Cots Based Software Systems Second International Conference Iccbss 2003 Ottawa Canada February 10 13 2003 Lecture Notes In Computer Science

Requirements Engineering for Software and Systems, Second Edition Engineering Trustworthy Software Systems COTS-Based Software Systems **Software Systems Architecture Specification of Software Systems Embedded Software Development for Safety-Critical Systems, Second Edition** Software Engineering and Computer Systems, Part III Effective Methods for Software and Systems Integration **Advanced Use Case Modeling** *Software Engineering and Computer Systems, Part II Software Systems Architecture The Elements of Computing Systems* **A Tale of Two Systems** Software Design for Resilient Computer Systems **Embedded Software Development for Safety-Critical Systems The Elements of Computing Systems, second edition Software Engineering for Multi-Agent Systems II Introduction to Embedded Systems, Second Edition** *Software Engineering for Embedded Systems A Handbook of Software and Systems Engineering* **System Software Successful Evolution of Software Systems** *Feature Interactions in Telecommunications and Software Systems VIII Engineering Safe and Secure Software Systems* **Standardization, Certification, Maintenance, and Dissemination of Large Scale Engineering Software Systems** *Engineering Secure Software and Systems* **Software System Development** *Engineering Theories of Software Intensive Systems* **Formal Methods for Eternal Networked Software Systems** Innovations in Software Engineering for Defense Systems **Environmental Software Systems The Elements of Computing Systems, second edition Requirements Engineering for Software and Systems** *Just Enough Software Architecture* **OCR GCSE Computer Science, Second Edition** *Software Reuse, Second Edition Second Eastern Regional Remote Sensing Applications Conference* **Software Engineering for Self-Adaptive Systems III. Assurances The CERT C Coding Standard Introduction to Software Engineering**

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Advanced Use Case Modeling Feb 22 2022 "This book isn't just another introduction to use cases. The authors have used their wealth of experience to produce an excellent and insightful collection of detailed examples, explanations, and advice on how to work with use cases." –Maria Ericsson The toughest challenge in building a software system that meets the needs of your audience lies in clearly understanding the problems that the system must solve. Advanced Use Case Modeling presents a framework for discovering, identifying, and modeling the problem that the software system will ultimately solve. Software developers often employ use cases to specify what should be performed by the system they're constructing. Although use case-driven analysis, design, and testing of software systems has become increasingly popular, little has been written on the role of use cases in the complete software cycle. This book fills that need by describing how to create use case models for complex software development projects, using practical examples to explain conceptual information. The authors extend the work of software visionary Ivar Jacobson, using the Unified Modeling Language (UML) as the notation to describe the book's models. Aimed primarily at software professionals, Advanced Use Case Modeling also includes information that relates use case technique to business processes. This book presents a process for creating and maintaining use case models in a framework that can be fully customized for your organization. The authors, pioneers in the application of use cases in software development, bring their extensive experience to cover topics such as: A process model for applying a use case model How to keep your use case modeling effort on track Tips and pitfalls in use case modeling How to organize your use case model for large-system development Similarities between Advanced Use Case Modeling and the Rational Unified Process framework Effect of use cases on user interface design Guidelines for quality use case modeling
Software System Development Aug 07 2020 Software System Development: A Gentle Introduction, Second Edition, follows the development of a system from the client's initial vague specification, through a series of transitional stages, to the completed software product. This new edition builds on the success of the first, incorporating suggestions and comments from a wide variety of readers. It includes new chapters on requirements engineering and object-oriented development, together with a substantially increased set of exercises on modelling techniques. Written in a clear, friendly style, this book is aimed at first- and second-year computer science undergraduates, in areas such as computer science, information systems or business studies, who are studying systems analysis or software engineering. It will also appeal to computer professionals and anyone who has an interest in the system development process.
OCR GCSE Computer Science, Second Edition Nov 29 2019 Written by leading Computer Science teachers, this brand-new textbook will guide students through the updated OCR GCSE Computer Science specification topic by topic, and provide them with standalone recap and review sections, worked examples and clear explanations of complex topics. This Student Book:br” develops computational thinking skills in line with the new Practical Programming element of Component 02br” provides differentiated material with the 'beyond the spec' featurebr” includes standalone recap and review sections at the end of each chapterbr” includes answers to the Knowledge Check questions to support independent learningbr” provides definitions of technical terms, along with a glossary of words that will be needed for assessment. Looking for answers for the Student Book? They can be found at the back of the print textbook. You can now access a free set of practice questions on the Hodder Education website. Please note, these questions are not endorsed by OCR and have not been subject to any OCR quality assurance processes. George Rouse, Lorne Pearcey and Gavin Craddock are highly respected and widely published authors of resources.

Introduction to Software Engineering Jun 24 2019 Practical Guidance on the Efficient Development of High-Quality Software Introduction to Software Engineering, Second Edition equips students with the fundamentals to prepare them for satisfying careers as software engineers regardless of future changes in the field, even if the changes are unpredictable or disruptive in nature. Retaining the same organization as its predecessor, this second edition adds considerable material on open source and agile development models. The text helps students understand software development techniques and processes at a reasonably sophisticated level. Students acquire practical experience through team software projects. Throughout much of the book, a relatively large project is used to teach about the requirements, design, and coding of software. In addition, a continuing case study of an agile software development project offers a complete picture of how a successful agile project can work. The book covers each major phase of the software development life cycle, from developing software requirements to software maintenance. It also discusses project management and explains how to read software engineering literature. Three appendices describe software patents, command-line arguments, and flowcharts.
Second Eastern Regional Remote Sensing Applications Conference Sep 27 2019
Software Engineering and Computer Systems, Part II Jan 24 2022 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.
Engineering Secure Software and Systems Sep 07 2020 It is our pleasure to welcome you to the proceedings of the Second International Symposium on Engineering Secure Software and Systems. This unique event aimed at bringing together researchersfrom softwareen- neering and security engineering, which might help to unite and further develop the two communities in this and future editions. The parallel technical spons- ships from the ACM SIGSAC (the ACM interest group in security) and ACM SIGSOF (the ACM interest group in software engineering) is a clear sign of the importance of this inter-disciplinary research area and its potential. The di?culty of building secure software systems is no longer focused on mastering security technology such as cryptography or access control models. Other important factors include the complexity of modern networked software systems, the unpredictability of practical development life cycles, the intertw- ing of and trade-o? between functionality, security and other qualities, the d- culty of dealing with human factors, and so forth. Over the last years, an entire research domain has been building up around these problems. The conference program included two major keynotes from Any Gordon (Microsoft Research Cambridge) on the practical veri?cation of security pro- cols implementation and Angela Sasse (University College London) on security usability and an interesting blend of research, industry and idea papers.
The Elements of Computing Systems, second edition Mar 02 2020 A new and extensively revised edition of a popular textbook used in universities, coding boot camps, hacker clubs, and online courses. The best way to understand how computers work is to build one from scratch, and this textbook leads learners through twelve chapters and projects that gradually build the hardware platform and software hierarchy for a simple but powerful computer system. In the process, learners gain hands-on knowledge of hardware, architecture, operating systems, programming languages, compilers, data structures and algorithms, and software engineering. Using this constructive approach, the book introduces learners to a significant body of computer science knowledge and demonstrates how theoretical and applied techniques taught in other computer science courses fit into the overall picture. The outcome of these efforts is known as Nand to Tetris: a journey that starts with the most elementary logic gate, called Nand, and ends, twelve projects later, with a general-purpose computer system capable of running Tetris. The first edition of this popular textbook inspired Nand to Tetris classes in universities, coding boot camps, hacker clubs, and online course platforms. This second edition has been extensively revised. It has been restructured into two distinct parts—part I, Hardware, and part II, Software—with six projects in each part. All chapters and projects have been rewritten, with an emphasis on separating abstraction from implementation, and many new sections, figures, and examples have been added. Substantial new appendixes offer focused presentation on technical and theoretical topics.
Innovations in Software Engineering for Defense Systems May 04 2020 Recent rough estimates are that the U.S. Department of Defense (DoD) spends at least $38 billion a year on the research, development, testing, and evaluation of new defense systems; approximately 40 percent of that cost-at least $16 billion-is spent on software development and testing. There is widespread understanding within DoD that the effectiveness of software-intensive defense systems is often hampered by low-quality software as well as increased costs and late delivery of software components. Given the costs involved, even relatively incremental improvements to the software development process for defense systems could represent a large savings in funds. And given the importance of producing defense software that will carry out its intended function, relatively small improvements to the quality of defense software systems would be extremely important to identify. DoD software engineers and test and evaluation officials may not be fully aware of a range of available techniques, because of both the recent development of these techniques and their origination from an orientation somewhat removed from software engineering, i.e., from a statistical perspective. The panel's charge therefore was to convene a workshop to identify statistical software engineering techniques that could have applicability to DoD systems in development.
A Tale of Two Systems Oct 21 2021 This business parable reviews two different systems development projects. One project was an abject, expensive failure, while the other succeeded in creating a major new revenue stream, bringing in new customers. By reviewing the tales of these two systems, readers will develop a better understanding of what works and what doesn’t when it comes to the leadership and action steps required to reinvent a company’s procedures to get in step with the times. CEO Evan Nogelmeyer discovers to his dismay that in today’s business world, technology is not just for technologists. But does he discover this soon enough and once he does, does he have the tools and the business savvy he needs to stave off disaster? Evan and his team are all well-intentioned, successful business leaders with advanced degrees and backgrounds in marketing and business. But, without technical backgrounds, do they have what it takes to manage the technology overhaul so critical to the very survival of their company and the future of their own careers? A Tale of Two Systems: Lean and Agile Software Development for Business Leaders reviews two fictional systems development projects: Cremins United and Troubled Real Estate Information Management, both launched at the imaginary Cremins Corporation. Cremins is a venerable printing company that must transform itself to survive in the Internet age. One project proves to be an abject and expensive failure, while the other succeeds in creating a major new revenue stream and solving important customer needs. Contrasting the methods employed in a traditional, process-centric 'waterfall' approach, with a lean and agile-inspired approach, this book provides business leaders with a tangible understanding of why lean thinking is so well-suited to contemporary environments requiring flexibility, speed, and the input of specialized knowledge. At the conclusion of the two tales, author Michael Levine articulates a series of conclusions and principles based on Lean Product Development, Agile, and his 25 years of

experience in business systems development. While the tales told and the companies and employees that inhabit them are pure fiction, the lessons to be learned are very real and very applicable in today's highly competitive market, where victory goes time and time again to the lean and the agile.
Introduction to Embedded Systems, Second Edition May 16 2021 An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.
System Software Feb 10 2021
Software Design for Resilient Computer Systems Sep 19 2021 This book addresses the question of how system software should be designed to account for faults, and which fault tolerance features it should provide for highest reliability. The authors first show how the system software interacts with the hardware to tolerate faults. They analyze and further develop the theory of fault tolerance to understand the different ways to increase the reliability of a system, with special attention on the role of system software in this process. They further develop the general algorithm of fault tolerance (GAFT) with its three main processes: hardware checking, preparation for recovery, and the recovery procedure. For each of the three processes, they analyze the requirements and properties theoretically and give possible implementation scenarios and system software support required. Based on the theoretical results, the authors derive an Oberon-based programming language with direct support of the three processes of GAFT. In the last part of this book, they introduce a simulator, using it as a proof of concept implementation of a novel fault tolerant processor architecture (ERRIC) and its newly developed runtime system feature-wise and performance-wise. The content applies to industries such as military, aviation, intensive health care, industrial control, space exploration, etc.
Engineering Safe and Secure Software Systems Nov 09 2020 This first-of-its-kind resource offers a broad and detailed understanding of software systems engineering from both security and safety perspectives. Addressing the overarching issues related to safeguarding public data and intellectual property, the book defines such terms as systems engineering, software engineering, security, and safety as precisely as possible, making clear the many distinctions, commonalities, and interdependencies among various disciplines. You explore the various approaches to risk and the generation and analysis of appropriate metrics. This unique book explains how processes relevant to the creation and operation of software systems should be determined and improved, how projects should be managed, and how products can be assured. You learn the importance of integrating safety and security into the development life cycle. Additionally, this practical volume helps identify what motivators and deterrents can be put in place in order to implement the methods that have been recommended.
Just Enough Software Architecture Dec 31 2019 This is a practical guide for software developers, and different than other software architecture books. Here's why: It teaches risk-driven architecting. There is no need for meticulous designs when risks are small, nor any excuse for sloppy designs when risks threaten your success. This book describes a way to do just enough architecture. It avoids the one-size-fits-all process tar pit with advice on how to tune your design effort based on the risks you face. It democratizes architecture. This book seeks to make architecture relevant to all software developers. Developers need to understand how to use constraints as guiderails that ensure desired outcomes, and how seemingly small changes can affect a system's properties. It cultivates declarative knowledge. There is a difference between being able to hit a ball and knowing why you are able to hit it, what psychologists refer to as procedural knowledge versus declarative knowledge. This book will make you more aware of what you have been doing and provide names for the concepts. It emphasizes the engineering. This book focuses on the technical parts of software development and what developers do to ensure the system works not job titles or processes. It shows you how to build models and analyze architectures so that you can make principled design tradeoffs. It describes the techniques software designers use to reason about medium to large sized problems and points out where you can learn specialized techniques in more detail. It provides practical advice. Software design decisions influence the architecture and vice versa. The approach in this book embraces drill-down/pop-up behavior by describing models that have various levels of abstraction, from architecture to data structure design.
Embedded Software Development for Safety-Critical Systems, Second Edition May 28 2022 This is a book about the development of dependable, embedded software. It is for systems designers, implementers, and verifiers who are experienced in general embedded software development, but who are now facing the prospect of delivering a software-based system for a safety-critical application. It is aimed at those creating a product that must satisfy one or more of the international standards relating to safety-critical applications, including IEC 61508, ISO 26262, EN 50128, EN 50657, IEC 62304, or related standards. Of the first edition, Stephen Thomas, PE, Founder and Editor of FunctionalSafetyEngineer.com said, "I highly recommend Mr. Hobbs' book."
A Handbook of Software and Systems Engineering Mar 14 2021 This book is intended as a handbook for students and practitioners alike. The book is structured around the type of tasks that practitioners are confronted with, beginning with requirements definition and concluding with maintenance and withdrawal. It identifies and discusses existing laws that have a significant impact on the software engineering field. These laws are largely independent of the technologies involved, which allow students to learn the principles underlying software engineering. This also guides students toward the best practice when implementing software engineering techniques.
Effective Methods for Software and Systems Integration Mar 26 2022 Before software engineering builds and installations can be implemented into software and/or systems integrations in military and aerospace programs, a comprehensive understanding of the software development life cycle is required. Covering all the development life cycle disciplines, Effective Methods for Software and Systems Integration explains how to select and apply a life cycle that promotes effective and efficient software and systems integration. The book defines time-tested methods for systems engineering, software design, software engineering informal/formal builds, software engineering installations, software and systems integration, delivery activities, and product evaluations. Explaining how to deal with scheduling issues, the text considers the use of IBM Rational ClearCase and ClearQuest tools for software and systems integration. It also: Presents methods for planning, coordination, software loading, and testing Addresses scheduling issues and explains how to plan to coordinate with customers Covers all development life cycle disciplines Explains how to select and apply a life cycle that promotes effective and efficient software and

systems integration The text includes helpful forms—such as an audit checklist, a software/systems integration plan, and a software checklist PCA. Providing you with the understanding to achieve continuous improvements in quality throughout the software life cycle, it will help you deliver projects that are on time and within budget constraints in developmental military and aerospace programs as well as the software industry.
Software Engineering for Multi-Agent Systems II Jun 16 2021 This book presents a coherent and well-balanced survey of recent advances in software engineering approaches to the development of realistic multi-agent systems (MAS). In it, the concept of agent-based software engineering is demonstrated through examples that are relevant to and representative of real-world applications. The 15 thoroughly reviewed and revised full papers are organized in topical sections on requirements engineering, software architecture and design, modeling, dependability, and MAS frameworks. Most of the papers were initially presented at the Second International Workshop on Software Engineering for Large-Scale Multi-Agent Systems, SELMAS 2003, held in Portland, Oregon, USA, in May 2003; three papers were added in order to complete the coverage of the relevant topics.
Standardization, Certification, Maintenance, and Dissemination of Large Scale Engineering Software Systems Oct 09 2020
Feature Interactions in Telecommunications and Software Systems VIII Dec 11 2020 Features - additional services - occur whenever organisations compete by differentiating their products from those of rival organisations. Adding one feature may break another, or interfere with it in an undesired way. This phenomenon is called feature interaction. This book explores ways in which the feature interaction problem may be mitigated.
Requirements Engineering for Software and Systems Jan 30 2020 As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their
Software Systems Architecture Jul 30 2022
Requirements Engineering for Software and Systems, Second Edition Nov 02 2022 As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their requirements engineering habits. However, these tools are not easy to use without appropriate training. Filling this need, Requirements Engineering for Software and Systems, Second Edition has been vastly updated and expanded to include about 30 percent new material. In addition to new exercises and updated references in every chapter, this edition updates all chapters with the latest applied research and industry practices. It also presents new material derived from the experiences of professors who have used the text in their classrooms. Improvements to this edition include: An expanded introductory chapter with extensive discussions on requirements analysis, agreement, and consolidation An expanded chapter on requirements engineering for Agile methodologies An expanded chapter on formal methods with new examples An expanded section on requirements traceability An updated and expanded section on requirements engineering tools New exercises including ones suitable for research projects Following in the footsteps of its bestselling predecessor, the text illustrates key ideas associated with requirements engineering using extensive case studies and three common example systems: an airline baggage handling system, a point-of-sale system for a large pet store chain, and a system for a smart home. This edition also includes an example of a wet well pumping system for a wastewater treatment station. With a focus on software-intensive systems, but highly applicable to non-software systems, this text provides a probing and comprehensive review of recent developments in requirements engineering in high integrity systems.
Formal Methods for Eternal Networked Software Systems Jun 04 2020 This book presents 15 tutorial lectures by leading researchers given at the 11th edition of the International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2011, held in Bertinoro, Italy, in June 2011. SFM 2011 was devoted to formal methods for eternal networked software systems and covered several topics including formal foundations for the inter-operability of software systems, application-layer and middleware-layer dynamic connector synthesis, interaction behavior monitoring and learning, and quality assurance of connected systems. The school was held in collaboration with the researchers of the EU-funded projects CONNECT and ETERNALS. The papers are organized into six parts: (i) architecture and interoperability, (ii) formal foundations for connectors, (iii) connector synthesis, (iv) learning and monitoring, (v) dependability assurance, and (vi) trustworthy eternal systems via evolving software.
Engineering Theories of Software Intensive Systems Jul 06 2020 Software engineering has over the years been applied in many different fields, ranging from telecommunications to embedded systems in car and aircraft industry as well as in production engineering and computer networks. Foundations in software technology lie in models allowing to capture application domains, detailed requirements, but also to understand the structure and working of software systems like software architectures and programs. These models have to be expressed in techniques based on discrete mathematics, algebra and logics. However, according to the very specific needs in applications of software technology, formal methods have to serve the needs and the quality of advanced software engineering methods, especially taking into account security aspects in Information Technology. This book presents mathematical foundations of software engineering and state-of-the-art engineering methods in their theoretical substance in the step towards practical applications to examine software engineering techniques and foundations used for industrial tasks. The contributions in this volume emerged from lectures of the 25th International Summer School on Engineering Theories of Software Intensive Systems, held at Marktoberdorf, Germany from August 3 to August 15, 2004.
Embedded Software Development for Safety-Critical Systems Aug 19 2021 "I highly recommend Mr. Hobbs' book." - Stephen Thomas, PE, Founder and Editor of FunctionalSafetyEngineer.com Safety-critical devices, whether medical, automotive, or industrial, are increasingly dependent on the correct operation of sophisticated software. Many standards have appeared in the last decade on how such systems should be designed and built. Developers, who previously only had to know how to program devices for their industry, must now understand remarkably esoteric development practices and be prepared to justify their work to external auditors. Embedded Software Development for Safety-Critical Systems discusses the development of safety-critical systems under the following standards: IEC 61508; ISO 26262; EN 50128; and IEC 62304. It details the advantages and disadvantages of many architectural and design practices recommended in the standards, ranging from replication and diversification, through anomaly detection to the so-called "safety bag" systems. Reviewing the use of open-source components in safety-critical systems, this book has evolved from a course text used by QNX Software Systems for a training module on building embedded software for safety-critical devices, including medical devices, railway systems, industrial systems, and driver assistance devices in cars. Although the book describes open-source tools for the most part, it also provides enough information for you to seek out commercial vendors if that’s the route you decide to pursue. All of the techniques described in this book may be further explored through hundreds of learned articles. In order to provide you with a way in, the author supplies references he has found helpful as a working software developer. Most of these references are available to download for free.

Specification of Software Systems Jun 28 2022 This extensively revised and updated new edition of Specification of Software Systems builds upon the original focus on software specification with added emphasis on the practice of formal methods for specification and verification activities for different types of software systems and at different stages of developing software systems. Topics and features: provides a wide coverage of formal specification techniques and a clear writing style, supported by end-of-chapter bibliographic notes for further reading; presents a logical structure, with sections devoted to specification fundamentals, basics of formalism, logic, set theory and relations, property-oriented specification methods, and model-based specification techniques; contains end-of-chapter exercises and numerous case studies, with potential course outlines suggested in the Preface; covers Object-Z, B-Method, and Calculus of Communicating Systems; offers material that can be taught with tool-supported laboratory projects.
Software Engineering for Self-Adaptive Systems III. Assurances Aug 26 2019 A major challenge for modern software systems is to become more cost-effective, while being versatile, flexible, resilient, energy-efficient, customizable, and configurable when reacting to run-time changes that may occur within the system itself, its environment or requirements. One of the most promising approaches to achieving such properties is to equip the software system with self-adaptation capabilities. Despite recent advances in this area, one key aspect that remains to be tackled in depth is the provision of assurances. Originating from a Dagstuhl seminar held in December 2013, this book constitutes the third volume in the series “Software Engineering for Self-Adaptive Systems”, and looks specifically into the provision of assurances. Opening with an overview chapter on Research Challenges, the book presents 13 further chapters written and carefully reviewed by internationally leading researchers in the field. The book is divided into topical sections on research challenges, evaluation, integration and coordination, and reference architectures and platforms.
Successful Evolution of Software Systems Jan 12 2021 Annotation Explores the feasibility of using techniques such as program transformation and program abstraction to re-engineer and extend the life of an existing IT system. The authors (De Montfort University) outline a program transformation-based evolution workbench called FermaT, the architecture of the wide spectrum language (WSL), and a process for evolving object-oriented, real-time, and parallel systems. The final chapter presents six case studies that use FermaT and re-engineering assistant tools to evolve from source code to specifications or to new source code in a different language. Annotation copyrighted by Book News, Inc., Portland, OR
COTS-Based Software Systems Aug 31 2022 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 commcerial-off-the-shelf-systems, from the point of view of research and development as well as from the practitioner's application point of view.
Environmental Software Systems Apr 02 2020 Due to increasing practical needs, software support of environmental protection and research tasks is growing in importance and scope. Software systems help to monitor basic data, to maintain and process relevant environmental information, to analyze gathered information and to carry out decision processes, which often have to take into account complex alternatives with various side effects. Therefore software is an important tool for the environmental domain. When the first software systems in the environmental domain grew - 10 to 15 years ag- users and developers were not really aware of the complexity these systems are carrying with themselves: complexity with respect to entities, tasks and procedures. I guess nobody may have figured out at that time that the environmental domain would ask for solutions which information science would not be able to provide and - in several cases - can not provide until today. Therefore environmental informatics - as we call it today - is also an important domain of computer science itself, because practical solutions need to deal with very complex, interdisciplinary, distributed, integrated, sometimes badly defined, user-centered decision processes. I doubt somebody will state that we are already capable of building such integrated systems for end users for reasonable cost on a broad range. The development of the first scientific community for environmental informatics started around 1985 in Germany, becoming a technical committee and working group of the German Computer Society in 1987.
Software Systems Architecture Dec 23 2021 This guide for software architects builds upon legacies of best practice, explaining key areas and how to make architectural designs successful.
Software Reuse, Second Edition Oct 28 2019 This book is an updated edition of the previous McGraw-Hill edition, which was an essential guide to successful reuse across the entire software life cycle. It explains in depth the fundamentals, economics, and metrics of software reuse. The bottom line is good news for designers of complex systems: Systematic software reuse can succeed, even if the underlying technology is changing rapidly. Software reuse has been called the central technical concept of object-oriented design. This book covers reuse in object-oriented systems, but goes far beyond in its coverage of complex systems - the type that may evolve into "systems of systems." Important new material has been added to this edition on the changed state-of-the-art and state-of-the-practice of software reuse, on product-line architectures, on the economics of reuse, on the maintenance of COTS-based systems. A case study using DoDAF (The Department of Defense Architectural Framework) in system design has been included to show some new thinking about reuse and some attributes of large-scale components of very large systems. After an introduction to basics, the book shows you how to: 1. Access reuse and disadvantages for your systems. 2.Understand and use domain analysis. 3.Estimate total costs, including maintenance, using life-cycle-based models. 4.Organize and manage reuse libraries. 5.Certify software components that have been created at any phase of the software life cycle your organization uses. 6.Implement systematic reuse using COTS (commercial, off-the-shelf) components and other existing software. The book includes several models and reengineering checklists, as well as important case studies. These models and checklists help anyone faced with the problem of whether to build, buy, reuse, or reengineer any software component, system, or subsystem of reasonable complexity. Such components, subsystems, and systems often fit into the new paradigms of service-oriented architectures (SOA) and software-as-a-service (SaAS). Software Reuse: Methods, Models, Costs emphasizes the cost efficient development of high-quality software systems in changing technology environments. Our primary example of domain analysis, which is the analysis of software into potentially reusable artifacts, often at a higher level than simply source code modules, is the assessment of possibilities for reuse in the Linux kernel. There are eight chapters in Software Reuse: Methods, Models, Costs: What is Software Reuse?, Techniques (which included domain analysis), Reuse Libraries, Certification of Reusable Software Components, The Economics of Software Reuse, Reengineering, Case Studies, and Tools For Software Reuse.
The Elements of Computing Systems, second edition Jul 18 2021 A new and extensively revised edition of a popular textbook used in universities, coding boot camps, hacker clubs, and online courses. The best way to understand how computers work is to build one from scratch, and this textbook leads learners through twelve chapters and projects that gradually build the hardware platform and software hierarchy for a simple but powerful computer system. In the process, learners gain hands-on knowledge of hardware, architecture, operating systems, programming languages, compilers, data structures and algorithms, and software engineering. Using this constructive approach, the book introduces readers to a significant body of computer science knowledge and synthesizes key theoretical and applied techniques into one constructive framework.The outcome is known known as Nand to Tetris: a journey that starts with the most elementary logic gate, called Nand, and ends, twelve projects later, with a general-purpose computer system capable of running Tetris and any other program that comes to

your mind. The first edition of this popular textbook inspired Nand to Tetris classes in many universities, coding boot camps, hacker clubs, and online course platforms. This second edition has been extensively revised. It has been restructured into two distinct parts—Part I, hardware, and Part II, software—with six projects in each part. All chapters and projects have been rewritten, with an emphasis on separating abstraction from implementation, and many new sections, figures, and examples have been added. Substantial new appendixes offer focused presentation on technical and theoretical topics.
The Elements of Computing Systems Nov 21 2021 This title gives students an integrated and rigorous picture of applied computer science, as it comes to play in the construction of a simple yet powerful computer system.
Software Engineering for Embedded Systems Apr 14 2021 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
Software Engineering and Computer Systems, Part III Apr 26 2022 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.
The CERT C Coding Standard Jul 26 2019 This book is an essential desktop reference for the CERT C coding standard. The CERT C Coding Standard is an indispensable collection of expert information. The standard itemizes those coding errors that are the root causes of software vulnerabilities in C and prioritizes them by severity, likelihood of exploitation, and remediation costs. Each guideline provides examples of insecure code as well as secure, alternative implementations. If uniformly applied, these guidelines will eliminate the critical coding errors that lead to buffer overflows, format string vulnerabilities, integer overflow, and other common software vulnerabilities.
Engineering Trustworthy Software Systems Oct 01 2022 This volume contains a record of some of the lectures and seminars delivered at the Second International School on Engineering Trustworthy Software Systems (SETSS 2016), held in March/April 2016 at Southwest University in Chongqing, China. The six contributions included in this volume provide an overview of leading-edge research in methods and tools for use in computer system engineering. They have been distilled from six courses and two seminars on topics such as: modelling and verification in event-B; parallel programming today; runtime verification; Java in the safety-critical domain; semantics of reactive systems; parameterized unit testing; formal reasoning about infinite data values; and Alan Turing and his remarkable achievements. The material is useful for postgraduate students, researchers, academics, and industrial engineers, who are interested in the theory and practice of methods and tools for the design and programming of trustworthy software systems.