficco 2017-09-29

Security and Resilience in Intelligent Data-Centric Systems and Communication Networks

presents current, state-of-the-art work on novel research in theoretical and practical resilience and security aspects of intelligent data-centric critical systems and networks. The book analyzes concepts and technologies that are successfully used in the implementation of intelligent data-centric critical systems and communication networks, also touching on future developments. In addition, readers will find in-demand information for domain experts and developers who want to understand and realize the aspects (opportunities and challenges) of using emerging technologies for designing and developing more secure and resilient intelligent data-centric critical systems and communication networks. Topics covered include airports, seaports, rail transport systems, plants for the provision of water and energy, and business transactional systems. The book is well suited for researchers and PhD interested in the use of security and resilient computing technologies. Includes tools and

techniques to prevent and avoid both accidental and malicious behaviors Explains the state-of-the-art technological solutions for main issues hindering the development of monitoring and reaction solutions Describes new methods and technologies, advanced prototypes, systems, tools and techniques of future direction

Private Security - Charles P. Nemeth
2022-12-12

Private Security: An Introduction to Principles and Practice, Second Edition explains foundational security principles—defining terms and outlining the increasing scope of security in daily life—while reflecting current practices of private security as an industry and profession. The book looks at the development and history of the industry, outlines fundamental security principles, and the growing dynamic and overlap that exists between the private sector security and public safety and law enforcement—especially since the events of 9/11. Chapters focus on current practice,

reflecting the technology-driven, fast-paced, global security environment. Such topics covered include security law and legal issues, risk management, physical security, human resources and personnel considerations, investigations, institutional and industry-specific security, crisis and emergency planning, computer, and information security. A running theme of this edition is highlighting—where appropriate—how security awareness, features, and applications have permeated all aspects of our modern lives. Key Features: • Provides current best practices detailing the skills that professionals, in the diverse and expanding range of career options, need to succeed in the field • Outlines the unique role of private sector security companies as compared to federal and state law enforcement responsibilities • Includes key terms, learning objectives, end of chapter questions, Web exercises, and numerous references—throughout the book—to enhance student learning Critical infrastructure

protection and terrorism concepts, increasingly of interest and relevant to the private sector, are referenced throughout the book. Threat assessment and information sharing partnerships between private security entities public sector authorities—at the state and federal levels—are highlighted. Private Security, Second Edition takes a fresh, practical approach to the private security industry's role and impact in a dynamic, ever-changing threat landscape.

Computer Safety, Reliability, and Security - Andrea Bondavalli 2014-09-03

This book constitutes the refereed proceedings of the 33rd International Conference on Computer Safety, Reliability, and Security, SAFECOMP 2014, held in Florence, Italy, in September 2014. The 20 revised full papers presented together with 3 practical experience reports were carefully reviewed and selected from 85 submissions. The papers are organized in topical sections on fault injection techniques, verification and validation techniques,

automotive systems, coverage models and mitigation techniques, assurance cases and arguments, system analysis, security and trust, notations/languages for safety related aspects, safety and security.

Computer Performance Engineering - Nigel Thomas 2012-01-28

This book constitutes the refereed proceedings of the 8th European Performance Engineering Workshop, EPEW 2011, held in The English Lake District in October 2011. The 16 regular papers and 6 poster presentations papers presented together with 2 invited talks were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on performance-oriented design and analysis methods, model checking and validation, simulation techniques and experimental design, performance modelling and performance and power consumption tradeoffs.

[Resilience Assessment and Evaluation of](#)

Computing Systems - Katinka Wolter 2014-12-14

The resilience of computing systems includes their dependability as well as their fault tolerance and security. It defines the ability of a computing system to perform properly in the presence of various kinds of disturbances and to recover from any service degradation. These properties are immensely important in a world where many aspects of our daily life depend on the correct, reliable and secure operation of often large-scale distributed computing systems. Wolter and her co-editors grouped the 20 chapters from leading researchers into seven parts: an introduction and motivating examples, modeling techniques, model-driven prediction, measurement and metrics, testing techniques, case studies, and conclusions. The core is formed by 12 technical papers, which are framed by motivating real-world examples and case studies, thus illustrating the necessity and the application of the presented methods. While the technical chapters are independent of each

other and can be read in any order, the reader will benefit more from the case studies if he or she reads them together with the related techniques. The papers combine topics like modeling, benchmarking, testing, performance evaluation, and dependability, and aim at academic and industrial researchers in these areas as well as graduate students and lecturers in related fields. In this volume, they will find a comprehensive overview of the state of the art in a field of continuously growing practical importance.

Mobile Computing and Sustainable

Informatics - Subarna Shakya 2021-07-22

This book gathers selected high-quality research papers presented at International Conference on Mobile Computing and Sustainable Informatics (ICMCSI 2021) organized by Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal, during 29-30 January 2021. The book discusses recent developments in mobile communication technologies ranging from

mobile edge computing devices, to personalized, embedded and sustainable applications. The book covers vital topics like mobile networks, computing models, algorithms, sustainable models and advanced informatics that supports the symbiosis of mobile computing and sustainable informatics.

Business Information Systems Workshops - Witold Abramowicz 2013-10-17

This book constitutes the refereed proceedings of the four workshops that were organized in conjunction with the International Conference on Business Information Systems, BIS 2013, which took place in Poznań, Poland, in June 2013. BIS workshops give researchers the opportunity to share their preliminary ideas and first experimental results and to discuss research hypotheses with a highly focused audience. The 25 papers in this volume were carefully reviewed and selected from 47 submissions and were revised and extended after the event. The workshop topics covered

applications and economics of knowledge-based technologies (AKTB), business and IT alignment (BITA), enterprise systems for higher education (ESHE) and formal semantics for future enterprises (FSFE). In addition, two keynote as well as ten papers presented at the PhD Symposium are also included in this volume.

Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures - George Deodatis 2014-02-10

Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures contains the plenary lectures and papers presented at the 11th International Conference on STRUCTURAL SAFETY AND RELIABILITY (ICOSSAR2013, New York, NY, USA, 16-20 June 2013), and covers major aspects of safety, reliability, risk and life-cycle performance of str

Intelligent Data Engineering and Automated Learning - IDEAL 2016 - Hujun Yin 2016-09-12

This book constitutes the refereed proceedings

of the 17 International Conference on Intelligent Data Engineering and Automated Learning, IDEAL 2016, held in Yangzhou, China, in October 2016. The 68 full papers presented were carefully reviewed and selected from 115 submissions. They provide a valuable and timely sample of latest research outcomes in data engineering and automated learning ranging from methodologies, frameworks, and techniques to applications including various topics such as evolutionary algorithms; deep learning; neural networks; probabilistic modeling; particle swarm intelligence; big data analysis; applications in regression, classification, clustering, medical and biological modeling and predication; text processing and image analysis.

Encyclopedia of Information Science and Technology, Third Edition - Khosrow-Pour, Mehdi 2014-07-31

"This 10-volume compilation of authoritative, research-based articles contributed by

thousands of researchers and experts from all over the world emphasized modern issues and the presentation of potential opportunities, prospective solutions, and future directions in the field of information science and technology"-- Provided by publisher.

Mobile Internet Security - Ilsun You
2018-01-15

This book constitutes the refereed proceedings of the First International Symposium on Mobile Internet Security, MobiSec 2016, held in Taichung, Taiwan, in July 2016. The 15 revised full papers presented were carefully reviewed and selected from 44 submissions. They are closely related to various theories and practical applications in mobility management to highlight the state-of-the-art research.

Performance Benchmarking of Application Monitoring Frameworks - Jan Waller
2014-12-19

Application-level monitoring of continuously operating software systems provides insights

into their dynamic behavior, helping to maintain their performance and availability during runtime. Such monitoring may cause a significant runtime overhead to the monitored system, depending on the number and location of used instrumentation probes. In order to improve a system's instrumentation and to reduce the caused monitoring overhead, it is necessary to know the performance impact of each probe. While many monitoring frameworks are claiming to have minimal impact on the performance, these claims are often not backed up with a detailed performance evaluation determining the actual cost of monitoring. Benchmarks can be used as an effective and affordable way for these evaluations. However, no benchmark specifically targeting the overhead of monitoring itself exists. Furthermore, no established benchmark engineering methodology exists that provides guidelines for the design, execution, and analysis of benchmarks. This thesis introduces a

benchmark approach to measure the performance overhead of application-level monitoring frameworks. The core contributions of this approach are 1) a definition of common causes of monitoring overhead, 2) a general benchmark engineering methodology, 3) the MooBench micro-benchmark to measure and quantify causes of monitoring overhead, and 4) detailed performance evaluations of three different application-level monitoring frameworks. Extensive experiments demonstrate the feasibility and practicality of the approach and validate the benchmark results. The developed benchmark is available as open source software and the results of all experiments are available for download to facilitate further validation and replication of the results.

Quality of Information and Communications Technology - Ana C. R. Paiva 2021-08-27

This book constitutes the refereed proceedings of the 14th International Conference on the

Quality of Information and Communications Technology, QUATIC 2021, held in Algarve, Portugal*, in September 2021. The 30 full papers and 9 short papers were carefully reviewed and selected from 98 submissions. The papers are organized in topical sections: ICT verification and validation; software evolution; process modeling, improvement and assessment; quality aspects in quantum computing; safety, security, and privacy; quality aspects in machine learning, AI and data analytics; evidence-based software quality engineering; quality in cyber-physical systems; software quality education and training. *The conference was held virtually due to the COVID-19 pandemic.

System of System Failures - Takafumi Nakamura
2018-05-09

This book provides the application of praxis in the field of engineering safety by learning from previous system failures. And it addresses the most recent developments in the theoretical and practical aspects of these important fields,

which, due to their special nature, bring together in a systematic way, many disciplines of engineering, from the traditional to the most technologically advanced. The authors of these chapters are involved in using the system thinking and system engineering approaches at the scale of increased complexity and advanced computational solutions to such systems. The chapters cover the areas such as failure assessment in aeronautical engineering, seismic resistance of offshore pipeline engineering, electrical engineering, critical infrastructure failure, and system of system theory.

Quantitative Evaluation of Systems - Gethin Norman
2014-08-27

This book constitutes the proceedings of the 11th International Conference on Quantitative Evaluation of Systems, QEST 2014, held in Florence, Italy, in September 2014. The 24 full papers and 5 short papers included in this volume were carefully reviewed and selected from 61 submissions. They are organized in

topical sections named: Kronecker and product form methods; hybrid systems; mean field/population analysis; models and tools; simulation; queueing, debugging and tools; process algebra and equivalences; automata and Markov process theory; applications, theory and tools; and probabilistic model checking.

The Resilience of Networked Infrastructure Systems - Mayada Omer 2013-07-23

This volume elaborates on both the qualitative and quantitative aspects of resilience. Reviewing the literature exploring the concept of resilience in engineering, it discusses resilience in terms of the various definitions used, the methodologies proposed to characterize resilience, and the metrics put forward to quantify the resilience of specific service infrastructure systems. The review also identifies the key factors that contribute to organizational resilience. The concept of resilience is compared to other system properties such as reliability, robustness, flexibility and agility, by taking into

consideration what systems are prepared against (types of failure), the causes of failure in systems (uncertainty), and how systems react to overcome failure (level of adaptability). A review is also provided of several resilience-enabling schemes, which improve resilience by reducing vulnerability and increasing adaptive capacity. The book puts forward a new framework, the Networked Infrastructure Resilience Assessment (NIRA) framework, through which the resilience of systems can be measured by assessing the impact of disruptions on key performance measures. By applying the framework to various case studies, the book demonstrates the ability of the proposed framework to assess resilience across a wide variety of networked infrastructure systems. The case studies probe the resilience of the following critical infrastructure systems in the face of specific disruptive events: telecommunication, transportation, maritime transportation and organizational networks. This text is intended

for all levels of academia — from undergraduate through to research level — as well as professionals and decision-makers involved in the development, analysis and evaluation of infrastructure systems.

Contents: Introduction Literature Review Relationship Between Reliability, Robustness, Flexibility, Agility and Resilience Resilience-Enabling Schemes Measuring the Resilience of Networked Infrastructure Systems Assessing the Resilience of the Global Internet Cable System Assessing the Resilience of Road Transportation Networks Assessing the Resilience of Maritime Transportation Systems Assessing the Resilience of Enterprise Systems — An ITS Case Study Conclusion Readership: From the undergraduate level through to research — as well as professionals and decision-makers involved in the development, analysis and evaluation of infrastructure systems.

Keywords: Resilience; Networked Infrastructure

Systems; Critical Infrastructures; Resilience Metrics Key Features: Proposes the Networked Infrastructure Resilience Assessment (NIRA) framework, a novel approach for assessing the resilience of critical infrastructure systems. The methodology of the framework is demonstrated by several case studies that represent four types of critical infrastructure systems. Reviews several resilience-enabling schemes, which aim to improve the resilience of systems and help resume normal operations. The schemes are categorized into those that reduce the vulnerability of the system and those that increase the system's adaptive capacity. Offers a comprehensive review of the proposed definitions of resilience, its characterization and measurement strategies, as well as a qualitative analysis comparing resilience with other system properties, namely reliability, robustness, flexibility and agility.

Safety and Reliability. Theory and Applications - Marko Cepin 2017-06-14

Safety and Reliability - Theory and Applications contains the contributions presented at the 27th European Safety and Reliability Conference (ESREL 2017, Portorož, Slovenia, June 18-22, 2017). The book covers a wide range of topics, including: • Accident and Incident modelling • Economic Analysis in Risk Management • Foundational Issues in Risk Assessment and Management • Human Factors and Human Reliability • Maintenance Modeling and Applications • Mathematical Methods in Reliability and Safety • Prognostics and System Health Management • Resilience Engineering • Risk Assessment • Risk Management • Simulation for Safety and Reliability Analysis • Structural Reliability • System Reliability, and • Uncertainty Analysis. Selected special sessions include contributions on: the Marie Skłodowska-Curie innovative training network in structural safety; risk approaches in insurance and finance sectors; dynamic reliability and probabilistic safety assessment; Bayesian and statistical

methods, reliability data and testing; organizational factors and safety culture; software reliability and safety; probabilistic methods applied to power systems; socio-technical-economic systems; advanced safety assessment methodologies: extended Probabilistic Safety Assessment; reliability; availability; maintainability and safety in railways: theory & practice; big data risk analysis and management, and model-based reliability and safety engineering. Safety and Reliability - Theory and Applications will be of interest to professionals and academics working in a wide range of industrial and governmental sectors including: Aeronautics and Aerospace, Automotive Engineering, Civil Engineering, Electrical and Electronic Engineering, Energy Production and Distribution, Environmental Engineering, Information Technology and Telecommunications, Critical Infrastructures, Insurance and Finance, Manufacturing, Marine Industry, Mechanical Engineering, Natural

Hazards, Nuclear Engineering, Offshore Oil and Gas, Security and Protection, Transportation, and Policy Making.

Wireless Communications Systems - Randy L. Haupt 2019-11-20

A comprehensive introduction to the fundamentals of design and applications of wireless communications. Wireless Communications Systems starts by explaining the fundamentals needed to understand, design, and deploy wireless communications systems. The author, a noted expert on the topic, explores the basic concepts of signals, modulation, antennas, and propagation with a MATLAB emphasis. The book emphasizes practical applications and concepts needed by wireless engineers. The author introduces applications of wireless communications and includes information on satellite communications, radio frequency identification, and offers an overview with practical insights into the topic of multiple input multiple output (MIMO). The book also

explains the security and health effects of wireless systems concerns on users and designers. Designed as a practical resource, the text contains a range of examples and pictures that illustrate many different aspects of wireless technology. The book relies on MATLAB for most of the computations and graphics. This important text: Reviews the basic information needed to understand and design wireless communications systems. Covers topics such as MIMO systems, adaptive antennas, direction finding, wireless security, internet of things (IoT), radio frequency identification (RFID), and software defined radio (SDR). Provides examples with a MATLAB emphasis to aid comprehension. Includes an online solutions manual and video lectures on selected topics. Written for students of engineering and physics and practicing engineers and scientists. Wireless Communications Systems covers the fundamentals of wireless engineering in a clear and concise manner and contains many

illustrative examples.

Decision Support Methods in Modern Transportation Systems and Networks -

Grzegorz Sierpiński 2021-06-10

This book contains an abundance of numerical analyses based on significant data sets, illustrating importance of environmentally friendly solutions requiring transport networks to be redesigned or clean zones to be implemented. What kind of steps should be taken to redesign transport network? How to evaluate efficiency or flexibility of transport system and city logistics? What factors can be taken into account in the process of optimizing the functioning of public transport or paid parking zones? How to optimize supply chains (including last mile delivering and routing problem)? Which of the multi-criteria methods should be applied to support decision making processes while tackling problems of global transport systems? Answers to these and many other questions can be found in this book. With

regard to the research results discussed and the selected solutions applied, the book entitled "Decision support methods in modern transportation systems and networks" primarily addresses the needs of three target groups: · Scientists and researchers (ITS field) · Local authorities (responsible for the transport systems at the urban and regional level) · Representatives of business (traffic strategy management) and industry (manufacturers of ITS components).

Adaptive, Dynamic, and Resilient Systems -

Niranjan Suri 2014-06-23

As the complexity of today's networked computer systems grows, they become increasingly difficult to understand, predict, and control. Addressing these challenges requires new approaches to building these systems. Adaptive, Dynamic, and Resilient Systems supplies readers with various perspectives of the critical infrastructure that systems of networked computers rely on. It introduces the key issues,

describes their interrelationships, and presents new research in support of these areas. The book presents the insights of a different group of international experts in each chapter. Reporting on recent developments in adaptive systems, it begins with a survey of application fields. It explains the requirements of such fields in terms of adaptation and resilience. It also provides some abstract relationship graphs that illustrate the key attributes of distributed systems to supply you with a better understanding of these factors and their dependencies. The text examines resilient adaptive systems from the

perspectives of mobile, infrastructure, and enterprise systems and protecting critical infrastructure. It details various approaches for building adaptive, dynamic, and resilient systems—including agile, grid, and autonomic computing; multi-agent-based and biologically inspired approaches; and self-organizing systems. The book includes many stories of successful applications that illustrate a diversified range of cutting-edge approaches. It concludes by covering related topics and techniques that can help to boost adaptation and resilience in your systems.