Modeling Reactive Systems With Statecharts The Stat

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Formal Methods and Software Engineering - Chris George 2002-10-09
This book constitutes the refereed proceedings of the 4th International Conference on Formal Engineering methods, ICFEM 2002, held in Shanghai, China, in October 2002. The 43 revised full papers and 16 revised short papers presented together with 5 invited contributions were carefully reviewed and selected from a total of 108 submissions. The papers are organized in topical sections on component engineering and software architecture, method integration, specification techniques and languages, tools and environments, refinement, applications, validation and verification, UML, and semantics.
Models for Threat Assessment in Networks - Melissa Danforth 2006
Central to computer security are detecting attacks against systems and managing computer systems to mitigate threats to the system. Attacks exploit vulnerabilities in the system such as a programming flaw. Threats are vulnerabilities which could lead to an attack under certain circumstances. The key to the detection of attacks is discovering an ongoing attack against the system. Mitigating threats involves a continuous assessment of the vulnerabilities in the system and of the risk these vulnerabilities pose with respects to a security policy. Intrusion detection systems (IDS) are programs which detect attacks. The goal is to issue alerts only when an actual attack occurs, but also to not miss any attacks. The biological immune system provides a compelling model on which to base an IDS. This work adds the biological concepts of positive selection and collaboration to artificial immune systems to achieve a better attack detection rate without unduly raising the false alarm rate. Attack graphs assess the threat to the system by showing the composition of vulnerabilities in the system. The key issues with attack graphs are to large networks, ease of coding new attacks into the model, incomplete network information, visualization of the graph and automatic analysis of the graph. This work presents an abstract class model that aggregates individual attacks into abstract classes. Through these abstractions, scalability is greatly increased and the codification of new attacks into the model is made easier when compared to the current approach that models each attack. Clustering of identical machines is used to reduce the visual complexity of the graph and also to increase scalability. Incomplete network information is handled by allowing "what if" evaluations where an administrator can hypothesize about the existence of certain vulnerabilities in the system and investigate their consequences.
Modeling and Optimization of Parallel and Distributed Embedded Systems - Arslan Munir 2016-02-08

This book introduces the state-of-the-art in research in parallel and distributed embedded systems, which have been enabled by developments in silicon technology, micro-electro-mechanical systems (MEMS), wireless communications, computer networking, and digital electronics. These systems have diverse applications in domains including military and defense, medical, automotive, and unmanned autonomous vehicles. The emphasis of the book is on the modeling and optimization of emerging parallel and distributed embedded systems in relation to the three key design metrics of performance, power and dependability. Key features: Includes an embedded wireless sensor networks case study to help illustrate the modeling and optimization of distributed embedded systems. Provides an analysis of multi-core/many-core based embedded systems to explain the modeling and optimization of parallel embedded systems. Features an application metrics estimation model; Markov modeling for fault tolerance and analysis; and queueing theoretic modeling for performance evaluation. Discusses optimization approaches for distributed wireless sensor networks; high-performance and energy-efficient techniques at the architecture, middleware and software levels for parallel multicore-based embedded systems; and dynamic optimization methodologies. Highlights research challenges and future research directions. The book is primarily aimed at researchers in embedded systems; however, it will also serve as an invaluable reference to senior undergraduate and graduate students with an interest in embedded systems research.

Come, Let’s Play - David Harel 2012-12-06

This book does not tell a story. Instead, it is about stories. Or rather, in technical terms, it is about scenarios. Scenarios of system behavior. It con centrates on reactive systems, be they software or hardware, or combined computer-embedded systems, including distributed and real-time systems. We propose a different way to program such systems, centered on inter object scenario-based behavior. The book describes a language, two tech niques, and a supporting tool. The language is a rather broad extension of live sequence charts (LSCs), the original version of which was proposed in 1998 by W. Damm and the first-listed author of this book. The first of the two techniques, called play-in, is a convenient way to 'play in' scenario based behavior directly from the system's graphical user interface (QUI). The second technique, play-out, makes it possible to execute, or 'play out', the behavior on the QUI as if it were programmed in a conventional intra object state-based fashion. All this is implemented in full in our tool, the Play-Engine. The book can be viewed as offering improvements in some ofthe phases of known system development life cycles, e.g., requirements capture and anal ysis, prototyping, and testing. However, there is a more radical way to view the book, namely, as proposing an alternative way to program reactivity, which, being based on inter-object scenarios, is a lot closer to how people think about systems and their behavior.

Modeling Reactive Systems with Statecharts - David Harel 1998

A description of a UML-like modeling system for designers who need to express the inner workings of complex real-time reactive applications. --

Readings in Hardware/Software Co-Design - Giovanni De Micheli 2002

This title serves as an introduction ans reference for the field, with the papers that have shaped the hardware/software co-design since its inception in the early 90s.

Tool-Based Requirement Traceability between Requirement and Design Artifacts - Bernhard Turban 2013-04-16

Processes for developing safety-critical systems impose special demands on ensuring requirements traceability. Achieving valuable traceability information, however, is especially difficult concerning the transition from requirements to design. Bernhard Turban analyzes systems and software engineering theories cross-cutting the issue (embedded systems development, systems engineering, software engineering, requirements engineering and management, design theory and processes for safety-critical systems). As a solution, the author proposes a new tool approach to support designers in their thinking in order to achieve traceability as a by-product to normal design activities and to extend traceability information with information about design decision rationale.

B'98: Recent Advances in the Development and Use of the B Method - Bert Didier 1998-04-08

This book presents the refereed proceedings of the Second International B Conference, B'98, held in Montpellier, France, in April 1998. The book presents 15 revised full papers selected from 29 submissions as well as four invited contributions. The B method is enjoying rapidly increasing popularity for the specification and design of software. The book covers all aspects of the B technology, including introductory and methodological issues, theoretical investigations and industrial applications, B extension proposals and support tools, as well as comparisons or integration with other formal methods for software development.

Abstract State Machines - Theory and Applications - Yuri Gurevich 2003-07-31

The ASM 2000 workshop was held in the conference center of the Swiss Federal Institute of Technology (ETH) at Monte Verit a, Canton Ticino, March 19-24, 2000. The ASM formalism was proposed together with the thesis that it is suitable to model arbitrary computer systems on arbitrary abstraction levels. ASMs have been successfully used to analyze and specify various hardware and software systems including numerous computer languages. The aim of the workshop was to bring together domain-experts, using ASMs as a practical speci cation method, and theorists working with ASMs and related methods. In addition the workshop served as a forum on theoretical and practical topics that relate to ASMs in a broad sense. Three tutorials including hands-on experience with tools were organized by U. Gl¨asser and G. del Castillo (on the topic \Specifying Concurrent Systems with ASMs"), H. Russ¨ and N. Shankar (on the topic \A Tutorial Introduction to PVS"), M. Anlau , P.W. Kutter, and A. Pierantonio (on the topic \Developing Domain Speci c Languages"). In response to the organization committee’s call for papers, 30 papers were submitted, each of which was independently reviewed by four members of the program committee. This volume presents a selection of 12 of the refereed papers and two reports on industrial ASM application at Siemens AG and Microsoft Research, together with contributions based on the invited talks given by A.

Embedded System Design - Lawrence J. Henschen 2023-09-14

Embedded systems and the Internet of Things are current major efforts in industry and will continue to be mainstream commercial activities for the foreseeable future. Embedded Systems Design presents methodologies for designing such systems and discusses major issues, both present and future, that designers must consider in bringing products with embedded processing to the market. It starts from the first step after product proposal (behavioral modelling) and carries through steps for modelling internal operations. The book discusses methods for and issues in designing safe, reliable, and robust embedded systems. It covers the selection of processors and related hardware as well as issues involved in designing the related software. Finally, the book present issues that will occur in systems designed for the Internet of Things.This book is for junior/senior/MS students in computer science, computer engineering, and electrical engineering who intend to take jobs in industry designing and implementing embedded systems and Internet of Things applications. Focuses on the design of embedded systems, starting from product conception through high-level modeling and up to the selection of hardware, software, and network platforms Discusses the trade-offs of the various techniques presented so that engineers will be able to make the best choices for designs for future products Contains a section with three chapters on making designs that are reliable, robust, and safe Includes a discussion of the two main models for the structure of the Internet of Things, as well as the issues engineers will need to take into consideration in designing future IoT applications Uses the design of a bridge control system as a continuing example across most of the chapters in order to illustrate the differences and trade-offs of the various techniques

Advanced Design and Manufacturing Based on STEP - Xun Xu 2009-09-29

Design and manufacturing is the essential element in any product development lifecycle. Industry vendors and users have been seeking a common language to be used for the entire product development lifecycle that can describe design, manufacturing and other data pertaining to the product. Many solutions were proposed, the most

successful being the Stadndard for Exchange of Product model (STEP). STEP provides a mechanism that is capable of describing product data, independent from any particular system. The nature of this description makes it suitable not only for neutral file exchange, but also as a basis for implementing, sharing and archiving product databases. ISO 10303-AP203 is the first and perhaps the most successful AP developed to exchange design data between different CAD systems. Going from geometric data (as in AP203) to features (as in AP224) represents an important step towards having the right type of data in a STEP-based CAD/CAM system. Of particular significance is the publication of STEP-NC, as an extension of STEP to NC, utilising feature-based concepts for CNC machining purposes. The aim of this book is to provide a snapshot of the recent research outcomes and implementation cases in the field of design and manufacturing where STEP is used as the primary data representation protocol. The 20 chapters are contributed by authors from most of the top research teams in the world. These research teams are based in national research institutes, industries as well as universities.

Communication Protocol Engineering - Miroslav Popovic 2018-10-03

As embedded systems become more and more complex, so does the challenge of enabling fast and efficient communication between the various subsystems that make up a modern embedded system. Facing this challenge from a practical standpoint, Communication Protocol Engineering outlines a hands-on methodology for developing effective communication protocols for large-scale systems. A Complete Roadmap This book brings together the leading methods and techniques developed from state-of-the-art methodologies for protocol engineering, from specification and description methods to cleanroom engineering and agile methods. Popovic leads you from conceptualization of requirements to analysis, design, implementation, testing, and verification. He covers the four main design languages: specifications and description language (SDL); message sequence charts (MSCs); tree and tabular combined notation (TTCN); and unified modeling language (UML). Practical Tools for Real Skills Fully illustrated with more than 150 figures, this guide also serves as a finite state machine (FSM) library programmer's reference manual. The author demonstrates how to build an FSM library, explains the components of such a library, and applies the principles to FSM library-based examples. Nowhere else are the fundamental principles of communication protocols so clearly and effectively applied to real systems development than in Communication Protocol Engineering. No matter in what stage of the process you find yourself, this is the ideal tool to make your systems successful.

Taming HAL - Asaf Degani 2004-01-17

Machines dominate our lives, from alarm clocks that wake us up in the morning to radios that lull us to sleep. Most of our interactions with automated machines and computers are problem-free, but more often than we would like, they can be irritating and confusing. This is frequently harmless, such as a VCR recording the wrong show, but when it involves a critical system like an autopilot or medical device it can be a matter of life or death. Taming HAL seeks to explain these miscommunications between humans and machines by exploring user interfaces of everyday devices. Degani examines thirty different systems for human use, including watches, consumer electronic products, Internet applications, cars, medical equipment, navigation systems onboard cruise ships, and autopilots of commercial aircraft. Readers will discover why interfaces between people and machines all too often do not work and what needs to be done to avoid potential tragedies.

Modular Programming Languages - László Böszörményi 2003-10-24

This book constitutes the refereed proceedings of the international Joint Modular Languages Conference, JMLC 2003, held in Klagenfurt, Austria in August 2003. The 17 revised full papers and 10 revised short papers presented together with 5 invited contributions were carefully reviewed and selected from 47 submissions. The papers are organized in topical sections on architectural concepts and education, component architectures, language concepts, frameworks and design principles, compilers and tools, and formal aspects and reflective programming.

Compositionality: The Significant Difference - Willem-Paul de Roever 2003-05-20

This book originates from the International Symposium on Compositionality, COMPOS'97, held in Bad Malente, Germany in September 1997. The 25 chapters presented in revised full version reflect the current state of the art in the area of compositional reasoning about concurrency. The book is a valuable reference for researchers and professionals interested in formal systems design and analysis; it also is well suited for self study and use in advanced courses.

Advanced Topics in Database Research - Keng Siau 2004-01-01

The book presents the latest research ideas and topics on how to enhance current database systems, improve information storage, refine existing database models, and develop advanced applications. It provides insights into important developments in the field of database and database management. With emphasis on theoretical issues regarding databases and database management, the book describes the capabilities and features of new technologies and methodologies, and addresses the needs of database researchers and practitioners. *Note: This book is part of a new series entitled "Advanced Topics in Database Research." This book is Volume Three within this series (Vol. III, 2004).

Fundamental Approaches to Software Engineering - Egidio Astesiano 1998-03-11

This book constitutes the refereed proceedings of the First International Conference on Fundamental Approaches to Software Engineering, FASE'98, held as part of the Joint European Conferences on Theory and Practice of Software, ETAPS'98, held in Lisbon, Portugal, in March/April 1998. Besides two invited presentations and three system demonstrations, this volume presents 18 revised full papers selected from a total of 59 submissions. Among the various fundamental software engineering issues addressed are formal methods, specification languages, refinement, object-oriented modeling, software architectures, statecharts, model checking, etc.

Time for Verification - Zohar Manna 2010-06-30

This volume is dedicated to the memory of the 1996 Turing Award winner Amir Pnueli, who passed away in November 2009. The Festschrift contains 15 scientific articles written by leading scientists who were close to Amir Pnueli either as former students, colleagues or friends. The topics covered span the entire breadth of the scientific work of Amir Pnueli, with a focus on the development and the application of formal methods. Also included is the first chapter of the unpublished Volume III of Zohar Manna and Amir Pnueli’s work on the verification of reactive systems using temporal logic techniques.

RoboCup 2021: Robot World Cup XXIV - Rachid Alami 2022-03-21

This book constitutes the proceedings of the 24th RoboCup International Symposium which was held online during June 22 - June 28, 2021. The 19 full papers included in these proceedings were carefully reviewed and selected from 42 submissions; the volume also includes 10 RoboCup Champions Papers. In addition to presenting the proceedings of the RoboCup 2021 Symposium, the book highlights the approaches of champion teams from the competitions. Due to the complex research challenges set by the RoboCup initiative, the RoboCup International Symposium offers a unique perspective for exploring scientific and engineering principles underlying advanced robotic and AI systems.

Satellite Events at the MoDELS 2005 Conference - Jean-Michel Bruel 2006-01-20

The 30 revised full papers were carefully selected for inclusion in the book and are presented along with an educators's and a doctorial symposium section comprising additional 13 short articles. The papers are organized in topical sections representing the various workshops

Modeling and Verification Using UML Statecharts - Doron Drusinsky 2011-04-01

As systems being developed by industry and government grow larger and more complex, the need for superior specification and verification approaches and tools becomes increasingly vital. The developer and customer must have complete confidence that the design produced is correct, and that it meets forma development and verification standards. In this text, UML expert author Dr. Doron Drusinsky compiles all the latest information on the application of UML (Universal Modeling Language) statecharts, temporal logic, automata, and other advanced tools for run-time monitoring and verification. This is the first book that

deals specifically with UML verification techniques. This important information is introduced within the context of real-life examples and solutions, particularly focusing on national defense applications. A practical text, as opposed to a high-level theoretical one, it emphasizes getting the system developer up-to-speed on using the tools necessary for daily practice. A practical, tutorial-style text (other books on this topic discuss the tools and formalisms only theoretically) Includes an unclassified case study example from the U.S. Missile Defense project

UML'99 - The Unified Modeling Language: Beyond the Standard - Robert B. France 2003-07-31

This book constitutes the refereed proceedings of the Second International Conference on the Unified Modeling Language, UML'99, held in Fort Collins, CO, USA in September 1999. The 44 revised full papers presented together with two invited contributions and three panel summaries were carefully reviewed and selected from a total of 166 submissions. The papers are organized in topical sections on software architecture, UML and other notations, formalizing interactions, meta modeling, tools, components, UML extension mechanisms, process modeling, real-time systems, constraint languages, analyzing UML models, precise behavioral modeling, applying UML sequence design, and coding.

Simulation, Modeling, and Programming for Autonomous Robots - Itsuki Noda 2012-10-20

This book constitutes the refereed proceedings of the Third International Conference on Simulation, Modeling, and Programming for Autonomous Robots, SIMPAR 2012, held in Tsukuba, Japan, in November 2012. The 33 revised full papers and presented together with 3 invited talks were carefully reviewed and selected from 46 submissions. Ten papers describe design of complex behaviors of autonomous robots, 9 address software layers, 8 papers refer to related modeling and learning. The papers are organized in topical sections on mobile robots, software modeling and architecture and humanoid and biped robots.

European Control Conference 1991 - 1991-07-02

Proceedings of the European Control Conference 1991, July 2-5, 1991, Grenoble, France

Incompleteness and Uncertainty in Information Systems - V.S. Alagar 2012-12-06

The Software Engineering and Knowledgebase Systems (SOFfEKS) Research Group of the Department of Computer Science, Concordia University, Canada, organized a workshop on Incompleteness and Uncertainty in Information Systems from October 8-9, 1993 in Montreal. A major aim of the workshop was to bring together researchers who share a concern for issues of incompleteness and uncertainty. The workshop attracted people doing fundamental research and industry oriented research in databases, software engineering and AI from North America, Europe and Asia. The workshop program featured six invited talks and twenty other presentations. The invited speakers were: Martin Feather (University of Southern CalifornialInformation Systems Institute) Laks V. S. Lakshmanan (Concordia University) Ewa Orlowska (Polish Academy of Sciences) z. Pawlak (Warsaw Technical University and Academy of Sciences) F. Sadri (Concordia University) A. Skowron (Warsaw University) The papers can be classified into four groups: rough sets and logic, concept analysis, databases and information retrieval, and software engineering. The workshop opened with a warm welcome speech from Dr. Dan Taddeo, Dean, Faculty of Engineering and Computer Science. The first day's presentations were in rough sets, databases and information retrieval. Papers given on the second day centered around software engineering and concept analysis. Sufficient time was given in between presentations to promote active interactions and numerous lively discussions. At the end of two days, the participants expressed their hope that this workshop would be continued.

Human-computer Interaction, INTERACT '03 - Matthias Rauterberg 2003

This work brings together papers written by researchers and practitioners actively working in the field of human-computer interaction. It should be of use to students who study information technology and computer sciences, and to professional designers who are interested in User Interface design.

Handbook of Finite State Based Models and Applications - Jiacun Wang

2016-04-19
Applicable to any problem that requires a finite number of solutions, finite state-based models (also called finite state machines or finite state automata) have found wide use in various areas of computer science and engineering. Handbook of Finite State Based Models and Applications provides a complete collection of introductory materials on fini
Formal Techniques for Networked and Distributed Systems - FORTE 2005 - Farn Wang 2005-09-26
This book constitutes the refereed proceedings of the 25th IFIP WG 6.1 International Conference on Formal Techniques for Networked and Distributed Systems, FORTE 2005, held in Taipei, Taiwan, in October 2005. The 33 revised full papers and 6 short papers presented together with 3 keynote speeches were carefully reviewed and selected from 88 submissions. The papers cover all current aspects of formal methods for distributed systems and communication protocols such as formal description techniques (MSC, UML, Use cases, . . .), semantic foundations, model-checking, SAT-based techniques, process algebrae, abstractions, protocol testing, protocol verification, network synthesis, security system analysis, network robustness, embedded systems, communication protocols, and several promising new techniques.
Model Driven Engineering Languages and Systems - Robert B. France 2012-09-19
This book constitutes the refereed proceedings of the 15th International Conference on Model Driven Engineering Languages and Systems, MODELS 2012, held in Innsbruck, Austria, in September/October 2012. The 50 papers presented in this volume were carefully reviewed and selected from a total of 181 submissions. They are organized in topical sections named: metamodels and domain specific modeling; models at runtime; model management; modeling methods and tools, consistency analysis, software product lines; foundations of modeling; static analysis techniques; model testing and simulation; model transformation; model matching, tracing and synchronization; modeling practices and experience; and model analysis.
Model Driven Engineering Languages and Systems - Lionel Briand 2005-11-03
This volume contains the final versions of the technical papers presented at MoDELS 2005 in Montego Bay, Jamaica, October 2–7, 2005.
Scenarios: Models, Transformations and Tools - Stefan Leue 2005-06-16
Visual notations and languages continue to play a pivotal role ˆ in the design of complex software systems. In many cases visual notations are used to - scribe usage or interaction scenarios of software systems or their components. While representing scenarios using a visual notation is not the only possibility, a vast majority of scenario description languages is visual. Scenarios are used in telecommunications as Message Sequence Charts, in object-oriented system design as Sequence Diagrams, in reverse engineering as execution traces, and in requirements engineering as, for example, Use Case Maps or Life Sequence Charts. These techniques are used to capture requirements, to capture use cases in system documentation, to specify test cases, or to visualize runs of existing systems. They are often employed to represent concurrent systems that int- act via message passing or method invocation. In telecommunications, for more than 15 years the International Telecommunication Union has standardized the Message Sequence Charts (MSCs) notation in its recommendation Z. 120. More recently, with the emergence of UML as a predominant software design meth- ology, there has been special interest in the development of the sequence d- gram notation. As a result, the most recent version, 2. 0, of UML encompasses the Message Sequence Chart notation, including its hierarchical modeling f- tures. Other scenario-?avored diagrams in UML 2. 0 include activity diagrams and timing diagrams.
Pillars of Computer Science - Arnon Avron 2008-02-08
The Person 1 Boris Abramovich Trakhtenbrot ( ) - his Hebrew given name is Boaz ( ) - is universally admired as a founding - ther and long-standing pillar of the discipline of computer science. He is the ?eld's preeminent distinguished researcher and a most illustrious trailblazer and disseminator. He is unmatched in combining farsighted vision, unfaltering c- mitment, masterful command of the ?eld, technical

virtuosity, aesthetic expr- sion, eloquent clarity, and creative vigor with humility and devotion to students and colleagues. For over half a century, Trakhtenbrot has been making seminal contributions to virtually all of the central aspects of theoretical computer science, inaugur- ing numerous new areas of investigation. He has displayed an almost prophetic ability to foresee directions that are destined to take center stage, a decade or morebeforeanyoneelsetakesnotice.Hehasneverbeentempted toslowdownor limithisresearchtoareasofendeavorinwhichhehasalreadyearnedrecognitio n and honor. Rather, he continues to probe the limits and position himself at the vanguard of a rapidly developing ?eld, while remaining, as always, unassuming and open-minded.

Abstract State Machines - Egon Börger 2003-04-23

The systems engineering method proposed in this book, which is based on Abstract State Machines (ASMs), guides the development of software and embedded hardware-software systems seamlessly from requirements capture to actual implementation and documentation. The method bridges the gap between the human understanding and formulation of real-world problems and the deployment of their algorithmic solutions by code-executing machines. Within a single conceptual framework it covers design, verification by reasoning techniques, and validation by simulation and testing. ASMs improve current industrial practice by using accurate high-level modeling and by linking the descriptions at the successive stages of system development in an organic and efficiently maintainable chain of rigorous and coherent system models at stepwise-refined abstraction levels. In several industrial projects the ASM method has proven its superiority compared to the popular UML methodology when designing complex parallel or dynamic systems. This book combines the features of a textbook and a handbook: the reader will find detailed explanations, proofs, and exercises as well as numerous examples and real-world case studies. Researchers will find here the most comprehensive description of ASMs available today and professionals will use it as a "modeling handbook for the working software engineer." As a textbook it supports self-study or it can form the basis of a lecture course. Even more information can be found on the related website maintained by the authors: http://www.di.unipi.it/AsmBook/

Design Methods for Reactive Systems - R. J. Wieringa 2003-01-09

Design Methods for Reactive Systems describes methods and techniques for the design of software systems—particularly reactive software systems that engage in stimulus-response behavior. Such systems, which include information systems, workflow management systems, systems for e-commerce, production control systems, and embedded software, increasingly embody design aspects previously considered alone—such as complex information processing, non-trivial behavior, and communication between different components—aspects traditionally treated separately by classic software design methodologies. But, as this book illustrates, the software designer is better served by the ability to intelligently pick and choose from among a variety of techniques according to the particular demands and properties of the system under development. Design Methods for Reactive Systems helps the software designer meet today's increasingly complex challenges by bringing together specification techniques and guidelines proven useful in the design of a wide range of software systems, allowing the designer to evaluate and adapt different techniques for different projects. Written in an exceptionally clear and insightful style, Design Methods for Reactive Systems is a book that students, engineers, teachers, and researchers will undoubtedly find of great value. Shows how the techniques and design approaches of the three most popular design methods can be combined in a flexible, problem-driven manner. Pedagogical features include summaries, rehearsal questions, exercises, discussion questions, and numerous case studies.

Embedded Systems Design - Bruno Bouyssounouse 2005-02-07

Embedded systems now include a very large proportion of the advanced products designed in the world, spanning transport (avionics, space, automotive, trains), electrical and electronic appliances (cameras, toys, televisions, home appliances, audio systems, and cellular phones), process control (energy production and distribution, factory automation

and optimization), telecommunications (satellites, mobile phones and telecom networks), and security (e-commerce, smart cards), etc. The extensive and increasing use of embedded systems and their integration in everyday products marks a significant evolution in information science and technology. We expect that within a short timeframe embedded systems will be a part of nearly all equipment designed or manufactured in Europe, the USA, and Asia. There is now a strategic shift in emphasis for embedded systems designers: from simply achieving feasibility, to achieving optimality. Optimal design of embedded systems means targeting a given market segment at the lowest cost and delivery time possible. Optimality implies seamless integration with the physical and electronic environment while respecting real-world constraints such as hard deadlines, reliability, availability, robustness, power consumption, and cost. In our view, optimality can only be achieved through the emergence of embedded systems as a discipline in its own right.

Computer Aided Verification - Alan J. Hu 1998-06-03

This book consitutes the refereed proceedings of the 10th International Conference on Computer Aided Verification, CAV'98, held in Vancouver, BC, Canada, in June/July 1998. The 33 revised full papers and 10 tool papers presented were carefully selected from a total of 117 submissions. Also included are 11 invited contributions. Among the topics covered are modeling and specification formalisms; verification techniques like state-space exploration, model checking, synthesis, and automated deduction; various verification techniques; applications and case studies, and verification in practice.

Computer Safety, Reliability, and Security - Stuart Anderson 2003-09-12

This book constitutes the refereed proceedings of the 22nd International Conference on Computer Safety, Reliability and Security, SAFECOMP 2003, held in Edinburgh, UK in September 2003. The 30 revised full papers presented together with two keynote talk abstracts were carefully reviewed and selected from 96 submissions. The papers are organized in topical sections on formal methods, design for dependability, security and formal methods, dependability and performance analysis, dependability of medical systems, fault tolerance, tools for dependable design, dependability of critical infrastructures, hazard and safety analysis, and design for dependability.

Reconfigurable Embedded Control Systems: Applications for Flexibility and Agility - Khalgui, Mohamed 2010-11-30

"This book addresses the development of reconfigurable embedded control systems and describes various problems in this important research area, which include static and dynamic (manual or automatic) reconfigurations, multi-agent architectures, modeling and verification, component-based approaches, architecture description languages, distributed reconfigurable architectures, real-time and low power scheduling, execution models, and the implementation of such systems"--

Perspectives in Business Informatics Research - Knut Hinkelmann

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