

Requirements Engineering From System Goals To Uml Models To Software Specifications By Van Lamsweerde Axel Published By John Wiley Sons 2009

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Enterprise Information Systems V Springer

A novel, model-driven approach to security requirements engineering that focuses on socio-technical systems rather than merely technical systems. Security requirements engineering is especially challenging because designers must consider not just the software under design but also interactions among people, organizations, hardware, and software. Taking this broader perspective means designing a secure socio-technical system rather than a merely technical system. This book presents a novel, model-driven approach to designing secure socio-technical systems. It introduces the Socio-Technical Modeling Language (STS-ML) and presents a freely available software tool, STS-Tool, that supports this design approach through graphical modeling, automated reasoning capabilities to verify the models constructed, and the automatic derivation of security requirements documents. After an introduction to security requirements engineering and an overview of computer and information security, the book presents the STS-ML modeling language, introducing the modeling concepts used, explaining how to use STS-ML within the STS method for security requirements, and providing guidelines for the creation of models. The book

then puts the STS approach into practice, introducing the STS-Tool and presenting two case studies from industry: an online collaborative platform and an e-Government system. Finally, the book considers other methods that can be used in conjunction with the STS method or that constitute an alternative to it. The book is suitable for course use or as a reference for practitioners. Exercises, review questions, and problems appear at the end of each chapter.

Frameworks for Understanding Springer

This book constitutes the proceedings of the Third Asia Pacific Requirements Engineering Symposium, APRES 2016, held in Nagoya, Japan, in November 2016. The 7 full papers presented together with three short papers, were carefully reviewed and selected from 14 submissions. The papers are organized in topical sections on requirements traceability and prioritization; requirements modeling and process for quality; requirements validation; requirements analysis.

Generative and Transformational Techniques in Software Engineering IV Springer

Gathering customer requirements is a key activity for developing software that meets the customer's needs. A concise and practical overview of everything a requirement's analyst needs to know about establishing customer requirements, this first-of-its-kind book is the perfect desk guide for systems or software development work. The book enables professionals to identify the real customer requirements for their projects and control changes and additions to these requirements. This unique resource helps practitioners understand the importance of requirements, leverage effective requirements practices, and better utilize resources. The book also explains how to strengthen interpersonal relationships and communications which are major contributors to project effectiveness. Moreover,

analysts find clear examples and checklists to help them implement best practices.

Data Warehouse Requirements Engineering Springer

This book describes a modeling approach (called the i* framework) that conceives of software-based information systems as being situated in environments in which social actors relate to each other in terms of goals to be achieved, tasks to be performed, and resources to be furnished.

17th International Working Conference, REFSQ 2011, Essen, Germany, March 28-30, 2011. Proceedings Springer

This book constitutes the proceedings of the 24th International Working Conference on Requirements Engineering - Foundation for Software Quality, REFSQ 2018, held in Utrecht, The Netherlands, in March 2018. The 23 full and 2 invited talks papers presented in this volume were carefully reviewed and selected from 57 submissions. The papers were organized in topical sections named: RE in Industrial Practice; NLP in Theory and Practice; Empirical Insights into Traceability; Taming Ambiguity; Large-Scale RE; Quality Requirements; User and Job Stories; Requirements Alignment; RE Previews and Visions; Big Data; Mindmapping and Requirements Modeling.

Process for System Architecture and Requirements Engineering CRC Press

A collective autonomic system consists of collaborating autonomic entities which are able to adapt at runtime, adjusting to the state of the environment and incorporating new knowledge into their behavior. These highly dynamic systems are also known as ensembles. To ensure correct behavior of ensembles it is necessary to support their development through appropriate methods and tools which can guarantee that an autonomic system lives up to its

intended purpose; this includes respecting important constraints of the environment. This State-of-the-Art Survey addresses the engineering of such systems by presenting the methods, tools and theories developed within the ASCENS project. ASCENS was an integrated project funded in the period 2010-2015 by the 7th Framework Programme (FP7) of the European Commission as part of the Future Emerging Technologies Proactive Initiative (FET Proactive). The 17 contributions included in this book are organized in four parts corresponding to the research areas of the project and their concrete applications: (I) language and verification for self-awareness and self-expression, (II) modeling and theory of self-aware and adaptive systems, (III) engineering techniques for collective autonomic systems, and last but not least, (IV) challenges and feedback provided by the case studies of the project in the areas of swarm robotics, cloud computing and e-mobility.

Social Modeling for Requirements Engineering Springer Science & Business Media

This book contains the refereed proceedings of the 15th International Conference on Business Process Modeling, Development and Support (BPMDS 2014) and the 19th International Conference on Exploring Modeling Methods for Systems Analysis and Design (EMMSAD 2014), held together with the 26th International Conference on Advanced Information Systems Engineering (CAiSE 2014) in Thessaloniki, Greece, in June 2014. The 20 full papers accepted for BPMDS were selected from 48 submissions and cover a wide spectrum of issues related to business process development, modeling, and support. They are grouped into topical sections on business process modeling as a human-driven process, representing the human perspective of business processes, supporting humans in business processes, variability-enabling process models, various models for various process perspectives, and BPMDS in practice. The ten full and three short papers accepted for EMMSAD were chosen from 27 submissions and focus on exploring, evaluating, and enhancing modeling methods and methodologies for the analysis and design of information systems, enterprises, and business processes. They are grouped into sections on conceptual modeling, requirements modeling, business process modeling, goal and language action modeling, enterprise and business modeling, and new approaches.

Information Systems Development John Wiley & Sons

As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their requirements engineering habits. However, these tools are not easy to use without appropriate training. Filling this need, *Requirements Engineering for Software and Systems, Second Edition* has been vastly updated and expanded to include about 30 percent new material. In addition to new exercises and updated references in every chapter, this edition updates all

chapters with the latest applied research and industry practices. It also presents new material derived from the experiences of professors who have used the text in their classrooms. Improvements to this edition include: An expanded introductory chapter with extensive discussions on requirements analysis, agreement, and consolidation An expanded chapter on requirements engineering for Agile methodologies An expanded chapter on formal methods with new examples An expanded section on requirements traceability An updated and expanded section on requirements engineering tools New exercises including ones suitable for research projects Following in the footsteps of its bestselling predecessor, the text illustrates key ideas associated with requirements engineering using extensive case studies and three common example systems: an airline baggage handling system, a point-of-sale system for a large pet store chain, and a system for a smart home. This edition also includes an example of a wet well pumping system for a wastewater treatment station. With a focus on software-intensive systems, but highly applicable to non-software systems, this text provides a probing and comprehensive review of recent developments in requirements engineering in high integrity systems.

26th International Conference, CAiSE 2014, Thessaloniki, Greece, June 16-20, 2014, Proceedings John Wiley & Sons Incorporated

This book focuses on various topics related to engineering and management of requirements, in particular elicitation, negotiation, prioritisation, and documentation (whether with natural languages or with graphical models). The book provides methods and techniques that help to characterise, in a systematic manner, the requirements of the intended engineering system. It was written with the goal of being adopted as the main text for courses on requirements engineering, or as a strong reference to the topics of requirements in courses with a broader scope. It can also be used in vocational courses, for professionals interested in the software and information systems domain. Readers who have finished this book will be able to: - establish and plan a requirements engineering process within the development of complex engineering systems; - define and identify the types of relevant requirements in engineering projects; - choose and apply the most appropriate techniques to elicit the requirements of a given system; - conduct and manage negotiation and prioritisation processes for the requirements of a given engineering system; - document the requirements of the system under development, either in natural language or with graphical and formal models. Each chapter includes a set of exercises.

17th International Symposium, ISMIS 2008 Toronto, Canada, May 20-23, 2008 Proceedings Springer

This volume contains the papers selected for presentation at the 17th International Symposium on Methodologies for Intelligent Systems (ISMIS 2008), held in York University, Toronto, Canada, May 21–23, 2008. ISMIS is a conference series started in 1986. Held twice every three years, ISMIS provides an international forum for exchanging scientific research and technological achievements in building intelligent systems. Its goal is to achieve a vibrant interchange - tween researchers and practitioners on fundamental and advanced issues related to intelligent systems. ISMIS

2008 featured a selection of latest research work and applications from the following areas related to intelligent systems: active media human-computer interaction, autonomic and evolutionary computation, digital libraries, intelligent agent technology, intelligent information retrieval, intelligent information systems, intelligent language processing, knowledge representation and integration, knowledge discovery and data mining, knowledge visualization, logic for artificial intelligence, soft computing, Web intelligence, and Web services. - searchers and developers from 29 countries submitted more than 100 full - pers to the conference. Each paper was rigorously reviewed by three committee members and external reviewers. Out of these submissions, 40% were selected as regular papers and 22% as short papers. ISMIS 2008 also featured three plenary talks given by John Mylopoulos, Jiawei Han and Michael Lowry. They spoke on their recent research in age-oriented software engineering, information network mining, and intelligent software engineering tools, respectively.

Engineering Dependable Software Systems Springer

This book comprises a set of papers selected from those presented at the fifth « International Conference on Enterprise Information Systems », (ICEIS'2003) held in Angers, France, from 23 to 26 April 2003. The conference was organised by École Supérieure d'Électronique de l'Ouest (ESEO) of Angers, France and the Escola Superior de Tecnologia of Setúbal, Portugal. Since its first edition in 1999, ICEIS focuses on real world applications and aims at bringing together researchers, engineers and practitioners interested in the advances and business applications of information systems. As in previous years, ICEIS'2003 held four simultaneous tracks covering different aspects of enterprise computing: Databases and Information Systems Integration, Artificial Intelligence and Decision Support Systems, Information Systems Analysis and Specification and Software Agents and Internet Computing. Although ICEIS'2003 received 546 paper submissions from over 50 countries, only 80 were accepted as full papers and presented in 30-minutes oral presentations. With an acceptance rate of 15%, these numbers demonstrate the intention of preserving a high quality forum for future editions of this conference. From the articles accepted as long papers for the conference, only 32 were selected for inclusion in this book Additional keynote lectures, tutorials and industrial sessions were also held during ICEIS'2003, and, for the first time this year, the 1st Doctoral Consortium on Enterprise Information Systems gave PhD students an opportunity to present their work to an international audience of experts in the field of information systems.

Foundations of Intelligent Systems Springer

Written for those who want to develop their knowledge of requirements engineering process, whether practitioners or students. Using the latest research and driven by practical experience from

industry, this book gives useful hints to practitioners on how to write and structure requirements. - Explains the importance of Systems Engineering and the creation of effective solutions to problems - Describes the underlying representations used in system modeling - data flow diagrams; statecharts; object-oriented approaches - Covers a generic multi-layer requirements process - Discusses the key elements of effective requirements management - Includes a chapter written by one of the developers of rich traceability - Introduces an overview of DOORS - a software tool which serves as an enabler of a requirements management process Additional material and links are available at: <http://www.requirementsengineering.info> "In recent years we have been finding ourselves with a shortage of engineers with good competence in requirements engineering. Perhaps this is in part because requirements management tool vendors have persuaded management that a glitzy tool will solve their requirements engineering problems. Of course, the tools only make it possible for engineers who understand requirements engineering to do a better job. This book goes a long way towards building a foundational set of skills in requirements engineering, so that today's powerful tools can be used sensibly. Of particular value is a recognition of the place software requirements have within the system context, and of ways for dealing with that sensitive connection. This is an important book. I think its particular value in industry will be to bring the requirements engineers and their internal customers to a practical common understanding of what can and should be achieved." (Byron Purves, Technical Fellow, The Boeing Company)

Advances in Conceptual Modeling Springer

Although the self-adaptability of systems has been studied in a wide range of disciplines, from biology to robotics, only recently has the software engineering community recognized its key role in enabling the development of self-adaptive systems that are able to adapt to internal faults, changing requirements, and evolving environments. The 15 carefully reviewed papers included in this state-of-the-art survey were presented at the International Seminar on "Software Engineering for Self-Adaptive Systems", held in Dagstuhl Castle, Germany, in October 2010. Continuing the course of the first book of the series on "Software Engineering for Self-Adaptive Systems" the collection of papers in this second volume comprises a research roadmap accompanied by four elaborating working group papers. Next there are two parts - with three papers each - entitled "Requirements and Policies" and "Design Issues"; part four of the book contains four papers covering a wide range of "Applications".

Software Engineering for Self-Adaptive Systems Morgan Kaufmann

Requirements engineering is the process by which the requirements for software systems are gathered, analyzed, documented, and managed throughout their complete lifecycle. Traditionally it has been concerned with technical goals for, functions of, and constraints on software systems. Aurum and Wohlin, however, argue that it is no longer appropriate for software systems professionals to focus only on functional and non-functional aspects of the intended system and to somehow assume that organizational context and needs are outside their remit. Instead, they call for a broader perspective in order to gain a better understanding of the interdependencies between enterprise stakeholders, processes, and software systems, which would in turn give rise to more appropriate techniques and higher-quality systems. Following an introductory chapter that provides an exploration of key issues in requirements engineering, the book is organized in three parts. Part 1 presents surveys of state-of-the-art requirements engineering process research along with critical assessments of existing models, frameworks and techniques. Part 2 addresses key areas in requirements engineering, such as market-driven requirements engineering, goal modeling, requirements ambiguity, and others. Part 3 concludes the book with articles that present empirical evidence and experiences from practices in industrial projects. Its broader perspective gives this book its distinct appeal and makes it of interest to both researchers and practitioners, not only in software engineering but also in other disciplines such as business process engineering and management science.

The Requirements Engineering Handbook Springer Science & Business Media

Requirements Engineering From System Goals to UML Models to Software Specifications John Wiley & Sons Incorporated
Business Systems and Services: Modeling and Development Springer Science & Business Media

The purpose of this book is to disseminate the research results and best practice from researchers and practitioners interested in and working on modeling methods and methodologies. Though the need for such studies is well recognized, there is a paucity of such research in the literature. What specifically distinguishes this book is that it looks at various research domains and areas such as enterprise, process, goal, object-orientation, data, requirements, ontology, and component modeling, to provide an overview of existing approaches and best practices in these conceptually

closely-related fields. *Note: This book is part of a series entitled "Advanced Topics in Database Research.

Intentional Perspectives on Information Systems Engineering Requirements Engineering From System Goals to UML Models to Software Specifications

The pioneering organizers of the first UML workshop in Mulhouse, France in the summer of 1998 could hardly have anticipated that, in little over a decade, their initiative would blossom into today's highly successful MODELS conference series, the premier annual gathering of researchers and practitioners focusing on a very important new technical discipline: model-based software and system engineering. This expansion is, of course, a direct consequence of the growing significance and success of model-based methods in practice. The conferences have contributed greatly to the heightened interest in the field, attracting much young talent and leading to the gradual emergence of its corresponding scientific and engineering foundations. The proceedings from the MODELS conferences are one of the primary references for anyone interested in a more substantive study of the domain. The 12th conference took place in Denver in the USA, October 4-9, 2009 along with numerous satellite workshops and tutorials, as well as several other related scientific gatherings. The conference was exceptionally fortunate to have three eminent, invited keynote speakers from industry: Stephen Mellor, Larry Constantine, and Grady Booch.

24th International Working Conference, REFSQ 2018, Utrecht, The Netherlands, March 19-22, 2018, Proceedings MIT Press
Essential comprehensive coverage of the fundamentals of requirements engineering Requirements engineering (RE) deals with the variety of prerequisites that must be met by a software system within an organization in order for that system to produce stellar results. With that explanation in mind, this must-have book presents a disciplined approach to the engineering of high-quality requirements. Serving as a helpful introduction to the fundamental concepts and principles of requirements engineering, this guide offers a comprehensive review of the aim, scope, and role of requirements engineering as well as best practices and flaws to avoid. Shares state-of-the-art techniques for domain analysis, requirements elicitation, risk analysis, conflict management, and more Features in-depth treatment of system modeling in the specific context of engineering requirements Presents various forms of reasoning about models for requirements quality assurance Discusses the transitions from requirements to software specifications to software architecture In addition, case studies are included that complement the many examples provided in the book in order to show you how the described method and techniques are applied in practical situations.

Requirements Engineering for Software and Systems, Second Edition

Springer

System Requirements Engineering presents a balanced view of the issues, concepts, models, techniques and tools found in requirements engineering research and practice. Requirements engineering is presented from business, behavioural and software engineering perspectives and a general framework is established at the outset. This book considers requirements engineering as a combination of three concurrent and interacting processes: eliciting knowledge related to a problem domain, ensuring the validity of such knowledge and specifying the problem in a formal way. Particular emphasis is given to requirements elicitation techniques and there is a fully integrated treatment of the development of requirements specifications through enterprise modelling, functional requirements and non-functional requirements.

Requirements Engineering: Foundation for Software Quality

McGraw-Hill

This book constitutes the proceedings of 26th International Conference on Advanced Information Systems Engineering, CAiSE 2014, held in Thessaloniki, Greece in June 2014. The 41 papers and 3 keynotes presented were carefully reviewed and selected from 226 submissions. The accepted papers were presented in 13 sessions: clouds and services; requirements; product lines; requirements elicitation; processes; risk and security; process models; data mining and streaming; process mining; models; mining event logs; databases; software engineering.