

Metrics And Models In Software Quality Engineering 2nd Edition

What the experts have to say about Model-Based Testing for Embedded Systems: "This book is exactly what is needed at the exact right time in this fast-growing area. From its beginnings over 10 years ago of deriving tests from UML statecharts, model-based testing has matured into a topic with both breadth and depth. Testing embedded systems is a natural application of MBT, and this book hits the nail exactly on the head. Numerous topics are presented clearly, thoroughly, and concisely in this cutting-edge book. The authors are world-class leading experts in this area and teach us well-used and validated techniques, along with new ideas for solving hard problems. "It is rare that a book can take recent research advances and present them in a form ready for practical use, but this book accomplishes that and more. I am anxious to recommend this in my consulting and to teach a new class to my students." —Dr. Jeff Offutt, professor of software engineering, George Mason University, Fairfax, Virginia, USA "This handbook is the best resource I am aware of on the automated testing of embedded systems. It is thorough, comprehensive, and authoritative. It covers all important technical and scientific aspects but also provides highly interesting insights into the state of practice of model-based testing for embedded systems." —Dr. Lionel C. Briand, IEEE Fellow, Simula Research Laboratory, Lysaker, Norway, and professor at the University of Oslo, Norway "As model-based testing is entering the mainstream, such a comprehensive and intelligible book is a must-read for anyone looking for more information about improved testing methods for embedded systems. Illustrated with numerous aspects of these techniques from many contributors, it gives a clear picture of what the state of the art is today." —Dr. Bruno Legard, CTO of Smartesting, professor of Software Engineering at the University of Franche-Comté, Besançon, France, and co-author of Practical Model-Based Testing

This book constitutes the refereed proceedings of the Second International Conference, ICT Innovations 2010, held in Ohrid, Macedonia, in September 2010. The 33 revised papers presented together with 5 invited papers were carefully reviewed and selected. The papers address the following topics: internet applications and services, artificial intelligence, bioinformatics, internet, mobile and wireless technologies, multimedia information systems, computer networks, computer security, e-business, cryptography, high-performance-computing, social networks, e-government, as well as GPU computing.

ECOOP 2002 Workshop Reader

""This is the single best book on software quality engineering and metrics that I've encountered."" --Capers Jones, from the Foreword"Metrics and Models in Software Quality Engineering, Second Edition," is the definitive book on this essential topic of software development. Comprehensive in scope with extensive industry examples, it shows how to measure software quality and use

measurements to improve the software development process. Four major categories of quality metrics and models are addressed: quality management, software reliability and projection, complexity, and customer view. In addition, the book discusses the fundamentals of measurement theory, specific quality metrics and tools, and methods for applying metrics to the software development process. New chapters bring coverage of critical topics, including: In-process metrics for software testing Metrics for object-oriented software development Availability metrics Methods for conducting in-process quality assessments and software project assessments Dos and Don'ts of Software Process Improvement, by Patrick O'Toole Using Function Point Metrics to Measure Software Process Improvement, by Capers Jones In addition to the excellent balance of theory, techniques, and examples, this book is highly instructive and practical, covering one of the most important topics in software development--quality engineering. 0201729156B08282002

Izboljšava kvalitete programske opreme s ciljem brežibnosti, predvsem z inteligentno uporabo statistične kontrole za kontrolirani (ang. controlled) in overjeni proces razvoja softwarea.

Software systems surround us. Software is a critical component in everything from the family car through electrical power systems to military equipment. As software plays an ever-increasing role in our lives and livelihoods, the quality of that software becomes more and more critical. However, our ability to deliver high-quality software has not kept up with those increasing demands. The economic fallout is enormous; the US economy alone is losing over US\$50 billion per year due to software failures. This book presents new research into using advanced artificial intelligence techniques to guide software quality improvements. The techniques of chaos theory and data mining are brought to bear to provide new insights into the software development process. Written for researchers and practitioners in software engineering and computational intelligence, this book is a unique and important bridge between these two fields. The role of metrics and models in software development; Software metrics; Measurement and analysis; Small scale experiments, micro-models of effort, and programming techniques; Macro-models of productivity; Macro-models for effort estimation; Defect models; The future of software engineering metrics and models; References; Appendices; Index.

As is true of most technological fields, the software industry is constantly advancing and becoming more accessible to a wider range of people. The advancement and accessibility of these systems creates a need for understanding and research into their development. *Optimizing Contemporary Application and Processes in Open Source Software* is a critical scholarly resource that examines the prevalence of open source software systems as well as the advancement and development of these systems. Featuring coverage on a wide range of topics such as machine learning, empirical software engineering and management, and open source, this book is geared toward academicians,

practitioners, and researchers seeking current and relevant research on the advancement and prevalence of open source software systems.

Software Metrics is the first book to survey its subject, measuring its present extent, describing its characteristic features, and indicating directions of potential expansion. "This book provides analysis, characterization and refinement of software engineering data in terms of machine learning methods. It depicts applications of several machine learning approaches in software systems development and deployment, and the use of machine learning methods to establish predictive models for software quality while offering readers suggestions by proposing future work in this emerging research field"--Provided by publisher.

This book constitutes the refereed proceedings of the 7th European Workshop on Software Process Technology, EWSPT 2000, held in Kaprun, Austria in February 2000 in conjunction with a meeting of the European ESPRIT IV Project for Process Instance Evolution (PIE). The 21 revised papers presented were carefully reviewed and selected from 44 submissions. The book is organized in sections on methods, applications, process instance evolution, distributed processes and process modeling languages, and industrial experience.

This Expert Guide gives you the techniques and technologies in software engineering to optimally design and implement your embedded system. Written by experts with a solutions focus, this encyclopedic reference gives you an indispensable aid to tackling the day-to-day problems when using software engineering methods to develop your embedded systems. With this book you will learn: The principles of good architecture for an embedded system Design practices to help make your embedded project successful Details on principles that are often a part of embedded systems, including digital signal processing, safety-critical principles, and development processes Techniques for setting up a performance engineering strategy for your embedded system software How to develop user interfaces for embedded systems Strategies for testing and deploying your embedded system, and ensuring quality development processes Practical techniques for optimizing embedded software for performance, memory, and power Advanced guidelines for developing multicore software for embedded systems How to develop embedded software for networking, storage, and automotive segments How to manage the embedded development process Includes contributions from: Frank Schirrmeister, Shelly Gretlein, Bruce Douglass, Erich Styger, Gary Stringham, Jean Labrosse, Jim Trudeau, Mike Brogioli, Mark Pitchford, Catalin Dan Udma, Markus Levy, Pete Wilson, Whit Waldo, Inga Harris, Xinxin Yang, Srinivasa Addepalli, Andrew McKay, Mark Kraeling and Robert Oshana. Road map of key problems/issues and references to their solution in the text Review of core methods in the context of how to apply them Examples demonstrating timeless implementation details Short and to-the-point case studies show how key ideas can be implemented, the rationale for choices made, and design guidelines and trade-offs

As effective organizational decision making is a major factor in a company's success, a comprehensive account of current available research on the core concepts of the decision support agenda is in high demand by academicians and professionals. Through 110 authoritative contributions by over 160 of the world's leading experts the Encyclopedia of Decision Making and Decision Support Technologies presents a critical mass of research on the most up-to-date research on human and computer support of

managerial decision making, including discussion on support of operational, tactical, and strategic decisions, human vs. computer system support structure, individual and group decision making, and multi-criteria decision making.

"This book is the comprehensive reference source for innovative knowledge on electronic surveys. It provides complete coverage of the challenges associated with the use of the Internet to develop online surveys, administer Web-based instruments, and conduct computer-mediated assessments. This combination of how-to information about online research coupled with profiles of specific measures makes it an indispensable reference"--Provided by publisher.

This book constitutes the refereed proceedings of the Second International Conference on COTS-Based Software Systems, ICCBSS 2003, held in Ottawa, Canada in February 2003. The 24 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers address all current issues on commercial-off-the-shelf-systems, from the point of view of research and development as well as from the practitioner's application point of view.

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 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.

Innovations Through Information Technology aims to provide a collection of unique perspectives on the issues surrounding the management of information technology in organizations around the world and the ways in which these issues are addressed. This valuable book is a compilation of features including the latest research in the area of IT utilization and management, in addition to being a valuable source in support of teaching and research agendas.

This book presents thirty-one extensive and carefully edited chapters providing an up-to-date survey of new models and methods for reliability analysis and applications in science, engineering, and technology. The chapters contain broad coverage of the latest developments and innovative techniques in a wide range of theoretical and numerical issues in the field of

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statistical and probabilistic methods in reliability.

As the main theme of *Improving Complex Systems Today* implies, this book is intended to provide readers with a new perspective on concurrent engineering from the standpoint of systems engineering. It can serve as a versatile tool to help readers to navigate the ever-changing state of this particular field. The primary focus of concurrent engineering was, at first, on bringing downstream information as far upstream as possible by introducing parallel processing in order to reduce time to market and to prevent errors at a later stage which would sometimes cause irrevocable damage. Up to now, numerous new concepts, methodologies and tools have been developed, but over concurrent engineering's 20-year history the situation has changed extensively. Now, industry has to work in the global marketplace and to cope with diversifying requirements and increasing complexities. Such globalization and diversification necessitate collaboration across different fields and across national boundaries. Thus, the new concurrent engineering calls for a systems approach to gain global market competitiveness. *Improving Complex Systems Today* provides a new insight into concurrent engineering today.

Features a useful collection of important and practical papers on applying software metrics and measurement. The book details the importance of planning a successful measurement program with a complete discussion of why, what, where, when, and how to measure and who should be involved. Each chapter addresses these significant questions and provides the essential answers in building an effective measurement program. The book differs from others on the market by focusing on the application of the metrics rather than the metrics themselves. The author's provide information based on actual experience with successful metrics programs. Each chapter includes a case study focusing on technology transfer and a set of recommended references. The book serves as a guide on the use and application of software metrics in industrial environments. It is specially designed for managers, product supervisors, and quality assurance personnel who want to know how to implement a metrics program.

Metrics and Models in Software Quality Engineering Addison-Wesley Professional
NTA/UGC-NET/JRF COMPUTER SCIENCE & APPLICATIONS SOLVED PAPERS WITH NOTES

Enterprise resource planning (ERP) is a class of integrated software that uses software technologies to implement real-time management of business processes in an organization. ERPs normally cut across organizations, making them large and complex. Software researchers have for many years established that complexity affects software quality negatively and must therefore be controlled with novel metrics and models of evaluation that can determine when the software is at acceptable levels of quality and when not. *Metrics and Models for Evaluating the Quality and Effectiveness of ERP Software* is a critical scholarly publication that examines ERP development, performance, and challenges in business settings to help improve decision making in organizations that have embraced ERPs, improve the efficiency and effectiveness of their activities, and improve their return on investments (ROI). Highlighting a wide range of topics such as data mining, higher education, and security, this book is essential for professionals, software developers, researchers, academicians, and security professionals.

Conceptual modeling represents a recent approach to creating knowledge. It has emerged in response to the computer revolution, which started in the middle of the 20th century. Computers, in the meantime, have become a major knowledge media. Conceptual modeling provides an answer to the difficulties experienced throughout the development of computer applications and aims at creating effective, reasonably priced, and sharable knowledge about using computers in business. Moreover, it has become evident that conceptual modeling has the potential to exceed the boundaries of business and computer usage. This state-of-the-art survey originates from the International Seminar on the Evolution of Conceptual Modeling, held

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in Dagstuhl Castle, Germany, in April 2008. The major objective of this seminar was to look into conceptual modeling from a historical perspective with a view towards the future of conceptual modeling and to achieve a better understanding of conceptual modeling issues in several different domains of discourse, going beyond individual (modeling) projects. The book contains 14 chapters. These were carefully selected during two rounds of reviewing and improvement from 26 presentations at the seminar and are preceded by a detailed preface providing general insights into the field of conceptual modeling that are not necessarily discussed in any of the chapters but nevertheless aid in conceptualizing the inner structure and coherence of the field. The chapters are grouped into the following three thematic sections: the evolution of conceptual modeling techniques; the extension of conceptual modeling to a service-oriented, peer-to-peer, or Web context; and new directions for conceptual modeling. This book constitutes selected, revised and extended papers of the 15th International Conference on Evaluation of Novel Approaches to Software Engineering, ENASE 2020, held in virtual format, in May 2020. The 19 revised full papers presented were carefully reviewed and selected from 96 submissions. The papers included in this book contribute to the understanding of relevant trends of current research on novel approaches to software engineering for the development and maintenance of systems and applications, specifically with relation to: model-driven software engineering, requirements engineering, empirical software engineering, service-oriented software engineering, business process management and engineering, knowledge management and engineering, reverse software engineering, software process improvement, software change and configuration management, software metrics, software patterns and refactoring, application integration, software architecture, cloud computing, and formal methods.

This book constitutes the refereed proceedings of the 5th International Conference on Product Focused Software Process Improvement, PROFES 2004, held in Kansai Science City, Japan in April 2004. The 41 revised full papers presented were carefully reviewed and selected and constitute a balanced mix of academic and industrial aspects. The papers are organized in topical sections on software process improvement, software quality, measurement, methods and tools, experimental software engineering, industrial experiences, agile methods, software process assessment, requirements engineering, and software reuse and COTS.

Papers presented at the annual meeting of the American Statistical Association ...

This volume focuses on current and future trends in the interplay between software engineering and artificial intelligence. This interplay is now critical to the success of both disciplines, and it also affects a wide range of subject areas. The articles in this volume survey the significant work that has been accomplished, describe the state of the art, analyze the current trends, and predict which future directions have the most potential for success. Areas covered include requirements engineering, real-time systems, reuse technology, development environments and meta-environments, process representations, safety-critical systems, and metrics and measures for processes and products.

"This is the single best book on software quality engineering and metrics that I've encountered."--Capers Jones, from the Foreword Metrics and Models in Software Quality Engineering, Second Edition, is the definitive book on this essential topic of software development. Comprehensive in scope with extensive industry examples, it shows how to measure software quality and use measurements to improve the software development process. Four major categories of quality metrics and models are addressed: quality management, software reliability and projection, complexity, and customer view. In addition, the book discusses the fundamentals of measurement theory, specific quality metrics and tools, and methods for applying metrics to the software development process. New chapters bring coverage of critical topics, including: In-process metrics for software testing Metrics for object-oriented software development Availability metrics Methods for conducting in-process

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quality assessments and software project assessments Dos and Don'ts of Software Process Improvement, by Patrick O'Toole Using Function Point Metrics to Measure Software Process Improvement, by Capers Jones In addition to the excellent balance of theory, techniques, and examples, this book is highly instructive and practical, covering one of the most important topics in software development--quality engineering. 0201729156B08282002.

Annotation This proceedings volume contains the papers given by international researchers at the 27th Euromicro conference held in Warsaw in 2001. The conference featured workshops on multimedia and telecommunications, software process and product improvement, and component-based software engineering. A sampling of topics includes components for real-time systems, software reliability, network protocols, and audio/video processing management. The volume is not indexed. c. Book News Inc.

Software Quality Control, Error, Analysis

The reliability of software is becoming increasingly important to a large range of industries that rely on complex computer systems and machinery with computer control. The reliability of a system depends on both the hardware and the software that comprise the system. Although faults in design can continue to give problems, the issues and the techniques for meeting severe reliability requirements in hardware have been understood for some time. In the case of software both the techniques and a positive attitude of software developers to the achievement of reliability are much less well established. They are particularly crucial in the development of software dependent safety-critical systems.

For more than 40 years, Computerworld has been the leading source of technology news and information for IT influencers worldwide. Computerworld's award-winning Web site (Computerworld.com), twice-monthly publication, focused conference series and custom research form the hub of the world's largest global IT media network.

This book constitutes the refereed proceedings of the SPEC International Performance Evaluation Workshop, SIPEW 2008, held in Darmstadt, Germany, in June 2008. The 17 revised full papers presented together with 3 keynote talks were carefully reviewed and selected out of 39 submissions for inclusion in the book. The papers are organized in topical sections on models for software performance engineering; benchmarks and workload characterization; Web services and service-oriented architectures; power and performance; and profiling, monitoring and optimization.

Business processes and information systems mutually affect each other in non-trivial ways. Frequently, processes are designed without taking the systems' impact into account, and vice versa. Missing alignment at design-time results in quality problems at run-time. Robert Heinrich gives examples from research and practice for an integrated design of process and system quality. A quality reference-model characterizes process quality and a process notation is extended to operationalize the model. Simulation is a powerful means to predict the mutual quality impact, to compare design alternatives, and to verify them against requirements. The author describes two simulation approaches and discusses interesting insights on their application in practice.

This Three-Volume-Set constitutes the refereed proceedings of the Second International Conference on Software Engineering and Computer Systems, ICSECS 2011, held in Kuantan, Malaysia, in June 2011. The 190 revised full papers presented together with invited papers in the three volumes were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on software engineering; network; bioinformatics and e-health; biometrics technologies; Web engineering; neural network; parallel and distributed e-learning; ontology; image processing; information and data management; engineering; software security; graphics and multimedia; databases; algorithms; signal processing; software design/testing; e- technology; ad hoc networks; social networks; software process modeling; miscellaneous topics in software engineering and computer systems.

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