

Modelling Software With Pictures Uml Diagramming For Real Time Embedded Systems The Engineering Of Real Time Embedded Systems

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.

Topological UML Modeling: An Improved Approach for Domain Modeling and Software Development presents a specification for Topological UML® that combines the formalism of the Topological Functioning Model (TFM) mathematical topology with a specified software analysis and design method. The analysis of problem domain and design of desired solutions within software development processes has a major impact on the achieved result - developed software. While there are many tools and different techniques to create detailed specifications of the solution, the proper analysis of problem domain functioning is ignored or covered insufficiently. The design of object-oriented software has been led for many years by the Unified Modeling Language (UML®), an approved industry standard modeling notation for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system, and this comprehensive book shines new light on the many advances in the field. Presents an approach to formally define, analyze, and verify functionality of existing processes and desired processes to track incomplete or incorrect functional requirements. Describes the path from functional and nonfunctional requirements specification to software design with step-by-step creation and transformation of diagrams and models with very early capturing of security requirements for software systems. Defines all modeling constructs as extensions to UML®, thus creating a new UML® profile which can be implemented in existing UML® modeling tools and toolsets.

Larman covers how to investigate requirements, create solutions and then translate designs into code, showing developers how to make practical use of the most significant recent developments. A summary of UML notation is included.

More than 300,000 developers have benefited from past editions of UML Distilled. This third edition is the best resource for quick, no-nonsense insights into understanding and using UML 2.0 and prior versions of the UML. Some readers will want to quickly get up to speed with the UML 2.0 and learn the essentials of the UML. Others will use this book as a handy, quick reference to the most common parts of the UML. The author delivers on both of these promises in a short, concise, and focused presentation. This book describes all the major UML diagram types, what they're used for, and the basic notation involved in creating and deciphering them. These diagrams include class, sequence, object, package, deployment, use case, state machine, activity, communication, composite structure, component, interaction overview, and timing diagrams. The examples are clear and the explanations cut to the fundamental design logic. Includes a quick reference to the most useful parts of the UML notation and a useful summary of diagram types that were added to the UML 2.0. If you are like most developers, you don't have time to keep up with all the new innovations in software engineering. This new edition of Fowler's classic work gets you acquainted with some of the best thinking about efficient object-oriented software design using the UML--in a convenient format that will be essential to anyone who designs software professionally.

Software Systems Architecture

Third International Conference York, UK, October 2-6, 2000 Proceedings

Designing Successful Software Through Business Analysis

Second Edition

Model-Driven Development with Executable UML

Systems Engineering with SysML/UML

Language, Concepts, Methods

This book presents a variant of UML that is especially suitable for agile development of high-quality software. It adjusts the language UML profile, called UML/P, for optimal assistance for the design, implementation, and agile evolution to facilitate its use especially in agile, yet model based development methods for data intensive or control driven systems. After a general introduction to UML and the choices made in the development of UML/P in Chapter 1, Chapter 2 includes a definition of the language elements of class diagrams and their forms of use as views and representations. Next, Chapter 3 introduces the design and semantic facets of the Object Constraint Language (OCL), which is conceptually improved and syntactically adjusted to Java for better comfort. Subsequently, Chapter 4 introduces object diagrams as an independent, exemplary notation in UML/P, and Chapter 5 offers a detailed introduction to UML/P Statecharts. Lastly, Chapter 6 presents a simplified form of sequence diagrams for exemplary descriptions of object interactions. For completeness, appendixes A - C describe the full syntax of UML/P, and appendix D explains a sample application from the E-commerce domain, which is used in all chapters. This book is ideal for introductory courses for students and practitioners alike.

This book focuses on the methodological treatment of UML/P and addresses three core topics of model-based software development: code generation, the systematic testing of programs using a model-based definition of test cases, and the evolutionary refactoring and transformation of models. For each of these topics, it first details the foundational concepts and techniques, and then presents their application with UML/P. This separation between basic principles and applications makes the content more accessible and allows the reader to transfer this knowledge directly to other model-based approaches and languages. After an introduction to the book and its primary goals in Chapter 1, Chapter 2 outlines an agile UML-based approach using UML/P as the primary development language for

creating executable models, generating code from the models, designing test cases, and planning iterative evolution through refactoring. In the interest of completeness, Chapter 3 provides a brief summary of UML/P, which is used throughout the book. Next, Chapters 4 and 5 discuss core techniques for code generation, addressing the architecture of a code generator and methods for controlling it, as well as the suitability of UML/P notations for test or product code. Chapters 6 and 7 then discuss general concepts for testing software as well as the special features which arise due to the use of UML/P. Chapter 8 details test patterns to show how to use UML/P diagrams to define test cases and emphasizes in particular the use of functional tests for distributed and concurrent software systems. In closing, Chapters 9 and 10 examine techniques for transforming models and code and thus provide a solid foundation for refactoring as a type of transformation that preserves semantics. Overall, this book will be of great benefit for practical software development, for academic training in the field of Software Engineering, and for research in the area of model-based software development. Practitioners will learn how to use modern model-based techniques to improve the production of code and thus significantly increase quality. Students will find both important scientific basics as well as direct applications of the techniques presented. And last but not least, the book will offer scientists a comprehensive overview of the current state of development in the three core topics it covers.

This book covers all you need to know to model and design software applications from use cases to software architectures in UML and shows how to apply the COMET UML-based modeling and design method to real-world problems. The author describes architectural patterns for various architectures, such as broker, discovery, and transaction patterns for service-oriented architectures, and addresses software quality attributes including maintainability, modifiability, testability, traceability, scalability, reusability, performance, availability, and security. Complete case studies illustrate design issues for different software architectures: a banking system for client/server architecture, an online shopping system for service-oriented architecture, an emergency monitoring system for component-based software architecture, and an automated guided vehicle for real-time software architecture. Organized as an introduction followed by several short, self-contained chapters, the book is perfect for senior undergraduate or graduate courses in software engineering and design, and for experienced software engineers wanting a quick reference at each stage of the analysis, design, and development of large-scale software systems. This book constitutes the refereed proceedings of the 6th International Conference on the Unified Modelling Language, UML 2003, held in San Francisco, CA, USA in October 2003. The 25 revised full papers, 4 tool papers, and 1 experience paper presented together with the abstracts of 3 invited talks and summaries on the UML 2003 workshop and tutorials were carefully reviewed and selected from initially 168 submissions. The papers are organized in topical sections on practical model management, time and quality of service, tools, composition and architecture, transformation, Web related issues, testing and validation, improving UML/OCL, consistency, and methodology.

Use Case Driven Object Modeling with UML Theory and Practice
Model-Driven Testing
Executable UML

Software Engineering with UML

Model Driven Architecture with Executable UML

10th International Conference on Formal Engineering Methods ICFEM 2008, Kitakyushu-City, Japan, October 27-31, 2008, Proceedings

Agile Model-Based Development Using UML-RSDS

Written by the original members of an industry standardization group, this book shows you how to use UML to test complex software systems. It is the definitive reference for the only UML-based test specification language, written by the creators of that language. It is supported by an Internet site that provides information on the latest tools and uses of the profile. The authors introduce UTP step-by-step, using a case study that illustrates how UTP can be used for test modeling and test specification. This book presents the analysis, design, documentation, and quality of software solutions based on the OMG UML v2.5. Notably it covers 14 different modelling constructs including use case diagrams, activity diagrams, business-level class diagrams, corresponding interaction diagrams and state machine diagrams. It presents the use of UML in creating a Model of the Problem Space (MOPS), Model of the Solution Space (MOSS) and Model of the Architectural Space (MOAS). The book touches important areas of contemporary software engineering ranging from how a software engineer needs to invariably work in an Agile development environment through to the techniques to model a Cloud-based solution. Formal engineering methods are intended to offer effective means for integration of formal methods and practical software development technologies in the context of software engineering. Their purpose is to provide effective, rigorous, and systematic techniques for significant improvement of software productivity, quality, and tool supportability. In comparison with formal methods, a distinct feature of formal engineering methods is that they emphasize the importance of the balance between the qualities of simplicity, visualization, and preciseness for practicality. To achieve this goal, formal engineering methods must be developed on the basis of both formal methods and existing software technologies in software engineering, and they must serve the improvement of the software engineering process. ICFEM 2008 marks the tenth anniversary of the first ICFEM conference, which was held in Hiroshima in 1997. It aims to bring together researchers and practitioners who are interested in the development and application of formal engineering methods to present their latest work and discuss future research directions. The conference offers a great opportunity for researchers in both formal methods and software engineering to exchange their ideas, experience, expectation and to find out whether and how their research results can help advance the state of the art.

This book offers a unique insight into a revolution in software development that allows model specifications to be fully and efficiently translated into code. Using the most widely adopted, industry standard, software modelling language, UML, the reader will learn how to build robust specifications based on OMG's Model Driven Architecture (MDA). From there, the authors describe the steps needed to translate the Executable UML (xUML) models to any platform-specific implementation. The benefits of this approach go well beyond simply reducing or eliminating the coding stage - it also ensures platform independence, avoids obsolescence (programming languages may change, the model doesn't) and allows full verification of the models by executing them in a test and debug xUML environment. This is an excellent reference for anyone embarking on what is surely the future of software development for medium and large scale projects.

Model-Driven Software Engineering in Practice

Models in Software Engineering

6th International Conference on Object Oriented Information Systems 18 - 20 December 2000, London, UK Proceedings

Netcentric System of Systems Engineering with DEVS Unified Process

Model-Based Software Performance Analysis

UML 2000 - The Unified Modeling Language: Advancing the Standard

Working with Stakeholders Using Viewpoints and Perspectives

The complexity of most real-time and embedded systems often exceeds that of other types of systems since, in addition to the usual spectrum of problems inherent in software, they need to deal with the complexities of the physical world. That world—as the proverbial Mr. Murphy tells us—is an unpredictable and often unfriendly place. Consequently, there is a very strong motivation to investigate and apply advanced design methods and technologies that could simplify and improve the reliability of real-time software design and implementation. As a result, from the first versions of UML issued in the mid 1990's, designers of embedded and real-time systems have taken to UML with vigour and enthusiasm. However, the dream of a complete, model-driven design flow from specification through automated, optimised code generation, has been difficult to realise without some key improvements in UML semantics and syntax, specifically targeted to the real-time systems problem. With the enhancements in UML that have been proposed and are near standardisation with UML 2. 0, many of these improvements have been made. In the Spring of 2003, adoption of a formalised UML 2. 0 specification by the members of the Object Management Group (OMG) seems very close. It is therefore very appropriate to review the status of UML as a set of notations for embedded real-time systems - both the state of the art and best practices achieved up to this time with UML of previous generations - and where the changes embodied in the 2.

With its clear introduction to the Unified Modeling Language (UML) 2.0, this tutorial offers a solid understanding of each topic, covering foundational concepts of object-orientation and an introduction to each of the UML diagram types.

Software Systems Architecture, Second Edition is a highly regarded, practitioner-oriented guide to designing and implementing effective architectures for information systems. It is both a readily accessible introduction to software architecture and an invaluable handbook of well-established best practices. With this book you will learn how to Design and communicate an architecture that reflects and balances the different needs of its stakeholders Focus on architecturally significant aspects of design, including frequently overlooked areas such as performance, resilience, and location Use scenarios and patterns to drive the creation and validation of your architecture Document your architecture as a set of related views Reflecting new standards and developments in the field, this new edition extends and updates much of the content, and Adds a “system context viewpoint” that documents the system's interactions with its environment Expands the discussion of architectural principles, showing how they can be used to provide traceability and rationale for architectural decisions Explains how agile development and architecture can work together Positions requirements and architecture activities in the project context Presents a new lightweight method for architectural validation Whether you are an aspiring or practicing software architect, you will find yourself referring repeatedly to the practical advice in this book throughout the lifecycle of your projects. A supporting Web site containing further information can be found at www.viewpoints-and-perspectives.info.

Modeling complex systems is a difficult challenge and all too often one in which modelers are left to their own devices. Using a multidisciplinary approach, The Art of Software Modeling covers theory, practice, and presentation in detail. It focuses on the importance of model creation and demonstrates how to create meaningful models. Presenting three self-contained sections, the text examines the background of modeling and frameworks for organizing information. It identifies techniques for researching and capturing client and system information and addresses the challenges of presenting models to specific audiences. Using concepts from art theory and aesthetics, this broad-based approach encompasses software practices, cognitive science, and information presentation. The book also looks at perception and cognition of diagrams, view composition, color theory, and presentation techniques. Providing practical methods for investigating and organizing complex information, The Art of Software Modeling demonstrates the effective use of modeling techniques to improve the development process and establish a functional,

useful, and maintainable software system.

Domain Architectures

UML 2003 -- The Unified Modeling Language, Modeling Languages and Applications

Object oriented programming with C++

APPLYING UML & PATTERNS 3RD EDITION

UML, Use Cases, Patterns, and Software Architectures

Discovering Strategic Solutions with Agent-Based Modeling and Simulation

The Art of Modeling Software Systems Demonstrated through Worked Examples and Solutions

Discusses how to define and organize use cases that model the user requirements of a software application. The approach focuses on identifying all the parties who will be using the system, then writing detailed use case descriptions and structuring the use case model. An ATM example runs throughout the book. The authors work at Rational Software. Annotation copyrighted by Book News, Inc., Portland, OR

New object-oriented technologies have been conceived and implemented over the past decade in order to manage complexity inherent in information systems development. Research has spanned from information systems modelling languages (UML and OML) to databases (ODMG), from programming languages (Java) to middleware technology (CORBA). A more widespread use of the Internet has led to the emergence and integration of various other technologies, such as XML and database connectivity tools, allowing businesses to access and exchange information over the Internet. The main theme of OOIS 2000 was "Object-Technology and New Business Opportunities" and focused on research conducted in the area of effective information systems development for the promotion of e-commerce. Papers were invited from academics and practitioners. The thirty-nine papers accepted for OOIS 2000 are included in these proceedings. It is nice to see this year that the shift from centralised to distributed systems and the widespread access and use of the Internet has allowed the advent of new opportunities for businesses to exploit, in the form of e-commerce.

Five years on from its adoption in 1997 by the Object Management Group (OMG), the Unified Modeling Language is the de facto standard for creating - agrammatic models of software systems. More than 100 books have been written about UML, and it is taught to students throughout the world. The definition of UML version 2 is well under way, and should be largely completed within the year. This will not only improve and enhance UML itself, including standard facilities for diagram interchange, but also make it fully integrated with other modeling technologies from the OMG, such as Meta-Object Facility (MOF) and XML Metadata Interchange (XMI). The Object Constraint Language, which has become an important vehicle for communicating detailed insights between UML researchers and practitioners, will have a much expanded specification and be better integrated with the UML. The popularity of UML signifies the possibility of a shift of immense proportions in the practice of software development, at least comparable to the shift from the use of assembly language to "third-generation" or "high-level" programming languages. We dream of describing the behavior of software systems in terms of models, closely related to the needs of the enterprise being served, and being able to routinely translate these models automatically into executing programs on distributed computing systems. The OMG is promoting Model-Driven Architecture (MDA) as a significant step towards this vision, and the MDA concept has received considerable support within the IT industry.

UML, the Universal Modeling Language, was the first programming language designed to fulfill the requirement for "universality." However, it is a software-specific language, and does not support the needs of engineers designing from the broader systems-based perspective. Therefore, SysML was created. It has been steadily gaining popularity, and many companies, especially in the heavily-regulated Defense, Automotive, Aerospace, Medical Device and Telecomms industries, are already using SysML, or are planning to switch over to it in the near future. However, little information is currently available on the market regarding SysML. Its use is just on the crest of becoming a widespread phenomenon, and so thousands of software engineers are now beginning to look for training and resources. This book will serve as the one-stop, definitive guide that provide an introduction to SysML, and instruction on how to implement it, for all these new users. *SysML is the latest emerging programming language--250,000 estimated software systems engineers are using it in the US alone! *The first available book on SysML in English *Insider information! The author is a member of the SysML working group and has written sections of the specification *Special focus comparing SysML and UML, and explaining how both can work together

Design of Embedded Real-Time Systems

6th International Conference San Francisco, CA, USA, October 20-24, 2003, Proceedings

OOIS 2000

Theory and Practice

Formal Methods and Software Engineering

Formal Methods for Eternal Networked Software Systems

Models and Architectures for UML Applications

This is an introductory book to information modelling with UML, for entry level university students. It assumes no previous knowledge of UML on the part of the reader, and uses a case-based approach to present the material clearly and accessibly. It harmonises the UML notation with a full software development approach, from project conception through to testing, deployment and enhancement. The author is an experienced tutor, who also practices as a UML professional, and the cases are based upon his own experience. The book is accompanied by a website that provides solutions to end-of-chapter exercises, a password-protected tutor's file of further exercises with solutions, slides to accompany the book, and other support material. This book is suitable for all undergraduate computing and information systems, or Software Engineering courses. First year students will find it particularly helpful for modules on systems development or analysis and design.

Poor performance is one of the main quality-related shortcomings that cause software projects to fail. Thus, the need to address performance concerns early during the software development process is fully acknowledged, and there is a growing interest in the research and software industry communities towards techniques, methods and tools that permit to manage system performance concerns as an integral part of software engineering. Model-based software performance analysis introduces performance concerns in the scope of software modeling, thus allowing the developer to carry on performance analysis throughout the software lifecycle. With this book, Cortellessa, Di Marco and Inverardi provide the cross-knowledge that allows developers to tackle software performance issues from the very early phases of software development. They explain the basic concepts of performance analysis and describe the most representative methodologies used to annotate and transform software models into

performance models. To this end, they go all the way from performance primers through software and performance modeling notations to the latest transformation-based methodologies. As a result, their book is a self-contained reference text on software performance engineering, from which different target groups will benefit: professional software engineers and graduate students in software engineering will learn both basic concepts of performance modeling and new methodologies; while performance specialists will find out how to investigate software performance model building.

This book presents 15 tutorial lectures by leading researchers given at the 11th edition of the International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2011, held in Bertinoro, Italy, in June 2011. SFM 2011 was devoted to formal methods for eternal networked software systems and covered several topics including formal foundations for the inter-operability of software systems, application-layer and middleware-layer dynamic connector synthesis, interaction behavior monitoring and learning, and quality assurance of connected systems. The school was held in collaboration with the researchers of the EU-funded projects CONNECT and ETERNALS. The papers are organized into six parts: (i) architecture and interoperability, (ii) formal foundations for connectors, (iii) connector synthesis, (iv) learning and monitoring, (v) dependability assurance, and (vi) trustworthy eternal systems via evolving software.

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.

Learning UML 2.0

12th International Conference, MODELS 2009, Denver, CO, USA, October 4-9, 2009, Proceedings

Modeling with UML

Enterprise Modeling with UML

Model-Driven Software Engineering in Practice, Second Edition

Using the UML Testing Profile

UML Distilled

This book sets out to show embedded software engineers how to model their designs using diagrams in an effective, clear and useful way. A key aspect in all of this is the sensible application of a set of diagrams defined within the Unified Modelling Language (UML) standard. It is aimed at those designing - or who intend to design - software for real-time embedded systems (RTEs). The content of this book falls into two quite distinct categories. The first, covered by chapters 1 to 3, is a 'selling' mission, to try to make you understand why it really is a good idea to use modelling methods in your designs. The next set of chapters is organized on a model-by-model basis. The diagrams described are those that we have found to be especially useful in the development of RTEs. This isn't limited to just the syntax and semantic aspects (such information is widely available) but also tries to show how and why such diagrams are used. Rounding things off is chapter 9, 'Practical diagramming issues'. This is especially important as it provides practical guidance on using UML diagrams for the design and development of real-time systems. The author: Jim Cooling has had many years experience in the area of real-time embedded systems, including electronic, software and system design, project management, consultancy, education and course development. He has published extensively on the subject, his books covering many aspects of embedded-systems work such as real-time interfacing, programming, software design and software engineering. Currently he is a partner in Lindentree Associates (which he formed in 1998), providing consultancy and training for real-time embedded systems. See: www.lindentreeuk.co.uk

Agent-based modeling and simulation (ABMS), a way to simulate a large number of choices by individual actors, is one of the most exciting practical developments in business

modeling since the invention of relational databases. It represents a new way to understand data and generate information that has never been available before--a way for businesses to view the future and to understand and anticipate the likely effects of their decisions on their markets and industries. It thus promises to have far-reaching effects on the way that businesses in many areas use computers to support practical decision-making. Managing Business Complexity is the first complete business-oriented agent-based modeling and simulation resource. It has three purposes: first, to teach readers how to think about ABMS, that is, about agents and their interactions; second, to teach readers how to explain the features and advantages of ABMS to other people and third, to teach readers how to actually implement ABMS by building agent-based simulations. It is intended to be a complete ABMS resource, accessible to readers who haven't had any previous experience in building agent-based simulations, or any other kinds of models, for that matter. It is also a collection of ABMS business applications resources, all assembled in one place for the first time. In short, Managing Business Complexity addresses who needs ABMS and why, where and when ABMS can be applied to the everyday business problems that surround us, and how specifically to build these powerful agent-based models.

This fully revised and indispensable edition of Object-Oriented Programming with C++ provides a sound appreciation of the fundamentals and syntax of the language, as well as of various concepts and their applicability in real-life problems. Emphasis has been laid on the reusability of code in object-oriented programming and how the concepts of class, objects, inheritance, polymorphism, friend functions, and operator overloading are all geared to make the development and maintenance of applications easy, convenient and economical.

This book describes the concepts and application of model-based development (MBD), model transformations, and Agile MBD to a wide range of software systems. It covers systems requirements engineering, system specification and design, verification, reuse, and system composition in the context of Agile MBD. Examples of applications in finance, system migration, internet systems and software refactoring are given. An established open-source MBD technology, UML-RSDS, is used throughout to illustrate the concepts. The book is suitable for industrial practitioners who need training in Agile MBD, and those who need to understand the issues to be considered when introducing MBD in an industrial context. It is also suitable for academic researchers, and for use as text for undergraduate or postgraduate courses in MBD. Examples for educational use of UML-RSDS are included in the book.

Practical UML Diagramming for Real-Time Systems

Agile Modeling with UML

Workshops and Symposia at MoDELS 2006, Genoa, Italy, October 1-6, 2006, Reports and Revised Selected Papers

An Improved Approach for Domain Modeling and Software Development

Software Modeling and Design

5th International Conference, Dresden, Germany, September 30 October 4, 2002. Proceedings Modeling, Analysis, Design

Offers comprehensive coverage of all major modeling viewpoints Provides details of collaboration and class diagrams for filling in the design-level models

This book constitutes the refereed proceedings of the Third International Conference on the Unified Modeling Language, 2000, held in York, UK in October 2000. The 36 revised full papers presented together with two invited papers and three panel outlines were carefully reviewed and selected from 102 abstracts and 82 papers submitted. The book offers topical sections on use cases, enterprise applications, applications, roles, OCL tools, meta-modeling, behavioral modeling, methodology, actions and constraints, patterns, architecture, and state charts.

CD-ROM contains: Java and XML implementations of ideas and models described in the appendix.

This book constitutes the thoroughly refereed post-proceedings of 11 international workshops held as satellite events of the 9th International Conference on Model Driven Engineering Languages and Systems, MoDELS 2006, in Genoa, Italy, in October 2006 (see LNCS 4199). The 32 revised full papers were carefully selected for inclusion in the book. They are presented along with a doctoral and an educators' symposium section.

A Foundation for Model-driven Architecture

Use Case Modeling

Webservices

Emerging Technologies for the Evolution and Maintenance of Software Models

Code Generation, Testing, Refactoring

UML in Practice

The Art of Software Modeling

Diagramming and process are important topics in today's software development world, as the UML diagramming language has come to be almost universally accepted. Yet process is necessary; by themselves, diagrams are of little use. Use Case Driven Object Modeling with UML - Theory and Practice combines the notation of UML with a lightweight but effective process - the ICONIX process - for designing and developing software systems. ICONIX has developed a growing following over the years. Sitting between the free-for-all of Extreme Programming and overly rigid processes such as RUP, ICONIX offers just enough structure to be successful.

Model-driven software development drastically alters the software development process, which is characterized by a high degree of innovation and productivity. Emerging Technologies for the Evolution and Maintenance of Software Models contains original academic work about current research and research projects related to all aspects affecting the maintenance, evolution, and reengineering (MER), as well as long-term management, of software models. The mission of this book is to present a comprehensive and central overview of new and emerging trends in software model research and to provide concrete results from ongoing developments in the field.

Domain Architectures is a comprehensive catalog of the domain architectures essential to software developers using object-oriented technology and UML to solve real-life problems. Providing a unique top-down view of systems, the book also provides quick access to landmarks and references to domain architectures. The ability to describe applications, in terms of the properties they share, offers software designers a vast new landscape for implementing software reuse. The ideal professional's handbook. Helps readers reduce trial and error and increase productivity by reusing tried and trusted ideas Models are described and documented using UML (incorporating UML 2.0) models and meta models

This book focuses on web service specification, search, composition, validation, resiliency, security and engineering, and discusses various service specification standards like WSDL, SAWSDL, WSMO and OWLS. The theory and associated algorithms for service specification verification are detailed using formal models like Petrinet, FSM and UML. The book also explores various approaches proposed for web service search and composition, highlighting input/output, parameter-based search, and selection of services based on both functional and non-functional parameters. In turn, it examines various types of composite web services and presents an overview of popular fault handling strategies for each of these types. Lastly, it discusses the standards used for implementing web service security on the basis of a case study, and introduces the Web Service Development Life Cycle (WSDLC), which defines co-operation between several industry partners to develop web services in a more structured way.

Model Driven Engineering Languages and Systems

Software Development with UML

11th International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2011, Bertinoro, Italy, June 13-18, 2011, Advanced Lectures

A Brief Guide to the Standard Object Modeling Language

UML 2002 - The Unified Modeling Language: Model Engineering, Concepts, and Tools

Managing Business Complexity

Modelling Software with Pictures

This book discusses how model-based approaches can improve the daily practice of software professionals. This is known as Model-Driven Engineering (MDSE) or, simply, Model-Driven Engineering (MDE). MDSE practices have proved to increase efficiency and effectiveness in development, as demonstrated by various quantitative and qualitative studies. MDSE adoption in the software industry is foreseen to grow in the near future, e.g., due to the convergence of software development and business analysis. The aim of this book is to provide you with a flexible tool to introduce you to the MDSE world, thus allowing you to quickly understand its basic principles and techniques and to choose the right MDSE instruments for your needs so that you can start to benefit from MDSE right away. The book is organized into two main parts: the first part discusses the foundations of MDSE in terms of basic concepts (i.e., models and transformations), driving principles, application scenarios, and standards, like the well-known MDA initiative proposed by OMG (Object Management Group) as well as the practices on how to integrate MDSE into existing development processes. The second part deals with the technical aspects of MDSE, spanning from the basics on when and how to use a domain-specific modeling language, to the description of Model-to-Text and Model-to-Model transformations, and the tools that support the management of MDSE projects. The second edition of the book features: a set of completely new topics, including: full example of the modeling language (IFML), discussion of modeling issues and approaches in specific domains, like business process modeling, user interaction modeling, and enterprise architecture complete revision of examples, figures, and text, for improving readability, understandability, and a better formulation of definitions, dependencies between concepts and ideas addition of a complete index of book content In addition to the book, more resources are provided on the book's website <http://www.mdse-book.com>, including the examples presented in the book. Overviews the process of building and compiling executable UML models for software development. The book focuses on the BridgePoint object action language developed by Project Technology. The authors discuss identifying system requirements, diagramming classes and constraints on the class diagram, ways of building sets of communicating statechart diagrams, and model verification. Annotation copy

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