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9th International Workshop, RISSEF 2002, Venice, Italy, October 7-11, 2002, Revised Papers Springer Science & Business Media

Requirements engineering has since long acknowledged the importance of the notion that system requirements are stakeholder goals—rather than system functions—and ought to be elicited, modeled and analyzed accordingly. In this book, Nurcan and her co-editors collected twenty contributions from leading researchers in requirements engineering with the intention to comprehensively present an overview of the different perspectives that exist today, in 2010, on the concept of intention in the information systems community. These original papers honor Colette Rolland for her contributions to this field, as she was probably the first to emphasize that ‘intention’ has to be considered as a first-class concept in information systems engineering. Written by long-term collaborators (and most often friends) of Colette Rolland, this volume covers topics like goal-oriented requirements engineering, model-driven development, method engineering, and enterprise modeling. As such, it is a tour d’horizon of Colette Rolland’s lifework, and is presented to her on the occasion of her retirement at CAiSE 2010 in Hammamet, the conference she once cofounded and which she helped to grow and prosper for more than 20 years.

Knowledge and Systems Engineering Intelligent Engineering System

"An important resource, this book offers an introductory text and overview of real-time systems: systems where timeliness is a crucial part of the correctness of the system. The book contains a pragmatic overview of key topics (computer architecture and organization, operating systems, software engineering, programming languages, and compiler theory) from the perspective of the real-time systems designer. The book is organized into chapters that are essentially self-contained. Thus, the material can be rearranged or omitted depending on the background and interests of the audience or instructor. Each chapter contains both easy and more challenging exercises that stimulate the reader to confront actual problems"--

5th International Conference, ICHIT 2011, Daejeon, Korea, September 22-24, 2011. Proceedings CRC Press

This book constitutes the refereed proceedings of the 6th International Symposium on Engineering Secure Software and Systems, ESSoS 2014, held in Munich, Germany, in February 2014. The 11 full papers presented together with 4 idea papers were carefully reviewed and selected from 55 submissions. The symposium features the following topics: model-based security, formal methods, web and mobile security and applications.

Formal Methods for Embedded Distributed Systems John Wiley and Sons

This book constitutes the refereed proceedings of the 16th Brazilian Symposium on Formal Methods, SBMF 2013, held in Brasilia, Brazil, in September/October 2013. The 14 revised full papers presented together with 2 keynotes were carefully reviewed and selected from 29 submissions. The papers presented cover a broad range of foundational and methodological issues in formal methods for the design and analysis of software and hardware systems as well as applications in various domains.

Formal Methods and Software Engineering IGI Global

Systems Engineering Demystified helps you to adopt a model-based approach to systems engineering in a concise, clear, and consistent way. This easy-to-follow guide covers a range of concepts and techniques for modern systems engineering that will enable a significant transformation within your organization by realizing complex systems.

Software Technologies for Embedded and Ubiquitous Systems Springer

This book is the third in a series of books collecting the best papers from the three main regional conferences on electronic system design languages, HDLCon in the United States, APCHDL in Asia-Pacific and FDL in Europe. Being APCHDL bi-annual, this book presents a selection of papers from HDLCon'OI and FDL'OI. HDLCon is the premier HDL event in the United States. It originated in 1999 from the merging of the International Verilog Conference and the Spring VHDL User's Forum. The scope of the conference expanded from specialized languages such as VHDL and Verilog to general purpose languages such as C++ and Java. In 2001 it was held in February in Santa Clara, CA. Presentations from design engineers are technical in nature, reflecting real life experiences in using HDLs. EDA vendors presentations show what is available - and what is planned-for design tools that utilize HDLs, such as simulation and synthesis tools. The Forum on Design Languages (FDL) is the European forum to exchange experiences and learn of new trends, in the application of languages and the associated design methods and tools, to design complex electronic systems. FDL'OI was held in Lyon, France, around seven interrelated workshops, Hardware Description Languages, Analog and Mixed signal Specification, C/C++ HW/SW Specification and Design, Design Environments & Languages, Real-Time specification for embedded Systems, Architecture Modeling and Reuse and System Specification & Design Languages.

Advanced Information Systems Engineering Springer

In areas such as military, security, aerospace, and disaster management, the need for performance optimization and interoperability among heterogeneous systems is increasingly important. Model-driven engineering, a paradigm in which the model becomes the actual software, offers a promising approach toward systems of systems (SoS) engineering. However, model-driven engineering has largely been unachieved in complex dynamical systems and netcentric SoS, partly because modeling and simulation (M&S) frameworks are stove-piped and not designed for SoS composability. Addressing this gap, Netcentric System of Systems Engineering with DEVS Unified Process presents a methodology for realizing the model-driven engineering vision and netcentric SoS using DEVS Unified Process (DUNIP). The authors draw on their experience with Discrete Event Systems Specification (DEVS) formalism, System Entity Structure (SES) theory, and applying model-driven engineering in the context of a netcentric SoS. They describe formal model-driven engineering methods for netcentric M&S using standards-based approaches to develop and test complex dynamic models with DUNIP. The book is organized into five sections: Section I introduces undergraduate students and novices to the world of DEVS. It covers systems and SoS M&S as well as DEVS formalism, software, modeling language, and DUNIP. It also assesses DUNIP with the requirements of the Department of Defense's (DoD) Open Unified Technical Framework (OpenUTF) for netcentric Test and Evaluation (T&E). Section II delves into M&S-based systems engineering for graduate students, advanced practitioners, and industry professionals. It provides methodologies to apply M&S principles to SoS design and reviews the development of executable architectures based on a framework such as the Department of Defense Architecture Framework (DoDAF). It also describes an approach for building netcentric knowledge-based contingency-driven systems. Section III guides graduate students, advanced DEVS users, and industry professionals who are interested in building DEVS virtual machines and netcentric SoS. It discusses modeling standardization, the deployment of models and simulators in a netcentric environment, event-driven architectures, and more. Section IV explores real-world case studies that realize many of the concepts defined in the previous chapters. Section V outlines the next steps and looks at how the modeling of netcentric complex adaptive systems can be attempted using DEVS concepts. It touches on the boundaries of DEVS formalism and the future work needed to utilize advanced concepts like weak and strong emergence, self-organization, scale-free systems, run-time modularity, and event interoperability. This groundbreaking work details how DUNIP offers a well-structured, platform-independent methodology for the modeling and simulation of netcentric system of systems.

Technical Safety, Reliability and Resilience Apress

CAiSE 2008 was the 20th in the series of International Conferences on Advanced Information System Engineering. This edition continued the success of previous conferences, a success largely due to that fact that, since its first edition, this series has evolved in parallel with the evolution of the importance of information systems in economic development. CAiSE has been able to follow, and often to anticipate, important changes that have occurred since 1978 when the first CAiSE conference was organized by Arne Sølvberg and Janis Bubenko. In all these years, modern businesses and IT systems have been facing an ever more complex environment characterized by openness, variety and change. Furthermore, enterprises are experiencing ever more variety in their business in many dimensions. In the same way, the explosion of information technologies is overwhelming with a multitude of languages, platforms, devices, standards and products. Thus enterprises need to manage an environment to monitor the interplay of changes in the business processes, in information technologies, and at the ontological level, in order to achieve a sustainable development of their information systems. Enterprises must enter the era of sustainable information systems to face the important developmental challenges. During all these years, CAiSE researchers have been challenged by all these changes, and the CAiSE conferences provide a forum for presenting and debating important scientific results. In fact, CAiSE is positioned at the core of these tumultuous processes, hosting new emerging ideas, fostering innovative processes of design and evaluation, developing new information technologies adapted to information systems, creating new kinds of models, but always being subject to rigorous scientific selection.

Innovations in Embedded and Real-Time Systems Engineering for Communication Springer

The world is moving into a new era of the knowledge economy. In the past decade, the significance of developing knowledge has grown to a level where it is now dominating other socio-economic factors. Systems Approaches to Knowledge Management, Transfer, and Resource Development provides a new view of knowledge management through the lens of systems approach, which looks at each part of the knowledge management system as a section of the full overview. This cutting-edge resource will be essential for academicians, scientists, practitioners, and industry professionals as all of these individuals work toward a new understanding of knowledge and information management practices in the 21st century.

UML for Systems Engineering CRC Press

This book constitutes the refereed proceedings of the 17th International Conference on Advanced Information Systems Engineering, CAiSE 2005, held in Porto, Portugal in June 2005. The 39 revised full papers presented were carefully reviewed and selected from 282 submissions. The papers are organized in topical sections on conceptual modeling, metamodeling, databases, query processing, process modeling and workflow systems, requirements engineering, model transformation, knowledge management and verification, Web services, Web engineering, software testing, and software quality.

Systems Approaches to Knowledge Management, Transfer, and Resource Development John Wiley & Sons

"This book has collected the latest research within the field of real-time systems engineering, and will serve as a vital reference compendium for practitioners and academics"--Provided by publisher.

Advanced Information Systems Engineering Springer Science & Business Media

This book constitutes the refereed proceedings of the 15th International Conference on Advanced Information Systems Engineering, CaiSE 2003, held in Klagenfurt, Austria in June 2003. The 45 revised full papers presented together with 3 invited contributions were carefully reviewed and selected from 219 submissions. The papers are organized in topical sections on XML, methods and models for information systems, UML, Internet business and social modeling, peer-to-peer systems, ontology-based methods, advanced design of information systems, knowledge, knowledge management, Web services, data warehouses, electronic agreements and workflow, requirements engineering, metrics and method engineering, and agent technologies and advanced environments.

Advances in Computer Science, Environment, Ecoinformatics, and Education, Part II Springer

This book provides basics and selected advanced insights on how to generate reliability, safety and resilience within (socio) technical system developments. The focus is on working definitions, fundamental development processes, safety development processes and analytical methods on how to support such schemes. The method families of Hazard Analyses, Failure Modes and Effects Analysis and Fault Tree Analysis are explained in detail. Further main topics include semiformal graphical system modelling, requirements types, hazard log, reliability prediction standards, techniques and measures for reliable hardware and software with respect to systematic and statistical errors, and combination options of methods. The book is based on methods as applied during numerous applied research and development projects and the support and auditing of such projects, including highly safety-critical automated and autonomous systems. Numerous questions and answers challenge students and practitioners.

Smart Systems Engineering Springer

This edited book presents scientific results of the 12th International Conference on Software Engineering, Artificial Intelligence Research, Management and Applications (SERA 2014) held on August 31 – September 4, 2014 in Kitakyushu, Japan. The aim of this conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users, and students to discuss the numerous fields of computer science and to share their experiences and exchange new ideas and information in a meaningful way. Research results about all aspects (theory, applications and tools) of computer and information science, and to discuss the practical challenges encountered along the way and the solutions adopted to solve them. This publication captures 17 of the conference's most promising papers.

Formal Methods: Foundations and Applications IGI Global

With the growing maturity of information and communication technologies, systems have been interconnected within growing networks, yielding new services through a combination of the system functionalities. This leads to an increasing complexity that has to be managed in order to take advantage of these system integrations. This book provides key answers as to how such systems of systems can be engineered and how their complexity can be mastered. After reviewing some definitions on systems of systems engineering, the book focuses on concrete applications and offers a survey of the activities and techniques that allow engineering of complex systems and systems of systems. Case studies, ranging from emergency situations such as Hurricane Katrina and its crisis management or a generic scenario of a major traffic accident and its emergency response, to the establishment of a scientific basis in the Antarctic region illustrate key factors of success and traps to avoid in order to cope with such situations.

The Engineering Design of Systems Springer Science & Business Media

The safe and reliable performance of many systems with which we interact daily has been achieved through the analysis and management of risk. From complex infrastructures to consumer durables, from engineering systems and technologies used in transportation, health, energy, chemical, oil, gas, aerospace, maritime, defence and other sectors, the management of risk during design, manufacture, operation and decommissioning is vital. Methods and models to support risk-informed decision-making are well established but are continually challenged by technology innovations, increasing interdependencies, and changes in societal expectations. Risk, Reliability and Safety contains papers describing innovations in theory and practice contributed to the scientific programme of the European Safety and Reliability conference (ESREL 2016), held at the University of Strathclyde in Glasgow, Scotland (25–29 September 2016). Authors include scientists, academics, practitioners, regulators and other key individuals with expertise and experience relevant to specific areas. Papers include domain specific applications as well as general modelling methods. Papers cover evaluation of contemporary solutions, exploration of future challenges, and exposition of concepts, methods and processes. Topics include human factors, occupational health and safety, dynamic and systems reliability modelling, maintenance optimisation, uncertainty analysis, resilience assessment, risk and crisis management.

Advanced Information Systems Engineering Springer

This 5-volume set (CCIS 214-CCIS 218) constitutes the refereed proceedings of the International Conference on Computer Science, Environment, Ecoinformatics, and Education, CSEE 2011, held in Wuhan, China, in July 2011. The 525 revised full papers presented in the five volumes were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on information security, intelligent information, neural networks, digital library, algorithms, automation, artificial intelligence, bioinformatics, computer networks, computational system, computer vision, computer modelling and simulation, control, databases, data mining, e-learning, e-commerce, e-business, image processing, information systems, knowledge management and knowledge discovering, multimedia and its application, management and information system, mobile computing, natural computing and computational intelligence, open and innovative education, pattern recognition, parallel and computing, robotics, wireless network, web application, other topics connecting with computer, environment and ecoinformatics, modeling and simulation, environment restoration, environment and energy, information and its influence on environment, computer and ecoinformatics, biotechnology and biofuel, as well as biosensors and bioreactor.

Application Development and Design: Concepts, Methodologies, Tools, and Applications CRC Press

This book constitutes the refereed proceedings of the 25th International Conference on Advanced Information Systems Engineering, CAISE 2013, held in Valencia, Spain, in June 2013. The 44 revised full papers were carefully reviewed and selected from 162 submissions. The contributions have been grouped into the following topical sections: services; awareness; business process execution; products; business process modelling; modelling languages and meta models; requirements engineering 1; enterprise architecture; information systems evolution; mining and predicting; data warehouses and business intelligence; requirements engineering 2; knowledge and know-how; information systems quality; and human factors.

Methods and Processes UML for Systems Engineering Watching the Wheels, 2nd Edition

Learn how to create good requirements when designing hardware and software systems. While this book emphasizes writing traditional "shall" statements, it also provides guidance on use case design and creating user stories in support of agile methodologies. The book surveys modeling

techniques and various tools that support requirements collection and analysis. You'll learn to manage requirements, including discussions of document types and digital approaches using spreadsheets, generic databases, and dedicated requirements tools. Good, clear examples are presented, many related to real-world work the author has done during his career. Requirements Writing for System Engineering advantages of different requirements approaches and implement them correctly as your needs evolve. Unlike most requirements books, Requirements Writing for System Engineering teaches writing both hardware and software requirements because many projects include both areas. To exemplify this approach, two example projects are developed throughout the book, one focusing on hardware and the other on software. This book Presents many techniques for capturing requirements. Demonstrates gap analysis to find missing requirements. Shows how to address both software and hardware, as most projects involve both. Provides extensive examples of "shall" statements, user stories, and use cases. Explains how to supplement or replace traditional requirement statements with user stories and use cases that work well in agile development environments What You Will Learn Understand the 14 techniques for capturing all requirements. Address software and hardware needs; because most projects involve both. Ensure all statements meet the 16 attributes of a good requirement. Differentiate the 19 different functional types of requirement, and the 31 non-functional types. Write requirements properly based on extensive examples of good 'shall' statements, user stories, and use cases. Employ modeling techniques to mitigate the imprecision of words. Audience Writing Requirements teaches you to write requirements the correct way. It is targeted at the requirements engineer who wants to improve and master his craft. This is also an excellent book from which to teach requirements engineering at the university level. Government organizations at all levels, from Federal to local levels, can use this book to ensure they begin all development projects correctly. As well, contractor companies supporting government development are also excellent audiences for this book.

Convergence and Hybrid Information Technology IET

This book constitutes the thoroughly refereed post-proceedings of the 5th IFIP WG 10.2 International Workshop on Software Technologies for Future Embedded and Ubiquitous Systems, SEUS 2007, held in conjunction with ISORC 2007, the 10th IEEE International Symposium on Object/component/service-oriented Real-time Distributed Computing. Coverage includes ubiquitous computing frameworks, validation of embedded and ubiquitous systems, and ubiquitous computing applications.