

Software Engineering Report Example

With the growth of public and private data stores and the emergence of off-the-shelf data-mining technology, recommendation systems have emerged that specifically address the unique challenges of navigating and interpreting software engineering data. This book collects, structures and formalizes knowledge on recommendation systems in software engineering. It adopts a pragmatic approach with an explicit focus on system design, implementation, and evaluation. The book is divided into three parts: "Part I – Techniques" introduces basics for building recommenders in software engineering, including techniques for collecting and processing software engineering data, but also for presenting recommendations to users as part of their workflow. "Part II – Evaluation" summarizes methods and experimental designs for evaluating recommendations in software engineering. "Part III – Applications" describes needs, issues and solution concepts involved in entire recommendation systems for specific software engineering tasks, focusing on the engineering insights required to make effective recommendations. The book is complemented by the webpage rse.org/book, which includes free supplemental materials for readers of this book and anyone interested in recommendation systems in software engineering, including lecture slides, data sets, source code, and an overview of people, groups, papers and tools with regard to recommendation systems in software engineering. The book is particularly well-suited for graduate students and researchers building new recommendation systems for software engineering applications or in other high-tech fields. It may also serve as the basis for graduate courses on recommendation systems, applied data mining or software engineering. Software engineering practitioners developing recommendation systems or similar applications with predictive functionality will also benefit from the broad spectrum of topics covered.

List citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

This is the digital version of the printed book (Copyright © 1996). Written in a remarkably clear style, Creating a Software Engineering Culture presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegars promotes the tactical changes required to support process improvement and high-quality software development. Throughout the text, Wiegars identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called "What to Do on Monday"), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality, and much more! Principles from Part I Never let your boss or your customer talk you into doing a bad job. People need to be the work they do is appreciated. Ongoing education is every team member's responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding. Do this once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma.

Formal engineering methods are intended to o'er e'ctive means for integ- ration of formal methods and practical software development technologies in the context of software engineering. Their purpose is to provide e'ctive, rigorous, and systematic techniques for signi'cant 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 - veloped on the basis of both formal methods and existing software technologies in software engineering, and they must serve the improvement of the softwa- engineering process. ICFEM 2008 marks the tenth anniversary of the 1rst 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 o'ters a great opportunity for researchers in both formal methods and software engineering to exchange their ideas, experience, expectation and to 'nd out whether and how their research results can help advance the state of the art.

Effective Teaching and Learning Approaches and Practices

Software Engineering: Effective Teaching and Learning Approaches and Practices

Recommendation Systems in Software Engineering

Software Engineering

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

Formal Methods for Software Architectures

ETAPS 2002 was the 7th instance of the European Joint Conferences on Theory and Practice of Software. ETAPS is an annual federated conference that was established in 1998by combining a number of existing and new conferences. This year it comprised 5 conferences (FOSSACS, FASE, ESOP, CC, TACAS), 13 satellite workshops (ACL2, AGT, CMCS, COCV, DCC, INT, LDTA, SC, SFEDL, SLAP, SPIN, TPTS, and VISS), 8invited lectures (not including those specifi'c to the satellite events), and several tutorials. The events that comprise ETAPS address various aspects of software development. The languages, methodologies, and tools which support these - tivities are all well within its scope. Di'ferent blends of theory and practice are represented, with an inclination towards theory with a practical motivation on one hand and soundly-based practice on the other. Many of the issues involved in software design apply to systems in general, including hardware systems, and the emphasis on software is not intended to be exclusive.

The dependence on quality software in all areas of life is what makes software engineering a key discipline for today's society. Thus, over the last few decades it has been increasingly recognized that it is particularly important to demonstrate the value of software engineering methods in real-world environments, a task which is the focus of empirical software engineering. One of the leading protagonists of this discipline worldwide is Prof. Dr. Dr. h.c. Dieter Rombach, who dedicated his entire career to empirical software engineering. For his many important contributions he has received the prestigious Award and the Cross of the Order of Merit of the Federal Republic of Germany. He is a Fellow of both the ACM and the IEEE Computer Society. This book, published in honor of his 60th birthday, is dedicated to Dieter Rombach and his contributions to software engineering in general, as well as to empirical software engineering in particular. This book presents invited contributions from a number of the most internationally renowned software engineering researchers like Victor Basili, Barry Boehm, Manfred Bray, Carl Gutwin, and the Fraunhofer ISE, the institute founded and led by Dieter Rombach, also contributed to the book. The contributions summarize some of the most important trends in software engineering today and outline a vision for the future of the field. The book is structured into three main parts. The first part focuses on the classical foundations of software engineering, such as notations, architecture, and processes, while the second addresses empirical software engineering in particular as the core field of Dieter Rombach's contributions. Finally, the third part contains Readings in Artificial Intelligence and Software Engineering covering the main techniques and application of artificial intelligence and software engineering. The ultimate goal of artificial intelligence applied to software engineering is automatic programming. Automatic programming would allow a user to simply say what it is wanted and have a program produced completely automatically. This book is organized into 11 parts encompassing 34 chapters that specifically tackle the topics of deductive synthesis, program transformations, program verification, and program testing. The correspondence between theorems and specifications and between constructive proofs and programs. These parts also describes automatic theorem provers whose development has been designed for the programming domain. The subsequent parts present generalized program transformation systems, the problems involved in using natural language input, the features of very high level languages, and the advantages of the programming by example system. Other parts explore the intelligent assistant approach and the significance and relation of programming by example system and the artificial intelligence programming. Software engineers and designers and computer programmers, as well as researchers in the field of artificial intelligence will find this book invaluable.

Process-Centered Software Engineering Environments (PSEEs) represent a new generation of software engineering environments in which the processes used to produce and maintain software products are explicitly modeled in the environment. PSEEs hold the exciting promise of enabling a significant increase in both software productivity and quality. The book presents a comprehensive picture of this emerging technology while highlighting the key concepts and issues. The first chapter introduces some of the basic concepts and developments behind PSEEs and the subsequent chapters discuss the design and implementation of PSEEs. Chapter 2 discusses the evolution of some example PSEEs and Chapter 4 takes an inside look at the implementation of these features by describing specific design choices made by researchers. The last chapter discusses the evolution of PSEEs to accommodate practical issues in actual work settings and to play a more significant role in the software life cycle. The text is a collection of influential papers that will bring the newcomer quickly up to speed on the current state of the art.

Report of a Conference Sponsored by the NATO Science Committee, Garmisch, Germany, 7th to 11th October, 1968

Handbook of Software Engineering

21st International Conference on Formal Engineering Methods, ICFEM 2019, Shenzhen, China, November 5–9, 2019, Proceedings

Mining Software Engineering Data for Software Reuse

Guidelines and Examples

Software Engineering at Google

Software development is being revolutionized. The heavy-weight processes of the 1980s and 1990s are being replaced by light-weight, so called agile processes. Agile processes move the focus of software development back to what really matters: running software. This is only made possible by accepting that software development is a creative job done by, with, and for individual human beings. For this reason, agile software development encourages interaction, communication, and fun. This was the focus of the Fifth International Conference on Extreme Programming and Agile Processes in Software Engineering which took place between June 6 and June 10, 2004 at the conference center in Garmisch-Partenkirchen at the foot of the Bavarian Alps near Munich, Germany. In this way the conference provided a unique forum for industry and academic professionals to discuss their needs and ideas for incorporating Extreme Programming and Agile Methodologies into their professional life under consideration of the human factor. We celebrated this year's conference by reflecting on what we had achieved in the last half decade and we also focused on the challenges we will face in the near future.

The 7th ACIS International Conference on Software Engineering Research, Management and Applications (SERA 2009) was held on Hainan Island, China from December 2 - 4. SERA '09 featured excellent theoretical and practical contributions in the areas of formal methods and tools, requirements engineering, software process models, communication systems and networks, software quality and evaluation, software engineering, networks and mobile computing, parallel/distributed computing, software testing, reuse and metrics, database retrieval, computer security, software architectures and modeling. Our conference officers selected the best 17 papers from those papers accepted for presentation at the conference in order to publish them in this volume. The papers were chosen based on review scores submitted by members of the program committee, and underwent further rigorous rounds of review.

This book gathers chapters from some of the top international empirical software engineering researchers focusing on the practical knowledge necessary for conducting, reporting and using empirical methods in software engineering. Topics and features include guidance on how to design, conduct and report empirical studies. The volume also provides information across a range of techniques, methods and qualitative and quantitative issues to help build a toolkit applicable to the diverse software development contexts

This handbook provides a unique and in-depth survey of the current state-of-the-art in software engineering, covering its major topics, the conceptual genealogy of each subfield, and discussing future research directions. Subjects include foundational areas of software engineering (e.g. software processes, requirements engineering, software architecture, software testing, formal methods, software maintenance) as well as emerging areas (e.g., self-adaptive systems, software engineering in the cloud, coordination technology). Each chapter includes an introduction to central concepts and principles, a guided tour of seminal papers and key contributions, and promising future research directions. The authors of the individual chapters are all acknowledged experts in their field and include many who have pioneered the techniques and technologies discussed. Readers will find an authoritative and concise review of each subject, and will also learn how software engineering technologies have evolved and are likely to develop in the years to come. This book will be especially useful for researchers who are new to software engineering, and for practitioners seeking to enhance their skills and knowledge.

7th SEI CSEE Conference, San Antonio, Texas, USA, January 5-7, 1994. Proceedings

Second International Conference, FASE'99, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS'99, Amsterdam, The Netherlands, March 22-28, 1999, Proceedings

Lessons Learned from Programming Over Time

Readings in Artificial Intelligence and Software Engineering

First Pernambuco Summer School on Software Engineering, PSSE 2004, Recife, Brazil, November 23-December 5, 2004, Revised Lectures

4th International Conference, SEAFOD 2010, St. Petersburg, Russia, June 17-18, 2010, Proceedings

Like other sciences and engineering disciplines, software engineering requires a cycle of model building, experimentation, and learning. Experiments are valuable tools for all software engineers who are involved in evaluating and choosing between different methods, techniques, languages and tools. The purpose of Experimentation in Software Engineering is to introduce students, teachers, researchers, and practitioners to empirical studies in software engineering, using controlled experiments. The introduction to experimentation is provided through a process perspective, and the focus is on the steps that we have to go through to perform an experiment. The book is divided into three parts. The first part provides a background of theories and methods used in experimentation. Part II then devotes one chapter to each of the five experiment steps: scoping, planning, execution, analysis, and result presentation. Part III completes the presentation with two examples. Assignments and statistical material are provided in appendices. Overall the book provides indispensable information regarding empirical studies in particular for experiments, but also for case studies, systematic literature reviews, and surveys. It is a revision of the authors' book, which was published in 2000. In addition, substantial new material, e.g. concerning systematic literature reviews and case study research, is introduced. The book is self-contained and it is suitable as a course book in undergraduate or graduate studies where the need for empirical studies in software engineering is stressed. Exercises and assignments are included to combine the more theoretical material with practical aspects. Researchers will also benefit from the book, learning more about how to conduct empirical studies, and likewise practitioners may use it as a "cookbook" when evaluating new methods or techniques before implementing them in their organization.

In the past ten years or so, software architecture has emerged as a central notion in the development of complex software systems. Software architecture is now accepted in the software engineering research and development community as a manageable and meaningful abstraction of the system under development and is applied throughout the software development life cycle, from requirements analysis and validation, to design and down to code and execution level. This book presents the tutorial lectures given by leading authorities at the Third International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2003, held in Bertinoro, Italy, in September 2003. The book is ideally suited for advanced courses on software architecture as well as for ongoing education of software engineers using formal methods in their day-to-day professional work.

While vols. III/29 A, B (published in 1992 and 1993, respectively) contains the low frequency properties of dielectric crystals, in vol. III/30 the high frequency or optical properties are compiled. While the first subvolume 30 A contains piezooptic and elastoopic constants, linear and quadratic electrooptic constants and their temperature coefficients, and relevant refractive indices, the present subvolume 30 B covers second and third order nonlinear optical susceptibilities. For the reader's convenience an alphabetical formula index and an alphabetical index of chemical, mineralogical and technical names for all substances of volumes 29 A, B and 30 A, B are included.

Over the past decade, software engineering has developed into a highly respected field. Though computing and software engineering education continues to emerge as a prominent interest area of study, few books specifically focus on software engineering education itself. Software Engineering: Effective Teaching and Learning Approaches and Practices presents the latest developments in software engineering education, drawing contributions from over 20 software engineering educators from around the globe.

Encompassing areas such as student assessment and learning, innovative teaching methods, and educational technology, this much-needed book greatly enhances libraries with its unique research content.

Software Engineering for Large Software Systems

Essays in Honor of Dieter Rombach

10th International Conference, FASE 2007 Held as Part of the Joint European Conference on Theory and Practice of Software, ETAPS 2007 Braga, Portugal, March 24 - April 1, 2007 Proceedings

Guide to Advanced Empirical Software Engineering

Refinement Techniques in Software Engineering

ZUM '95: The Z Formal Specification Notation

This book presents the proceedings of the 9th International Conference of Z Users, ZUM '95, held in Limerick, Ireland in September 1995. The book contains 34 carefully selected papers on Z, using Z, applications of Z, proof, testing, industrial usage, object orientation, animation of specification, method integration, and teaching formal methods. Of particular interest is the inclusion of an annotated Z bibliography listing 544 entries. While focussing on Z, by far the most commonly used "formal method" both in industry and application, the volume is of high relevance for the whole formal methods community.

This monograph discusses software reuse and how it can be applied at different stages of the software development process, on different types of data and at different levels of granularity. Several challenging hypotheses are analyzed and confronted using novel data-driven methodologies, in order to solve problems in requirements elicitation and specification extraction, software design and implementation, as well as software quality assurance. The book is accompanied by a number of tools, libraries and working prototypes in order to practically illustrate how the phases of the software engineering life cycle can benefit from unlocking the potential of data. Software engineering researchers, experts, and practitioners can benefit from the various methodologies presented and can better understand how knowledge extracted from software data residing in various repositories can be combined and used to enable effective decision making and save considerable time and effort through software reuse. Mining Software Engineering Data for Software Reuse can also prove handy for graduate-level students in software engineering.

The capability to design quality software and implement modern information systems is at the core of economic growth in the 21st century. This book aims to review and analyze software engineering technologies, focusing on the evolution of design and implementation platforms as well as on novel computer systems.

These proceedings include tutorials and papers presented at the Sixth CSR Confer ence on the topic of Large Software Systems. The aim of the Conference was to identify solutions to the problems of developing and maintaining large software systems, based on approaches which are currently being undertaken by software practitioners. These proceedings are intended to make these solutions more widely available to the software industry. The papers from software practitioners describe:

- important working systems, highlighting their problems and successes;
- techniques for large system development and maintenance, including project management, quality management, incremental delivery, system security, in dependent V & V, and reverse engineering. In addition, academic and industrial researchers discuss the practical impact of current research in formal methods, object-oriented design and advanced environ ments. The keynote paper is provided by Professor Brian Warboys of ICL and the University of Manchester, who masterminded the development of the ICL VME Operating System, and the production of the first database-driven software engineering environment (CADES). The proceedings commence with reports of the two tutorial sessions which preceded the conference:
 - Professor Keith Bennett of the Centre for Software Maintenance at Durham University on Software Maintenance;
 - Professor John McDermid of the University of York on Systems Engineering Environments for High Integrity Systems. The remaining papers deal with reports on existing systems (starting with Professor Warboys' keynote paper), approaches to large systems development, methods for large systems maintenance and the expected impact of current research.

Creating a Software Engineering Culture

Perspectives on the Future of Software Engineering

Extreme Programming and Agile Processes in Software Engineering

Software Theory

5th International Conference, FASE 2002, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS 2002, Grenoble, France, April 8-12, 2002, Proceedings

Software Engineering Education

This book presents contemporary empirical methods in software engineering related to the plurality of research methodologies, human factors, data collection and processing, aggregation and synthesis of evidence, and impact of software engineering research. The individual chapters discuss methods that impact the current evolution of empirical software engineering and form the backbone of future research. Following an introductory chapter that outlines the background of and developments in empirical software engineering over the last 50 years and provides an overview of the subsequent contributions, the remainder of the book is devoted to four main parts: Data Collection, Production, and Analysis (highlighting approaches from e.g. data science, biometric measurement, and simulation-based studies); Knowledge Acquisition and Aggregation (highlighting literature research, threats to validity, and evidence aggregation); and Knowledge Transfer (discussing open science and knowledge transfer with industry). Empirical methods like experimentation have become a powerful means of advancing the field of software engineering by providing scientific evidence on software development, operation, and maintenance, but also by supporting practitioners in their decision-making and learning processes. Thus the book is equally suitable for academics aiming to expand the field and for industrial researchers and practitioners looking for novel ways to check the validity of their assumptions and experiences. Chapter 17 is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

A collection of previously published articles from a variety of publications.

In the decade since the idea of adapting the evidence-based paradigm for software engineering was first proposed, it has become a major tool of empirical software engineering. Evidence-Based Software Engineering and Systematic Reviews provides a clear introduction to the use of an evidence-based model for software engineering research and practice.

This book constitutes the refereed proceedings of the Third International Symposium on Search Based Software Engineering, SSBSE 2011, held in Szeged, Hungary in collocation with ESEC/FSE 2011. The 18 revised full papers presented together with two invited contributions and abstracts of eight poster presentations were carefully reviewed and selected from 43 submissions. The papers are organized in topical sections on foundations of SSBSE; concurrency and models; requirements and planning; software testing; and comprehension, transformation and scalability.

A Cultural and Philosophical Study

Software Engineering Research, Management and Applications 2009

Formal Methods and Software Engineering

Evolution and Emerging Technologies

Contemporary Empirical Methods In Software Engineering

Process-centered Software Engineering Environments

Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world's leading practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions

The product of many years of practical experience and research in the software measurement business, this technical reference helps you select what metrics to collect, how to convert measurement data to management information, and provides the statistics necessary to perform these conversions. The author explains how to manage software development measurement systems, how to build software measurement tools and standards, and how to construct controlled experiments using standardized measurement tools. There are three fundamental questions that this book seeks to answer.

First, exactly how do you get the measurement data? Second, how do you convert the data from the measurement process to information that you can use to manage the software development process? Third, how do you manage all of the data? Millions of dollars are being spent trying to secure software systems. When suitable instrumentation is placed into the systems that we develop, their activity can be monitored in real time. Measurement based automatic detection mechanisms can be designed into systems. This will permit the detection of system misuse and detect incipient reliability problems. By demonstrating how to develop simple experiments for the empirical validation of theoretical research and showing how to convert measurement data into meaningful and valuable information, this text fosters more precise use of software measurement in the computer science and software engineering literature. Software Engineering Measurement shows you how to convert your measurement data to valuable information that can be used immediately for software process improvement.

This book constitutes the refereed proceedings of the 10th International Conference on Fundamental Approaches to Software Engineering, FASE 2007, held in Braga, Portugal in March/April 2007 as part of ETAPS 2007, the Joint European Conferences on Theory and Practice of Software. It covers evolution and agents, model driven development, tool demonstrations, distributed systems, specification, services, testing, analysis, and design.

ETAPS'99 is the second instance of the European Joint Conferences on Theory and Practice of Software. ETAPS is an annual federated conference that was established in 1998 by combining a number of existing and new conferences. This year it comprises 5ve conferences (FOSSACS, FASE, ESOP, CC, TACAS), four satellite workshops (CMCS, AS, WAGA, CoFl), seven invited lectures, two invited tutorials, and six contributed tutorials. The events that comprise ETAPS address various aspects of the system - velopment process, including specification, design, implementation, analysis and improvement. The languages, methodologies and tools which support these - tivities are all well within its scope. Di'ferent blends of theory and practice are represented, with an inclination towards theory with a practical motivation on one hand and soundly-based practice on the other. Many of the issues involved in software design apply to systems in general, including hardware systems, and the emphasis on software is not intended to be exclusive.

Software Engineering Approaches for Offshore and Outsourced Development

Report

Third International Symposium, SSBSE 2011, Szeged, Hungary, September 10-12, 2011, Proceedings

Case Study Research in Software Engineering

9th International Conference, FASE 2006, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS 2006, Vienna, Austria, March 27-28, 2006, Proceedings

Perspectives on Data Science for Software Engineering

Case Study Research in Software Engineering Guidelines and Examples John Wiley & Sons

This book constitutes the refereed proceedings of the 9th International Conference on Fundamental Approaches to Software Engineering, FASE 2006, held in Vienna, Austria in March 2006 as part of ETAPS. The 27 revised full papers, two tool papers presented together with two invited papers were carefully reviewed and selected from 166 submissions. The papers are organized in topical sections.

Software product lines are emerging as a critical new paradigm for software development. Product lines are enabling organizations to achieve impressive time-to-market gains and cost reductions. With the increasing number of product lines and product-line researchers and practitioners, the time is right for a comprehensive examination of the issues surrounding the software product line approach. The Software Engineering Institute at Carnegie Mellon University is proud to sponsor the first conference on this important subject. This book comprises the proceedings of the First Software Product Line Conference (SPLC1), held August 28-31, 2000, in Denver, Colorado, USA. The twenty-seven papers of the conference technical program present research results and experience reports that cover all aspects of software product lines. Topics include business issues, enabling technologies, organizational issues, and life-cycle issues. Emphasis is placed on experiences in the development and fielding of product lines of complex systems, especially those that expose problems in the design, development, or evolution of software product lines. The book will be essential reading for researchers and practitioners alike.

Perspectives on Data Science for Software Engineering presents the best practices of seasoned data miners in software engineering. The idea for this book was created during the 2014 conference at Dagstuhl, an invitation-only gathering of leading computer scientists who meet to identify and discuss cutting-edge informatics topics. At the 2014 conference, the concept of how to transfer the knowledge of experts from seasoned software engineers and data scientists to newcomers in the field highlighted many discussions. While there are many books covering data mining and software engineering basics, they present only the fundamentals and lack the perspective that comes from real-world experience. This book offers unique insights into the wisdom of the community's leaders gathered to share hard-won lessons from the trenches. Ideas are presented in digestible chapters designed to be applicable across many domains. Topics included cover data collection, data sharing, data mining, and how to utilize these techniques in successful software projects. Newcomers to software engineering data science will learn the tips and tricks of the trade, while more experienced data scientists will benefit from war stories that show what traps to avoid. Presents the wisdom of community experts, derived from a summit on software analytics Provides contributed chapters that share discrete ideas and technique from the trenches Covers top areas of concern, including mining software and social data, data visualization, and cloud-based data Presented in clear chapters designed to be applicable across many domains

Third International School on Formal Methods for the Design of Computer, Communication and Software Systems. Software Architectures, SFM 2003, Bertinoro, Italy, September 22-27, 2003, Advanced Lectures

What Every Engineer Should Know about Software Engineering

Fundamental Approaches to Software Engineering

Experimentation in Software Engineering

5th International Conference, XP 2004, Garmisch-Partenkirchen, Germany, June 6-10, 2004, Proceedings

Software Engineering Measurement

Based on their own experiences of in-depth case studies of software projects in international corporations, in this book the authors present detailed practical guidelines on the preparation, conduct, design and reporting of case studies of software engineering. This is the first software engineering specific book on the case study research method.

This book offers a practical approach to understanding, designing, and building sound software based on solid principles. Using a unique Q&A format, this book addresses the issues that engineers need to understand in order to successfully work with software engineers, develop specifications for quality software, and learn the basics of the most common programming languages, development approaches, and paradigms. The new edition is thoroughly updated to improve the pedagogical flow and emphasize new software engineering processes, practices, and tools that have emerged in every software engineering area. Features: Defines concepts and processes of software and software development, such as agile processes, requirements engineering, and software architecture, design, and construction. Uncovers and answers various misconceptions about the software development process and presents an up-to-date reflection on the state of practice in the industry. Details how non-software engineers can better communicate their needs to software engineers and more effectively participate in design and testing to ultimately improve software development and maintenance. Helps answer the question: How can I better leverage embedded software in my design? Adds new chapters and sections on software architecture, software engineering and systems, and software engineering and disruptive technologies, as well as information on cybersecurity. Features new appendices that describe a sample automation system, covering software requirements, architecture, and design. This book is aimed at a wide range of engineers across many disciplines who work with software.

This tutorial book presents an augmented selection of the material presented at the First Pernambuco Summer School on Software Engineering, PSSE 2004, held in Recife, Brazil in November/December 2004, jointly with the Brazilian Symposium on Formal Methods (SBMF 2004). The seven tutorial lectures presented are the thoroughly revised versions of the contributions from the invited lecturers. The courses cover a wide spectrum of topics.

This book constitutes the proceedings of the Fourth International Conference on Software Engineering Approaches for Offshore and Outsourced Development, SEAFOD 2010, held in St. Petersburg, Russia, June 17-18, 2010. The four long plus the four short papers presented together with two keynote speeches were carefully reviewed and selected from 25 submissions for inclusion in the book. The areas covered include industry challenges and best practices in offshore software development, distributed software development, risk management, and global software project management.

Search Based Software Engineering

Evidence-Based Software Engineering and Systematic Reviews

9th International Conference of Z Users, Limerick, Ireland, September 7 - 9, 1995, Proceedings

Machine Learning Applications in Software Engineering

Software Product Lines

This book engages directly in close readings of technical texts and computer code in order to show how software works. It offers an analysis of the cultural, political, and philosophical implications of software technologies that demonstrates the significance of software for the relationship between technology, philosophy, culture, and society.

This book constitutes the proceedings of the 21st International Conference on Formal Engineering Methods, ICFEM 2019, held in Shenzhen, China, in November 2019. The 28 full and 8 short papers presented in this volume were carefully reviewed and selected from 94 submissions. They deal with the recent progress in the use and development of formal engineering methods for software and system design and record the latest development in formal engineering methods.

Experience and Research Directions

Scientific and Technical Aerospace Reports