

Requirements Engineering From System Goals To Uml Models To Software Specifications By Axel Van Lamsweerde 2009 02 09

This book constitutes the refereed proceedings of the IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference on Availability, Reliability and Security, CD-ARES 2013, held in Regensburg, Germany, in September 2013. The 21 revised papers presented were carefully reviewed and selected for inclusion in the volume. The papers concentrate on the many aspects of information systems bridging the gap between research results in computer science and the many application fields. They are organized in the following topical sections: economic, ethical, legal, multilingual, organizational and social aspects; context-oriented information integration; data/information management as a service; context-oriented information integration and location-aware computing; security and privacy; risk management and business continuity; and security and privacy and location based applications. Also included are 15 papers from a special session on Human-Computer Interaction and Knowledge Discovery (HCI-KDD 2013).

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.

Because almost all technical systems are more or less interfaced with software these days, attacks against computer systems can cause considerable economic and physical damage. For this reason, understanding the dependability of such systems, as well as the improvement of cyber security and its development process, are amongst the most challenging and crucial issues in current computer science research. This book contains the lectures from the NATO Advanced Study Institute (ASI) Summer School entitled Engineering Dependable Software Systems, held in Marktoberdorf, Germany, in July and August 2012. This two week course for young computer scientists and mathematicians working in the field of formal software and systems was designed to give an in-depth presentation of state-of-the-art topics in the field, as well as promoting international contacts and collaboration and the teaming up of leading researchers and young scientists. The 12 lectures delivered at the school and presented here cover subjects including: model-based testing, formal modeling and verification, deductively verified software, model checking, performance analysis, integrating risk analysis, embedded systems and model checking, among others. The book will be of interest to all those whose work involves the development of large-scale, reliable and secure software systems.

This book constitutes the refereed proceedings of the 15th International Conference on Model Driven Engineering Languages and Systems, MODELS 2012, held in Innsbruck, Austria, in September/October 2012. The 50 papers presented in this volume were carefully reviewed and selected from a total of 181 submissions. They are organized in topical sections named: metamodels and domain specific modeling; models at runtime; model management; modeling methods and tools, consistency analysis, software product lines; foundations of modeling; static analysis techniques; model testing and simulation; model transformation; model matching, tracing and synchronization; modeling practices and experience; and model analysis.

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.

This tutorial volume includes revised and extended lecture notes of six long tutorials, five short tutorials, and one peer-reviewed participant contribution held at the 4th International Summer School on Generative and Transformational Techniques in Software Engineering, GTTSE 2011. The school presents the state of the art in software language engineering and generative and transformational techniques in software engineering with coverage of foundations, methods, tools, and case studies.

Build your own intelligent agent system... Intelligent agent technology is a tool of modern computer science that can be used to engineer complex computer programmes that behave rationally in dynamic and changing environments. Applications range from small programmes that intelligently search the Web buying and selling goods via electronic commerce, to autonomous space probes. This powerful technology is not widely used, however, as developing intelligent agent software requires high levels of training and skill. The authors of this book have developed and tested a methodology and tools for developing intelligent agent systems. With this methodology (Prometheus) developers can start agent-oriented designs and implementations easily from scratch saving valuable time and resources. Developing Intelligent Agent Systems not only answers the questions "what are agents?" and "why are they useful?" but also the crucial question: "how do I design and build intelligent agent systems?" The book covers everything a practitioner needs to know to begin to effectively use this technology - including an introduction to the notion of agents, a description of the concepts involved, and a software engineering methodology. Read on for: a practical step-by-step introduction to designing and building intelligent agent systems. a full life-cycle methodology for developing intelligent agent systems covering specification, analysis, design and implementation of agents. PDT: Prometheus Design Tool – software support for the Prometheus design process. the example of an electronic bookstore to illustrate the design process throughout the book. Electronic resources including the Prometheus Design Tool (PDT), can be found at: <http://www.cs.rmit.edu.au/agents/prometheus> This book is aimed at industrial software developers, software engineers and at advanced undergraduate students. It assumes knowledge of basic software engineering but does not require knowledge of Artificial Intelligence or of mathematics. Familiarity with Java will help in reading the examples in chapter 10.

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.

This classroom-texted textbook/reference presents a set of useful modeling techniques, describing how these can be combined

into a powerful framework for the analysis and design of business systems. These techniques follow an interactive modeling and simulation (IMS) approach, enabling the modeling and simulation of separate parts of the system at different levels of abstraction, and the composition of these parts in a flexible crosscutting manner that preserves the behavior of the individual parts. Topics and features: presents a detailed introduction to the foundations of IMS for business system design, covering protocol modeling and goal modeling semantics; describes the practical application of IMS for business system design, illustrated by a selection of useful case studies; highlights the advantages of this approach to IMS for business system design, with a focus on performance management, motivation modeling, and communication; includes review questions and exercises at the end of each chapter.

This book constitutes the revised selected papers from the 11th International Conference on Risk and Security of Internet and Systems, CRISIS 2016, held in Roscoff, France, in September 2016. The 17 full papers presented in this volume were carefully reviewed and selected from 24 submissions. They cover diverse research themes, ranging from classic topics, such as intrusion detection, applied cryptography, formal methods and methodology for risk and security analysis, to emerging issues, such as ransomware and security of software defined networking or virtualization techniques.

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 between 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. Researchers and developers from 29 countries submitted more than 100 full papers 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.

This book constitutes the proceedings of the 23rd International Working Conference on Requirements Engineering - Foundation for Software Quality, REFSQ 2017, held in Essen, Germany, in February/March 2017. The 16 full papers and 10 short papers presented in this volume were carefully reviewed and selected from 77 submissions. The papers were organized in topical sections named: use case models; ecosystems and innovation; human factors in requirements engineering; goal-orientation in requirements engineering; communication and collaboration; process and tool integration; visualization and representation of requirements; agile requirements engineering; natural language processing, information retrieval and machine learning traceability; quality of natural language requirements; research methodology in requirements engineering.

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.

This book constitutes the refereed proceedings of the 5th IFIP TC 5 International Conference on Computer Science and Its Applications, CIIA 2015, held in Saida, Algeria, in May 2015. The 56 revised papers presented were carefully reviewed and selected from 225 submissions. The papers are organized in the following four research tracks: computational intelligence; security and network technology; information technology; and software engineering.

This book presents recent advances in mechatronic and integrated monitoring and management systems with applications to architectural, archaeology survey, construction management and civil engineering. It consists of 16 chapters authored by recognized experts in a variety of fields including dynamics, signal processing, inverse modeling, robotics and automation, in particular, here applied to design and construction of civil structures and architectural survey, monitoring and maintenance of cultural heritage assets, structures and infrastructure. The book is organized in three main sections: “Robotics and Automation”, “Digital Technologies for Cultural Heritage” and “Civil Structural Health Monitoring”. Topics include image processing for automated visual inspection, fiber optical sensor technology, wireless sensor monitoring, bridge inspection and monitoring of tunnel infrastructures, design tools for construction engineering, smart cities. Direct and inverse modeling of multibody systems and robots contributes to the development of applications for civil engineering and smart cities. Digital technology and mechatronic systems changes the way of looking at restoration of historical and archeological sites, analysis, inspection, visualization,

management systems and sensor network for Human-Machine Interfaces (HMI). Combined use of geographical information system (GIS), laser scanner, remote sensing, digital thermography and drones as integrated systems permits to highlight new frontier for building and infrastructure knowledge. The book offers a valuable reference work for scientists, architects, engineers, researchers and practitioners in engineering and architecture since the integrated development of new technologies for the design and management of existing and new infrastructure may produce a new market of services and products for safe and economically optimized infrastructure management. Through the dissemination of advanced research developments in mechatronics and integrated management systems, the book promotes exchanges and collaborations among researchers of different disciplines. The book contributes to further advancements in the rapidly growing field of integration of robotic, automation and information technologies in the area of facilities and infrastructure management and construction processes.

This book summarizes the research findings presented at the 13th International Joint Conference on Knowledge-Based Software Engineering (JCKBSE 2020), which took place on August 24–26, 2020. JCKBSE 2020 was originally planned to take place in Larnaca, Cyprus. Unfortunately, the COVID-19 pandemic forced it be rescheduled as an online conference. JCKBSE is a well-established, international, biennial conference that focuses on the applications of artificial intelligence in software engineering. The 2020 edition of the conference was organized by Hiroyuki Nakagawa, Graduate School of Information Science and Technology, Osaka University, Japan, and George A. Tsihrintzis and Maria Virvou, Department of Informatics, University of Piraeus, Greece. This research book is a valuable resource for experts and researchers in the field of (knowledge-based) software engineering, as well as general readers in the fields of artificial and computational Intelligence and, more generally, computer science wanting to learn more about the field of (knowledge-based) software engineering and its applications. An extensive list of bibliographic references at the end of each paper helps readers to probe further into the application areas of interest to them.

This book constitutes the refereed proceedings of the 17th International Working Conference on Requirements Engineering: Foundation for Software Quality, REFSQ 2011, held in Essen, Germany, in March 2011. The 10 revised full papers and the 9 short papers presented were carefully reviewed and selected from 59 submissions. The papers are organized in seven topical sections on security and sustainability; process improvement and requirements in context; elicitation; models; services; embedded and real-time systems; and prioritization and traceability.

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.

"This book is not only of practical value. It's also a lot of fun to read." Michael Jackson, The Open University. Do you need to know how to create good requirements? Discovering Requirements offers a set of simple, robust, and effective cognitive tools for building requirements. Using worked examples throughout the text, it shows you how to develop an understanding of any problem, leading to questions such as: What are you trying to achieve? Who is involved, and how? What do those people want? Do they agree? How do you envisage this working? What could go wrong? Why are you making these decisions? What are you assuming? The established author team of Ian Alexander and Ljerka Beus-Dukic answer these and related questions, using a set of complementary techniques, including stakeholder analysis, goal modelling, context modelling, storytelling and scenario modelling, identifying risks and threats, describing rationales, defining terms in a project dictionary, and prioritizing. This easy to read guide is full of carefully-checked tips and tricks. Illustrated with worked examples, checklists, summaries, keywords and exercises, this book will encourage you to move closer to the real problems you're trying to solve. Guest boxes from other experts give you additional hints for your projects. Invaluable for anyone specifying requirements including IT practitioners, engineers, developers, business analysts, test engineers, configuration managers, quality engineers and project managers. A practical sourcebook for lecturers as well as students studying software engineering who want to learn about requirements work in industry. Once you've read this book you will be ready to create good requirements!

"Information security covers the protection of information against unauthorized disclosure, transfer, modification, and destruction, whether accidentally or intentionally. Quality of life in general and of individual citizens, and the effectiveness of the economy critically depends on our ability to build software in a transparent and efficient way. Furthermore, we must be able to enhance the software development process systematically in order to ensure software's safety and security. This, in turn, requires very high software reliability, i.e., an extremely high confidence in the ability of the software to perform flawlessly. Foundations of software technology provide models that enable us to capture application domains and their requirements, but also to understand the structure and working of software systems and software architectures. Based on these foundations tools allow to prove and ensure the correctness of software's functioning. New developments must pay due diligence to the importance of security-related aspects, and align current methods and techniques to information security, integrity, and system reliability. The articles in this book describe the state-of-the-art ideas on how to meet these challenges in software engineering."

This book constitutes the refereed proceedings of the Third International Symposium on Engineering Secure Software and Systems, ESSoS 2011, held in Madrid, Italy, in February 2011. The 18 revised full papers presented together with 3 idea papers were carefully reviewed and selected from 63 submissions. The papers are organized in topical sections on model-based security, tools and mechanisms, Web security, security requirements engineering, and authorization.

Solid requirements engineering has increasingly been recognized as the key to improved, on-time, and on-budget delivery of software and systems projects. This textbook provides a comprehensive treatment of the theoretical and practical aspects of discovering, analyzing, modeling, validating, testing, and writing requirements for systems of all kinds, with an intentional focus on software-intensive systems. It brings into play a variety of formal methods, social models, and modern requirements for writing techniques to be useful to the practicing engineer. This book was written to support both undergraduate and graduate requirements engineering courses. Each chapter includes simple, intermediate, and advanced exercises. Advanced exercises are suitable as a research assignment or independent study and are denoted by an asterisk. Various exemplar systems illustrate points throughout the book, and four systems in particular—a baggage handling system, a point of sale system, a smart home system, and a wet well pumping system—are used repeatedly. These systems involve application domains with which most readers are likely to be familiar, and they cover a wide range of applications from embedded to organic in both industrial and consumer implementations. Vignettes at the end of each chapter provide mini-case studies showing how the learning in

the chapter can be employed in real systems. Requirements engineering is a dynamic field and this text keeps pace with these changes. Since the first edition of this text, there have been many changes and improvements. Feedback from instructors, students, and corporate users of the text was used to correct, expand, and improve the material. This third edition includes many new topics, expanded discussions, additional exercises, and more examples. A focus on safety critical systems, where appropriate in examples and exercises, has also been introduced. Discussions have also been added to address the important domain of the Internet of Things. Another significant change involved the transition from the retired IEEE Standard 830, which was referenced throughout previous editions of the text, to its successor, the ISO/IEC/IEEE 29148 standard.

This book systematically identifies the lack of methodological support for development of requirements and software architecture in the state-of-the-art. To overcome this deficiency, the QuaDRA framework is proposed as a problem-oriented approach. It provides an instantiation of the Twin Peaks model for supporting the intertwining relationship of requirements and software architecture. QuaDRA includes several structured methods which guide software engineers in quality- and pattern-based co-development of requirements and early design alternatives in an iterative and concurrent manner.

"This book provides a detailed account concerning information society and the challenges and application posed by its elicitation, specification, validation and management: from embedded software in cars to internet-based applications, COTS packages, health-care, and others"--Provided by publisher.

Information Systems Development: Business Systems and Services: Modeling and Development, is the collected proceedings of the 19th International Conference on Information Systems Development held in Prague, Czech Republic, August 25 - 27, 2010. It follows in the tradition of previous conferences in the series in exploring the connections between industry, research and education. These proceedings represent ongoing reflections within the academic community on established information systems topics and emerging concepts, approaches and ideas. It is hoped that the papers herein contribute towards disseminating research and improving practice.

This book constitutes the proceedings of the 4th Asia Pacific Requirements Engineering Symposium, APRES 2017, held in Melaka, Malaysia, in November 2017. The 11 full papers presented together with four short papers were carefully reviewed and selected from 45 submissions. The papers are organized in topical sections on big data, cyber security, crowd-sourcing, requirements challenges, automation.

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.

The book presents both the current state of the art in requirements engineering and a systematic method for engineering high-quality requirements, broken down into four parts. The first part introduces fundamental concepts and principles including the aim and scope of requirements engineering, the products and processes involved, requirements qualities to aim at and flaws to avoid, and the critical role of requirements engineering in system and software engineering. The second part of the book is devoted to system modeling in the specific context of engineering requirements. It presents a multi-view modeling framework that integrates complementary techniques for modeling the system-as-is and the system-to-be. The third part of the book reviews goal-based reasoning techniques to support the various steps of the KAOS method. The fourth part of the book goes beyond requirements engineering to discuss the mapping from goal-oriented requirements to software specifications and to software architecture. Online software will accompany the book and will add value to both classroom and self-study by enabling students to build models and specifications involved in the book's exercises and case studies, helping them to discover the latest RE technology solutions. Instructor resources such as slides, figures and handouts are available from an accompanying website. Conceptual modeling has long been recognized as the primary means to enable software development in information systems and data engineering. Conceptual modeling provides languages, methods and tools to understand and represent the application domain; to elicit, conceptualize and formalize system requirements and user needs; to communicate systems designs to all stakeholders; and to formally verify and validate systems design on high levels of abstraction. Recently, ontologies added an important tool to conceptualize and formalize system specification. The International Conference on Conceptual Modeling – ER – provides the premiere forum for presenting and discussing current research and applications in which the major emphasis is centered on conceptual modeling. Topics of interest span the entire spectrum of conceptual modeling, including research and practice in areas such as theories of concepts and ontologies underlying conceptual modeling, methods and tools for developing and communicating conceptual models, and techniques for transforming conceptual models into effective implementations. The scientific program of ER 2009 features several activities running in parallel.

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.

This book constitutes the refereed proceedings of workshops, held at the 33rd International Conference on Conceptual Modeling, ER 2014, in Atlanta, GA, USA in October 2014. The 24 revised full and 6 short papers were carefully reviewed and selected out of 59 submissions and are presented together with 4 demonstrations. The papers are organized in sections related to the individual workshops: the First International Workshop on Enterprise Modeling, ENMO 2014; the Second International Workshop on Modeling and Management of Big Data, MoBiD 2014; the First International Workshop on Conceptual Modeling in Requirements and Business Analysis, MReBA 2014; the First International Workshop on Quality of Models and Models of Quality, QMMQ 2014; the 8th International Workshop on Semantic and Conceptual Issues in GIS, SeCoGIS 2014; and the 11th International Workshop on Web Information Systems Modeling, WISM 2014. The contributions cover a variety of topics in conceptual modeling, including requirements and enterprise modeling, modeling of big data, spatial conceptual modeling, exploring the quality of models, and issues specific to the design of web information systems.

This book constitutes the thoroughly refereed papers of the workshops held at the 8th International Conference on New Trends in Model and Data Engineering, MEDI 2018, in Marrakesh, Morocco, in October 2018. The 19 full and the one short workshop papers were carefully reviewed and selected from 50 submissions. The papers are organized according to the 4 workshops: International Workshop on Modeling, Verification and Testing of Dependable Critical Systems, DETECT 2018, Model and Data Engineering for Social Good Workshop, MEDI4SG 2018, Second International Workshop on Cybersecurity and Functional Safety in Cyber-Physical Systems, IWCFS 2018, International

Workshop on Formal Model for Mastering Multifaceted Systems, REMEDY 2018.

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.

Requirements engineering (RE) has the overall goal of establishing the vision of the system in its relevant context. For this goal, all stakeholders must disclose, discuss, and align their mental models of the system by explicitly communicating their goals, ideas, needs, and expectations. This procedure serves to develop and negotiate a shared understanding and is called requirements communication. In this thesis, I analyze the application of videos as a documentation option in RE to support effective requirements communication for shared understanding. Videos used for this purpose are called vision videos. Based on a technology transfer process, I develop a candidate solution consisting of the two concepts video as a by-product and awareness and guidance. The first concept supports the revision of RE practices by integrating video production and use to obtain videos as a by-product with low effort and sufficient quality. The second concept helps software professionals with video production and use by creating awareness regarding video quality and providing guidance on how to proceed. Each concept is first validated in academia before the entire candidate solution is validated in a case study in the industry. The findings from academia and industry indicate that the candidate solution helps software professionals to gain the required awareness, knowledge, and ability to produce and use vision videos at moderate costs and with sufficient quality. These videos are suitable for the intended purpose of supporting requirements communication for shared understanding.

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)

Seminar paper from the year 2016 in the subject Computer Science - Software, grade: 1,0, University of Cologne (Seminar für Wirtschaftsinformatik und integrierte Informationssysteme), course: Bachelorseminar Requirements Engineering, language: English, abstract: The goal of this work was to provide a holistic overview of current frameworks for requirements elicitation. They can be categorized as goal- or process-oriented ones. For achieving this goal, I conducted a structured literature review and summarized the results within in tables. Hence, this work can serve as reference manual for quickly getting an overview of possible requirements elicitation approaches. There exist a couple of approaches for the elicitation of requirements for software projects. Usually, it is difficult to identify the most relevant ones in order to have a coherent software development process. In general, it is distinguished between functional and non-functional requirements. Functional ones describe what a system has to do, what a system has to perform. Non-functional ones put constraints on the software, meaning they are quality attributes such as availability and security. 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".

Requirements Engineering From System Goals to UML Models to Software Specifications John Wiley & Sons Incorporated

If you have picked up this book and are browsing the Preface, you may well be asking yourself "What makes this book different from the large number I can find on amazon.com?". Well, the answer is a blend of the academic and the practical, and views of the subject you won't get from anybody else: how psychology and linguistics influence the field of requirements engineering (RE). The title might seem to be a bit of a conundrum; after all, surely requirements come from people so all requirements should be user-centred. Sadly, that is not always so; many system disasters have been caused simply because requirements engineering was not user-centred or, worse still, was not practised at all. So this book is about putting the people back into computing, although not simply from the HCI (human-computer interaction)

sense; instead, the focus is on how to understand what people want and then build appropriate computer systems. 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 CalSE 2010 in Hammamet, the conference she once cofounded and which she helped to grow and prosper for more than 20 years.

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