

## Metrics And Models In Software Quality Engineering 2nd Edition

Software Metrics is the first book to survey its subject, measuring its present extent, describing its characteristic features, and indicating directions of potential expansion.

Software Quality Assurance in Large Scale and Complex Software-intensive Systems presents novel and high-quality research related approaches that relate the quality of software architecture to system requirements, system architecture and enterprise-architecture, or software testing. Modern software has become complex and adaptable due to the emergence of globalization and new software technologies, devices and networks. These changes challenge both traditional software quality assurance techniques and software engineers to ensure software quality when building today (and tomorrow ' s) adaptive, context-sensitive, and highly diverse applications. This edited volume presents state of the art techniques, methodologies, tools, best practices and guidelines for software quality assurance and offers guidance for future software engineering research and practice. Each contributed chapter considers the practical application of the topic through case studies, experiments, empirical validation, or systematic comparisons with other approaches already in practice. Topics of interest include, but are not limited, to: quality attributes of system/software architectures; aligning enterprise, system, and software architecture from the point of view of total quality; design decisions and their influence on the quality of system/software architecture; methods and processes for evaluating architecture quality; quality assessment of legacy systems and third party applications; lessons learned and empirical validation of theories and frameworks on architectural quality; empirical validation and testing for assessing architecture quality. Focused on quality assurance at all levels of software design and development Covers domain-specific software quality assurance issues e.g. for cloud, mobile, security, context-sensitive, mash-up and autonomic systems Explains likely trade-offs from design decisions in the context of complex software system engineering and quality assurance Includes practical case studies of software quality assurance for complex, adaptive and context-critical systems

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.

Presents a novel metrics-based approach for detecting design problems in object-oriented software. Introduces an important suite of detection strategies for the identification of different well-known design flaws as well as some rarely mentioned ones.

Second International Conference, ICT Innovations 2010, Ohrid Macedonia, September 12-15, 2010. Revised Selected Papers

Measures of Complexity

Metrics and Models for Evaluating the Quality and Effectiveness of ERP Software

Measurement, Prediction, Application

Software Process: Principles, Methodology, and Technology

Software Quality Assurance and Measurement

**This tutorial presents a new, quantitative approach to software management and software engineering that has taken shape over the past few years.**

**1 Jean Claude Derniame Software process technology is an emerging and strategic area that has already reached a reasonable degree of maturity, delivering products and significant industrial experiences. This technology aims at supporting the software production process by providing the means to model, analyse, improve, measure, and whenever it is reasonable and convenient, to automate software production activities. In recent years, this technology has proved to be effective in the support of many business activities not directly related to software production, but relying heavily on the concept of process (i. e. all the applications traditionally associated with workflow management). This book concentrates on the core technology of software processes, its principles and concepts as well as the technical aspect of software process support. The contributions to this book are the collective work of the Promoter 2 European Working Group. This grouping of 13 academic and 3 industrial partners is the successor of Promoter, a working group responsible for creating a European software process community. Promoter 2 aims at exploiting this emerging community to collectively develop remaining open issues, to coordinate activities and to assist in the dissemination of results. The title "Software Process Modelling and Technology" [Fink94] was produced during Promoter 1. Being "project based", it presented the main findings and proposals of the different projects then being undertaken by the partners.**

**Most of the software measures currently proposed to the industry bring few real benefits to either software managers or developers. This book looks at the classical metrology concepts from science and engineering, using them as criteria to propose an approach to analyze the design of current software measures and then design new software measures (illustrated with the design of a software measure that has been adopted as an ISO measurement standard). The book includes several case studies analyzing strengths and weaknesses of some of the software measures most often quoted. It is meant for software quality specialists and process improvement analysts and managers.**

**This book presents a comprehensive international overview of software quality assurance and metrics practice with contributions from around the world. The combination of the international perspective and practical case studies presented here will make this book invaluable to all practitioners and students in software engineering.**

**11th International Conference, ICCHP 2008, Linz, Austria, July 9-11, 2008, Proceedings**

**Software Metrics**

**Metrics and Models in Software Quality Engineering**

**Methods and Metrics**

**Software Metrics and Software Metrology**

**Initially Presented at COMPSAC80, the IEEE Computer Society's Fourth International Computer Software & Applications Conference, October 27-31, 1980**

**Revised and updated for professional software engineers, systems analysts and project managers, this highly acclaimed book provides key concepts of software reliability and practical solutions for measuring reliability.**

**The modern field of software metrics emerged from the computer modeling and "statistical thinking" services of the 1980s. As the field evolved, metrics programs were integrated with project management, and metrics grew to be a major tool in the managerial decision-making process of software companies. Now practitioners in the software industry have This book focuses on a specialized branch of the vast domain of software engineering: component-based software engineering (CBSE). Component-Based Software Engineering: Methods and Metrics enhances the basic understanding of components by defining categories, characteristics, repository, interaction, complexity, and composition. It divides the research domain of CBSE into three major sub-domains: (1) reusability issues, (2) interaction and integration issues, and (3) testing and reliability issues. This book covers the state-of-the-art literature survey of at least 20 years in the domain of reusability, interaction and integration complexities, and testing and reliability issues of component-based software engineering. The aim of this book is not only to review and analyze the previous works conducted by eminent researchers, academicians, and organizations in the context of CBSE, but also suggests innovative, efficient, and better solutions. A rigorous and critical survey of traditional and advanced paradigms of software engineering is provided in the book. Features: In-interactions and Out-Interactions both are covered to assess the complexity. In the context of CBSE both white-box and black-box testing methods and their metrics are described. This work covers reliability estimation using reusability which is an innovative method. Case studies and real-life software examples are used to explore the problems and their solutions. Students, research scholars, software developers, and software designers or individuals interested in software engineering, especially in component-based software engineering, can refer to this book to understand the concepts from scratch. These measures and metrics can be used to estimate the software before the actual coding commences. This is the digital version of the printed book (Copyright © 2003). To succeed in the software industry, managers need to cultivate a reliable development process. By measuring what teams have achieved on previous projects, managers can more accurately set goals, make bids, and ensure the successful completion of new projects. Acclaimed long-time collaborators Lawrence H. Putnam and Ware Myers present simple but powerful measurement techniques to help software managers allocate limited resources and track project progress. Drawing new findings from an extensive database of software project metrics, the authors demonstrate how readers can control projects with just Five Core Metrics –Time, Effort, Size, Reliability, and Process Productivity. With these metrics, managers can adjust ongoing projects to changing conditions–surprises that would otherwise cause project failure.**

**Metrics for Project Managers and Software Engineers**

**The Intelligence Behind Successful Software Management**

**Models and software metrics**

**Workshops and Symposia at MoDELS 2006, Genoa, Italy, October 1-6, 2006, Reports and**

**Revised Selected Papers**

**Measures and Methods**

**A Guide to Planning, Analysis, and Application**

**"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.**

**C. Amting Directorate General Information Society, European Commission, Brussels Under the 4th Framework of European Research, the European Systems and Software Initiative (ESSI) was part of the ESPRIT Programme. This initiative funded more than 470 projects in the area' of software and system process improvements. The majority of these projects were process improvement experiments carrying out and taking up new development processes, methods and technology within the software development process of a company. In addition, nodes (centres of expertise), European networks (organisations managing local activities), training and dissemination actions complemented the process improvement experiments. ESSI aimed at improving the software development capabilities of European enterprises. It focused on best practice and helped European companies to develop world class skills and associated technologies to build the increasingly**

**complex and varied systems needed to compete in the marketplace. The dissemination activities were designed to build a forum, at European level, to exchange information and knowledge gained within process improvement experiments. Their major objective was to spread the message and the results of experiments to a wider audience, through a variety of different channels. The European Experience Exchange (~UR~X) project has been one of these dissemination activities within the European Systems and Software Initiative. ~UR~X has collected the results of practitioner reports from numerous workshops in Europe and presents, in this series of books, the results of Best Practice achievements in European Companies over the last few years.**

**Business process modeling plays an important role in the management of business processes. As valuable design artifacts, business process models are subject to quality considerations. The absence of formal errors such as deadlocks is of paramount importance for the subsequent implementation of the process. In his book Jan Mendling develops a framework for the detection of formal errors in business process models and the prediction of error probability based on quality attributes of these models (metrics). He presents a precise description of Event-driven Process Chains (EPCs), their control-flow semantics and a suitable correctness criterion called EPC soundness.**

**Summary Software Development Metrics is a handbook for anyone who needs to track and guide software development and delivery at the team level, such as project managers and team leads. New development practices, including "agile" methodologies like Scrum, have redefined which measurements are most meaningful and under what conditions you can benefit from them. This practical book identifies key characteristics of organizational structure, process models, and development methods so that you can select the appropriate metrics for your team. It describes the uses, mechanics, and common abuses of a number of metrics that are useful for steering and for monitoring process improvement. The insights and techniques in this book are based entirely on field experience. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book When driving a car, you are less likely to speed, run out of gas, or suffer engine failure because of the measurements the car reports to you about its condition. Development teams, too, are less likely to fail if they are measuring the parameters that matter to the success of their projects. This book shows you how. Software Development Metrics teaches you how to gather, analyze, and effectively use the metrics that define your organizational structure, process models, and development methods. The insights and examples in this book are based entirely on field experience. You'll learn practical techniques like building tools to track key metrics and developing data-based early warning systems. Along the way, you'll learn which metrics align with different development practices, including traditional and adaptive methods. No formal experience with developing or applying metrics is assumed. What's Inside Identify the most valuable metrics for your team and process Differentiate "improvement" from "change" Learn to interpret and apply the data you gather Common pitfalls and anti-patterns About the Author Dave Nicolette is an organizational transformation consultant, team coach, and trainer. Dave is active in the agile and lean software communities. Table of Contents Making metrics useful Metrics for steering Metrics for improvement Putting the metrics to work Planning predictability Reporting outward and upward**

**A Rigorous and Practical Approach, Third Edition**

**A Worldwide Perspective**

**Software Quality Assurance**

**An Analysis and Evaluation**

**Metrics and Models in Software Quality Engineering, Second Edition**

**Software Engineering Metrics and Models**

*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. This book comprehensively covers the ISO 9000-3 requirements. IT also provides a substantial portion of the body of knowledge required for the CSQE (Certified Software Quality Engineer) as outlined by the ASQ (American Quality Engineer) as outlined by the ASQ (American Society for Quality).*

*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.*

*Welcome to the proceedings of ICCHP 2008. We were proud to welcome participants from more than 40 countries from all continents to ICCHP. The International Programme Committee, encompassing 102 experts from all over the world, selected 150 full and 40 short papers out of 360 abstracts submitted to ICCHP. Our acceptance rate of about half of the submissions, demonstrates the scientific quality of the programme and in particular the proceedings you have in your hands. An impressive group of experts agreed to organize "Special Thematic Sessions" (STS) for ICCHP 2008. The existence of these STS sessions helped to bring the meeting into sharper focus in several key areas of assistive technology. In turn, this deeper level of focus helped to bring together the state-of-the-art and mainstream technical, social, cultural and political developments. Our keynote speaker, Jim Fruchterman from BeneTech, USA highlighted the importance of giving access to ICT and AT at a global level. In another keynote by Harold Thimbleby, Swansea University, UK, the role of user-centred design and usability engineering in assistive technology and accessibility was addressed. And finally, a combination keynote and panel discussion was reserved for WAI/WCAG2.0, which we expect to be the new reference point for Web accessibility from the summer of 2008 and beyond.*

*Site Reliability Engineering*

*Software Complexity*

*A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition and The Standard for Project Management (BRAZILIAN PORTUGUESE)*

*Component-Based Software Engineering*

*Automotive Software Architectures*

*In Large Scale and Complex Software-intensive Systems*

*This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved,*

reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

"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  
The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient--lessons directly applicable to your organization. This book is divided into four sections: Introduction--Learn what site reliability engineering is and why it differs from conventional IT industry practices; Principles--Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE); Practices--Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems; Management--Explore Google's best practices for training, communication, and meetings that your organization can use.

A Framework for Managing, Measuring, and Predicting Attributes of Software Development Products and Processes  
Reflecting the immense progress in the development and use of software metrics in the past decades, *Software Metrics: A Rigorous and Practical Approach, Third Edition* provides an up-to-date, accessible, and comprehensive introduction to software metrics. Like its popular predecessors, this third edition discusses important issues, explains essential concepts, and offers new approaches for tackling long-standing problems. New to the Third Edition  
This edition contains new material relevant to object-oriented design, design patterns, model-driven development, and agile development processes. It includes a new chapter on causal models and Bayesian networks and their application to software engineering. This edition also incorporates recent references to the latest software metrics activities, including research results, industrial case studies, and standards. Suitable for a Range of Readers  
With numerous examples and exercises, this book continues to serve a wide audience. It can be used as a textbook for a software metrics and quality assurance course or as a useful supplement in any software engineering course. Practitioners will appreciate the important results that have previously only appeared in research-oriented publications. Researchers will welcome the material on new results as well as the extensive bibliography of measurement-related information. The book also gives software managers and developers practical guidelines for selecting metrics and planning their use in a measurement program.

Reliability Growth

From Theory to Implementation

Empirical Foundations of Verification, Error Prediction, and Guidelines for Correctness

Software Process Improvement: Metrics, Measurement, and Process Modelling

How Google Runs Production Systems

**PART I: FUNDAMENTALS OF MEASUREMENT AND EXPERIMENTATION**  
**1. Measurement: What Is It and Why Do It? 2. The Basics of Measurement 3. A Goal-Based Framework for Software Measurement 4. Empirical Investigation 5. Software Metrics Data Collection 6. Analyzing Software-Measurement Data**  
**PART II: SOFTWARE-ENGINEERING MEASUREMENT**  
**7. Measuring Internal Product Attributes: Size 8. Measuring Internal Product Attributes: Structure 9. Measuring Internal Product Attributes 10. Software Reliability: Measurement and Prediction 11. Resource Measurement: Productivity, Teams, and Tools 12. Making Process Predictions**  
**PART III: MEASUREMENT AND MANAGEMENT**  
**13. Planning a Measurement Program 14. Measurement in Practice 15. Empirical Research in Software Engineering**  
**APPENDIXES: A. Solutions to Selected Exercises / B. Metric Tools / C. Acronyms and Glossary / ANNOTATED BIBLIOGRAPHY / INDEX**

**A high percentage of defense systems fail to meet their reliability requirements. This is a serious problem for the U.S. Department of Defense (DOD), as well as the nation. Those systems are not only less likely to successfully carry out their**

intended missions, but they also could endanger the lives of the operators. Furthermore, reliability failures discovered after deployment can result in costly and strategic delays and the need for expensive redesign, which often limits the tactical situations in which the system can be used. Finally, systems that fail to meet their reliability requirements are much more likely to need additional scheduled and unscheduled maintenance and to need more spare parts and possibly replacement systems, all of which can substantially increase the life-cycle costs of a system. Beginning in 2008, DOD undertook a concerted effort to raise the priority of reliability through greater use of design for reliability techniques, reliability growth testing, and formal reliability growth modeling, by both the contractors and DOD units. To this end, handbooks, guidances, and formal memoranda were revised or newly issued to reduce the frequency of reliability deficiencies for defense systems in operational testing and the effects of those deficiencies. "Reliability Growth" evaluates these recent changes and, more generally, assesses how current DOD principles and practices could be modified to increase the likelihood that defense systems will satisfy their reliability requirements. This report examines changes to the reliability requirements for proposed systems; defines modern design and testing for reliability; discusses the contractor's role in reliability testing; and summarizes the current state of formal reliability growth modeling. The recommendations of "Reliability Growth" will improve the reliability of defense systems and protect the health of the valuable personnel who operate them.

The idea that "measuring quality is the key to developing high-quality software systems" is gaining relevance. Moreover, it is widely recognised that the key to obtaining better software systems is to measure the quality characteristics of early artefacts, produced at the conceptual modelling phase. Therefore, improving the quality of conceptual models is a major step towards the improvement of software system development. Since the 1970s, software engineers had been proposing high quantities of metrics for software products, processes and resources but had not been paying any special attention to conceptual modelling. By the mid-1990s, however, the need for metrics for conceptual modelling had emerged. This book provides an overview of the most relevant existing proposals of metrics for conceptual models, covering conceptual models for both products and processes. Contents: Towards a Framework for Conceptual Modelling Quality (M Piattini et al.) A Proposal of a Measure of Completeness for Conceptual Models (O Dieste et al.) Metrics for Use Cases: A Survey of Current Proposals (B Bernárdez et al.) Defining and Validating Metrics for UML Class Diagrams (M Genero et al.) Measuring OCL Expressions: An Approach Based on Cognitive Techniques (L Reynoso et al.) Metrics for Datawarehouses Conceptual Models (M Serrano et al.) Metrics for UML Statechart Diagrams (J A Cruz-Lemus et al.) Metrics for Software Process Models (F García et al.) Readership: Senior undergraduates and graduate students in software engineering; PhD students, researchers, analysts, designers, software engineers and those responsible for quality and auditing. Key

Features: Presents the most relevant existing proposals of metrics for conceptual models, covering conceptual models for both products and processes Provides the most current bibliography on this subject The only book to focus on the quality aspects of conceptual models Keywords: Conceptual Model; Quality; Metrics; UML; OCL; Empirical Research

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.

Prediction Models for Software Metrics

Five Core Metrics

Using Software Metrics to Characterize, Evaluate, and Improve the Design of Object-Oriented Systems

Handbook of Software Engineering & Knowledge Engineering

Metrics for Software Conceptual Models

Software Best Practice 4

An indispensable addition to any project manager, software engineering or computer science bookshelf, this book presents the only broad-ranging economic analysis of major international SPI methods and the first large-scale economic analysis of mandatory U.S. government standards.

This is the first handbook to cover comprehensively both software engineering and knowledge engineering -- two important fields that have become interwoven in recent years. Over 60 international experts have contributed to the book. Each chapter has been written in such a way that a practitioner of software engineering and knowledge engineering can easily understand and obtain useful information. Each chapter covers one topic and can be read independently of other chapters, providing both a general survey of the topic and an in-depth exposition of the state of the art. Practitioners will find this handbook useful when looking for solutions to practical problems. Researchers can use it for quick access to the background, current trends and most important references regarding a certain topic. The handbook consists of two volumes. Volume One covers the basic principles and applications of software engineering and knowledge engineering. Volume Two will cover the basic principles and applications of visual and multimedia software engineering, knowledge engineering, data mining for software knowledge, and emerging topics in software engineering and knowledge engineering.

In the new millennium the increasing expectation of customers and products complexity has forced companies to find new solutions and better alternatives to improve the quality of their products. Lean and Six Sigma methodology provides the best solutions to many problems and can be used as an accelerator in industry, business and even health care sectors. Due to its flexible nature, the Lean and Six Sigma methodology was rapidly adopted by many top and even small companies. This book provides the necessary guidance for selecting, performing and evaluating various procedures of Lean and Six Sigma. In the book you will find personal experiences in the field of Lean and Six Sigma projects in business, industry and health

sectors.

PMBOK® Guide is the go-to resource for project management practitioners. The project management profession has significantly evolved due to emerging technology, new approaches and rapid market changes. Reflecting this evolution, The Standard for Project Management enumerates 12 principles of project management and the PMBOK® Guide – Seventh Edition is structured around eight project performance domains. This edition is designed to address practitioners' current and future needs and to help them be more proactive, innovative and nimble in enabling desired project outcomes. This edition of the PMBOK® Guide:

- Reflects the full range of development approaches (predictive, adaptive, hybrid, etc.);
- Provides an entire section devoted to tailoring the development approach and processes;
- Includes an expanded list of models, methods, and artifacts;
- Focuses on not just delivering project outputs but also enabling outcomes;
- and • Integrates with PMI Standards+™ for information and standards application content based on project type, development approach, and industry sector.

Computers Helping People with Special Needs

Models in Software Engineering

Software Reliability

Projects and Personal Experiences

ICT Innovations 2010

Models and Metrics for Software Management and Engineering

**Object-oriented (OO) metrics are an integral part of object technology -- at the research level and in commercial software development projects. This book offers theoretical and empirical tips and facts for creating an OO complexity metrics (measurement) program, based on a review of existing research from the last several years. KEY TOPICS: Covers moving through object-oriented concepts as they related to managing the project lifecycle; the framework in which metrics exist; structural complexity metrics for traditional systems; OO product metrics; and current industrial applications. MARKET: For software developers, programmers, and managers.**

**Metrics and Models in Software Quality Engineering Addison-Wesley Professional**

This book introduces the concept of software architecture as one of the cornerstones of software in modern cars. Following a historical overview of the evolution of software in modern cars and a discussion of the main challenges driving that evolution, Chapter 2 describes the main architectural styles of automotive software and their use in cars' software. Chapter 3 details this further by presenting two modern architectural styles, i.e. centralized and federated software architectures. In Chapter 4, readers will find a description of the software development processes used to develop software on the car manufacturers' side. Chapter 5 then introduces AUTOSAR - an important standard in automotive software. Chapter 6 goes beyond simple architecture and describes the detailed design process for automotive software using Simulink, helping readers to understand how detailed design links to high-level design. The new chapter 7 reports on how machine learning is exploited in automotive software e.g. for image recognition and how both on-board and off-board learning are applied. Next, Chapter 8 presents a method for assessing the quality of the architecture - ATAM (Architecture Trade-off Analysis Method) - and provides a sample assessment, while Chapter 9 presents an alternative way of assessing the architecture, namely by using quantitative measures and indicators. Subsequently Chapter 10 dives deeper into one of the specific properties discussed in Chapter 8 - safety - and details an important standard in that area, the ISO/IEC 26262 norm. Lastly, Chapter 11 presents a set of future trends that are currently emerging and have the potential to shape automotive software engineering in the coming years. This book explores the concept of software architecture for modern cars and is intended for both beginning and advanced software designers. It mainly aims at two different groups of audience - professionals working with automotive software who need to understand concepts related to automotive architectures, and students of software engineering or related fields who need to understand the specifics of automotive software to be able to construct cars or their components. Accordingly, the book also contains a wealth of real-world examples illustrating the concepts discussed and requires no prior background in the automotive domain. Compared to the first edition, besides the two new chapters 3 and 7 there are considerable updates in chapters 5 and 8 especially.

Metrics for Process Models

Six Sigma

Enhancing Defense System Reliability

A Rigorous and Practical Approach

Object-Oriented Metrics in Practice

Object-oriented Metrics