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System-level Test and Validation of Hardware/Software Systems Jan 24 2021 New manufacturing technologies have made possible the integration of entire systems on a single chip. This new design paradigm, termed system-on-chip (SOC), together with its associated manufacturing problems, represents a real challenge for designers. SOC is also reshaping approaches to test and validation activities. These are beginning to migrate from the traditional register-transfer or gate levels of abstraction to the system level. Until now, test and validation have not been supported by system-level design tools so designers have lacked the infrastructure to exploit all the benefits stemming from the adoption of the system level of abstraction. Research efforts are already addressing this issue. This monograph provides a state-of-the-art overview of the current validation and test techniques by covering all aspects of the subject including: modeling of bugs and defects; stimulus generation for validation and test purposes (including timing errors; design for testability).

Module Theory Jun 11 2022 This book presents topics in module theory and ring theory: some, such as Goldie dimension and semiperfect rings are now considered classical and others more specialized, such as dual Goldie dimension, semilocal endomorphism rings, serial rings and modules.

Software and Systems Architecture in Action Dec 30 2023 Modern-day projects require software and systems engineers to work together in realizing architectures of large and complex software-intensive systems. To date, the two have used their own tools and methods to deal with similar issues when it comes to the requirements, design, testing, maintenance, and evolution of these architectures. Software and

Product Focused Software Process Improvement Mar 09 2022 The Third International Conference on Product Focused Software Process Improvement (PROFES 2001) continued the success of the PROFES'99 and PROFES 2000 conferences. PROFES 2001 was organized in Kaiserslautern, Germany, September 10-13, 2001. The PROFES conference has its roots in the PROFES Esprit project (<http://www.ele.vtt.fi/profes/>), but it quickly evolved into a full fledged general purpose conference in 1999 and since then it has gained wide spread international popularity. As in previous years, the main theme of PROFES 2001 was professional software process improvement (SPI) motivated by product and service quality needs. SPI is facilitated by software process assessment, software measurement, process modeling, and technology transfer and has become a practical tool for quality software engineering and management. The conference addresses both the solutions found in practice as well as relevant research results from academia. The purpose of the conference is to bring to light the most recent findings and results in the area and to stimulate discussion between the researchers, experienced professionals, and technology providers for SPI.

Digital Business and Intelligent Systems May 30 2021 This book constitutes the refereed proceedings of the 15th International Baltic Conference on Digital Business and Intelligent Systems, Baltic DB&IS 2022, held in Riga, Latvia, in July 2022. The 16 revised full papers and 1 short paper presented were carefully reviewed and selected from 42 submissions. The papers are centered around topics like architectures and quality of information systems, artificial intelligence in information systems, data and knowledge engineering, enterprise and information systems engineering, security of information systems.

Intelligent Systems and Networks Aug 26 2023 This book presents Proceedings of the International Conference on Intelligent Systems and Networks (ICISN 2022), held at Hanoi in Vietnam. It includes peer reviewed high quality articles on Intelligent System and Networks. It

brings together professionals and researchers in the area and presents a platform for exchange of ideas and to foster future collaboration. The topics covered in this book include- Foundations of Computer Science; Computational Intelligence Language and speech processing; Software Engineering Software development methods; Wireless Communications Signal Processing for Communications; Electronics track IoT and Sensor Systems Embedded Systems; etc.

Computer Systems and Software Engineering Sep 14 2022 Computer Systems and Software Engineering is a compilation of sixteen state-of-the-art lectures and keynote speeches given at the COMPEURO '92 conference. The contributions are from leading researchers, each of whom gives a new insight into subjects ranging from hardware design through parallelism to computer applications. The pragmatic flavour of the contributions makes the book a valuable asset for both researchers and designers alike. The book covers the following subjects: Hardware Design: memory technology, logic design, algorithms and architecture; Parallel Processing: programming, cellular neural networks and load balancing; Software Engineering: machine learning, logic programming and program correctness; Visualization: the graphical computer interface.

Economic Systems in the New Era: Stable Systems in an Unstable World Aug 02 2021 This proceedings book presents outcomes of the Innovative Economic Symposium – 2020 organized by the Institute of Technology and Business in České Budějovice (VŠTE) in Russia in collaboration with two universities: Financial University under the Government of the Russian Federation (Moscow) and Samara State University of Economics (Samara). The symposium aims to bring together experts and young scientists in economy, management, international relations, finance, marketing, and professional education from Asian and European countries, to share knowledge and experience and discuss issues related to stable economic development, international business, entrepreneurship, Industry 4.0, cooperation between educational and business structures, strategic decision-making, and processes of economic globalization and fragmentation. The book consists of two parts corresponding to the thematic symposium areas. The book content covers two sections: stable development in unstable world and globalization and fragmentation forces of the current world economy. The main topics included in the book are as follows: - Where is the world moving to and where is the economy in it? - Institutionalization of innovations. - Network architecture of economic relations. - Competences for the future. - Smart change management. - Monetary and fiscal policy development as a factor of economic modernization. - Role of international trade in the economy globalization. - Impact of globalization and economic fragmentation on the enterprise's internal environment. - Financial conditions for entrepreneurship under the economic modernization. - Impact of scientific and technological progress on globalization and fragmentation of the economy.

Fundamentals of Quality Control and Improvement Jan 07 2022 The newest edition of an insightful and practical statistical approach to quality control and management In the newly revised and thoroughly updated Fifth Edition of *Fundamentals of Quality Control and Improvement*, accomplished academic, consultant, and author Dr. Amitava Mitra delivers a comprehensive and quantitative approach to quality management techniques. The book demonstrates how to integrate statistical concepts with quality assurance methods, incorporating modern ideas, strategies, and philosophies of quality management. You'll discover experimental design concepts and the use of the Taguchi method to incorporate customer needs, improve lead time, and reduce costs. The new edition also includes brand-new case studies at the end of several chapters, references to the statistical software Minitab 19, and chapter updates that add discussions of trending and exciting topics in quality control. The book includes access to supplementary material for instructors consisting of a new instructor's solutions manual and PowerPoint slides, as well as access to data sets for all readers. Readers will also benefit from the inclusion of: A thorough introduction to the evolution of quality and definitions of quality, quality control, quality assurance, quality circles, and quality improvement teams An exploration of customer needs and market share, as well as the benefits of quality control and the total quality system Practical discussions of quality and reliability, quality improvement, product and service costing, and quality costs A concise treatment of how to measure quality costs, the management of quality, and the interrelationship between quality and

productivity Perfect for upper-level undergraduate and graduate students in quality control and improvement, the Fifth Edition of Fundamentals of Quality Control and Improvement will also earn a place in the libraries of business students and those undertaking training programs in Six Sigma.

Emerging Solutions for Future Manufacturing Systems May 03 2024 Industries and particularly the manufacturing sector have been facing difficult challenges in a context of socio-economic turbulence characterized by complexity as well as the speed of change in causal interconnections in the socio-economic environment. In order to respond to these challenges companies are forced to seek new technological and organizational solutions. In this context two main characteristics emerge as key properties of a modern automation system - agility and distribution. Agility because systems need not only to be flexible in order to adjust to a number of a-priori defined scenarios, but rather must cope with unpredictability. Distribution in the sense that automation and business processes are becoming distributed and supported by collaborative networks. Emerging Solutions for Future Manufacturing Systems includes the papers selected for the BASYS'04 conference, which was held in Vienna, Austria in September 2004 and sponsored by the International Federation for Information Processing (IFIP).

Global Software Development Handbook Sep 02 2021 Economics and technology have dramatically re-shaped the landscape of software development. It is no longer uncommon to find a software development team dispersed across countries or continents. Geographically distributed development challenges the ability to clearly communicate, enforce standards, ensure quality levels, and coordinate tasks. Globa

Photovoltaic Systems Engineering, Third Edition Mar 28 2021 The U.S. Department of Energy now estimates a factor of 14 increase in grid-connected systems between 2009 and 2017, depending upon various factors such as incentives for renewables and availability and price of conventional fuels. With this fact in mind, Photovoltaic Systems Engineering, Third Edition presents a comprehensive engineering basis for photovoltaic (PV) system design, so engineers can understand the what, why, and how associated with the electrical, mechanical, economic, and aesthetic aspects of PV system design. Building on the popularity of the first two editions, esteemed authors Roger Messenger and Jerry Ventre explore the significant growth and new ideas in the PV industry. They integrate their experience in system design and installation gained since publication of the last edition. Intellectual tools to help engineers and students to understand new technologies and ideas in this rapidly evolving field The book educates about the design of PV systems so that when engineering judgment is needed, the engineer can make intelligent decisions based on a clear understanding of the parameters involved. This goal differentiates this textbook from the many design and installation manuals that train the reader how to make design decisions, but not why. The authors explain why a PV design is executed a certain way, and how the design process is actually implemented. In exploring these ideas, this cutting-edge book presents: An updated background of energy production and consumption Mathematical background for understanding energy supply and demand A summary of the solar spectrum, how to locate the sun, and how to optimize the capture of its energy Analysis of the components used in PV systems Also useful for students, the text is full of additional practical considerations added to the theoretical background associated with mechanical and structural design. A modified top-down approach organizes the material to quickly cover the building blocks of the PV system. The focus is on adjusting the parameters of PV systems to optimize performance. The last two chapters present the physical basis of PV cell operation and optimization. Presenting new problems based upon contemporary technology, this book covers a wide range of topics—including chemistry, circuit analysis, electronics, solid state device theory, and economics—this book will become a relied upon addition to any engineer's library.

Reliability and Risk Issues in Large Scale Safety-critical Digital Control Systems Nov 04 2021 "Reliability and Risk Issues in Large Scale Safety-critical Digital Control Systems" provides a comprehensive coverage of reliability issues and their corresponding countermeasures in the field of large-scale digital control systems, from the hardware and software in digital systems to the human

operators who supervise the overall process of large-scale systems. Unlike other books which examine theories and issues in individual fields, this book reviews important problems and countermeasures across the fields of software reliability, software verification and validation, digital systems, human factors engineering and human reliability analysis. Divided into four sections dealing with software reliability, digital system reliability, human reliability and human operators in large-scale digital systems, the book offers insights from professional researchers in each specialized field in a diverse yet unified approach.

Concise Guide to Software Engineering Mar 21 2023 This textbook presents a concise introduction to the fundamental principles of software engineering, together with practical guidance on how to apply the theory in a real-world, industrial environment. The wide-ranging coverage encompasses all areas of software design, management, and quality. Topics and features: presents a broad overview of software engineering, including software lifecycles and phases in software development, and project management for software engineering; examines the areas of requirements engineering, software configuration management, software inspections, software testing, software quality assurance, and process quality; covers topics on software metrics and problem solving, software reliability and dependability, and software design and development, including Agile approaches; explains formal methods, a set of mathematical techniques to specify and derive a program from its specification, introducing the Z specification language; discusses software process improvement, describing the CMMI model, and introduces UML, a visual modelling language for software systems; reviews a range of tools to support various activities in software engineering, and offers advice on the selection and management of a software supplier; describes such innovations in the field of software as distributed systems, service-oriented architecture, software as a service, cloud computing, and embedded systems; includes key learning topics, summaries and review questions in each chapter, together with a useful glossary. This practical and easy-to-follow textbook/reference is ideal for computer science students seeking to learn how to build high quality and reliable software on time and on budget. The text also serves as a self-study primer for software engineers, quality professionals, and software managers.

Knowledge-Based Intelligent Information and Engineering Systems May 11 2022 The four volume set LNAI 3681, LNAI 3682, LNAI 3683, and LNAI 3684 constitute the refereed proceedings of the 9th International Conference on Knowledge-Based Intelligent Information and Engineering Systems, KES 2005, held in Melbourne, Australia in September 2005. The 716 revised papers presented were carefully reviewed and selected from nearly 1400 submissions. The papers present a wealth of original research results from the field of intelligent information processing in the broadest sense; topics covered in the fourth volume are innovations in intelligent systems and their applications, data mining and soft computing applications, skill acquisition and ubiquitous human computer interaction, soft computing and their applications, agent-based workflows, knowledge sharing and reuse, multi-media authentication and watermarking applications, knowledge and engineering techniques for spatio-temporal applications, intelligent data analysis and applications, creativity support environment and its social applications, collective intelligence, computational methods for intelligent neuro-fuzzy applications, evolutionary and self-organizing sensors, actuators and processing hardware, knowledge based systems for e-business and e-learning, multi-agent systems and evolutionary computing, ubiquitous pattern recognition, neural networks for data mining, and knowledge-based technology in crime matching, modelling and prediction.

Transmit Receive Modules for Radar and Communication Systems May 23 2023 The use of electronically scanned phased arrays is increasing in systems such as radar, wireless networks, and satellite ground terminals. An important and necessary component for these systems is the transmit receive (T/R) module, which provides the amplification and electronic beam steering that is required for proper function. This new resource presents a comprehensive overview of all design, fabrication, integration, and implementation issues associated with T/R modules for radar and communications. This book provides engineers and researchers with practical designs and 44 examples of analysis, circuits, and components used in T/R modules. It also provides a solid explanation of the theory for

how T/R modules operate and how they can be optimized. In addition, this book shows how the latest technical advances in silicon germanium (SiGe) and gallium nitride (GaN) are allowing levels of performance that were previously unachievable. The book concludes with informative chapters on testing, cost considerations, and the future of next generation T/R modules.

Hardware and Software Architectures for Fault Tolerance Nov 28 2023 Fault tolerance has been an active research area for many years. This volume presents papers from a workshop held in 1993 where a small number of key researchers and practitioners in the area met to discuss the experiences of industrial practitioners, to provide a perspective on the state of the art of fault tolerance research, to determine whether the subject is becoming mature, and to learn from the experiences so far in order to identify what might be important research topics for the coming years. The workshop provided a more intimate environment for discussions and presentations than usual at conferences. The papers in the volume were presented at the workshop, then updated and revised to reflect what was learned at the workshop.

Logistics Management and Optimization through Hybrid Artificial Intelligence Systems Jun 04 2024 "This book offers the latest research within the field of HAIS, surveying the broad topics and collecting case studies, future directions, and cutting edge analyses, investigating biologically inspired algorithms such as ant colony optimization and particle swarm optimization"--

Innovations and Advances in Computer Sciences and Engineering Jan 19 2023 Innovations and Advances in Computer Sciences and Engineering includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the areas of Computer Science, Software Engineering, Computer Engineering, and Systems Engineering and Sciences. Innovations and Advances in Computer Sciences and Engineering includes selected papers from the conference proceedings of the International Conference on Systems, Computing Sciences and Software Engineering (SCSS 2008) which was part of the International Joint Conferences on Computer, Information and Systems Sciences and Engineering (CISSE 2008).

Solar Power Generation Problems, Solutions, and Monitoring Jun 23 2023 Solar Power Generation Problems, Solutions, and Monitoring is a valuable resource for researchers, professionals and graduate students interested in solar power system design. Written to serve as a pragmatic resource for solar photovoltaic power systems financing, it outlines real-life, straightforward design methodology. Using numerous examples, illustrations and an easy to follow design methodology, Peter Gevorkian discusses some of the most significant issues that concern solar power generation including: power output; energy monitoring and energy output enhancement; fault detection; fire and life safety hazard mitigation; and detailed hardware, firmware and software analytic solutions required to resolve solar power technology shortcomings. This essential reference also highlights the significant issues associated with large scale solar photovoltaic and solar power generation technology covering design, construction, deployment and fault detection monitoring as well as life safety hazards.

Software and Organisations Oct 28 2023 This is the first book that addresses the genesis and career of the modern day enterprise system in a comprehensive and robust manner. It does so through setting out a new approach for the study of packaged solutions and presents novel empirical studies based on in-depth ethnographic and longitudinal research conducted within supplier organisations

Implementing Electronic Document and Record Management Systems Dec 06 2021 The global shift toward delivering services online requires organizations to evolve from using traditional paper files and storage to more modern electronic methods. There has however been very little information on just how to navigate this change-until now. Implementing Electronic Document and Record Management Systems explains how to efficiently

Global Implications of Modern Enterprise Information Systems: Technologies and Applications Jul 01 2021 "This book presents useful strategies, techniques, and tools for the successful design, development, and implementation of enterprise information systems"--Provided by publisher.

Software Engineering Apr 21 2023 Software engineering is as much about teamwork as it is about technology. This introductory textbook covers both. For courses featuring a team project, it offers tips and templates for aligning classroom concepts with the needs of the students' projects. Students will learn how software is developed in industry by adopting agile methods, discovering requirements, designing modular systems, selecting effective tests, and using metrics to track progress. The book also covers the 'why' behind the 'how-to', to prepare students for advances in industry practices. The chapters explore ways of eliciting what users really want, how clean architecture divides and conquers the inherent complexity of software systems, how test coverage is essential for detecting the inevitable defects in code, and much more. Ravi Sethi provides real-life case studies and examples to demonstrate practical applications of the concepts. Online resources include sample project materials for students, and lecture slides for instructors.

Intelligent Software for Chemical Analysis Nov 16 2022 Various emerging techniques for automating intelligent functions in the laboratory are described in this book. Explanations on how systems work are given and possible application areas are suggested. The main part of the book is devoted to providing data which will enable the reader to develop and test his own systems. The emphasis is on expert systems; however, promising developments such as self-adaptive systems, neural networks and genetic algorithms are also described. The book has been written by chemists with a great deal of practical experience in developing and testing intelligent software, and therefore offers first-hand knowledge. Laboratory staff and managers confronted with commercial intelligent software will find information on the functioning, possibilities and limitations thereof, enabling them to select and use modern software in an optimum fashion. Finally, computer scientists and information scientists will find a wealth of data on the application of contemporary artificial intelligence techniques.

Information Hiding Dec 18 2022 This volume constitutes the refereed post-proceedings of the 8th International Workshop on Information Hiding held in Alexandria, Virginia, in July 2006. Twenty-five carefully reviewed full papers are organized into topical sections covering watermarking, information hiding and networking, data hiding in unusual content, fundamentals, software protection, steganalysis, steganography, and subliminal channels.

Engineering Secure Software and Systems Jul 13 2022 This book constitutes the refereed proceedings of the Third International Symposium on Engineering Secure Software and Systems, ESSoS 2011, held in Madrid, Italy, in February 2011. The 18 revised full papers presented together with 3 idea papers were carefully reviewed and selected from 63 submissions. The papers are organized in topical sections on model-based security, tools and mechanisms, Web security, security requirements engineering, and authorization.

Review of Modern Engineering Solutions for the Industry Mar 01 2024 These proceedings of the 2012 International Conference on Mechatronic Systems and Automation Systems (MSAS 2012), held on July 21st 2012 in Wuhan (China), comprise 102 peer-reviewed papers grouped into 6 chapters: Mechatronic Devices and Systems; Signal Processing and Measurement; Control and Automation Systems; Sensors; Material Science and Processing Technology in Manufacturing; Mechanical Engineering and Electrical Power

Desiccant Heating, Ventilating, and Air-Conditioning Systems Oct 04 2021 This book presents the necessary fundamental knowledge in the research, development, design, selection, and application of desiccant heating, ventilating, and air-conditioning systems. It covers the established installations in different climatic conditions and building types. In addition, advanced performance evaluation techniques are presented, covering thermodynamic, economic, and environmental aspects. Hence, the book is an important resource for undergraduate and graduate students, design and installation engineers, researchers and scientists, building owners and occupants, and energy and environmental policy makers.

ICTERI 2021 Workshops Sep 26 2023 This book contains the workshops papers presented at the 17th International Conference on Information and Communication Technologies in Education, Research, and Industrial Applications, ICTERI 2021, held in Kherson, Ukraine, in September-

October 2021. The 33 revised full papers and 4 short papers included in this volume were carefully reviewed and selected from 105 initial submissions. The papers are organized according to the following workshops: 9th International Workshop on Information Technology in Economic Research (ITER 2021); 5th International Workshop on Methods, Resources and Technologies for Open Learning and Research (MROL 2021); International Workshop RMSEBT 2021: Rigorous Methods in Software Engineering and Blockchain Technologies; 7th International Workshop on Theory of Reliability and Markov Modeling for Information Technologies (TheRMIT 2021); 1st Ukrainian Natural Language Processing Workshop (UNLP 2021).

A Philosophy of Software Design Aug 14 2022

Software Engineering and Testing Apr 29 2021 This book is designed for use as an introductory software engineering course or as a reference for programmers. Up-to-date text uses both theory applications to design reliable, error-free software. Includes a companion CD-ROM with source code third-party software engineering applications.

Software Engineering Feb 25 2021 This work aims to provide the reader with sound engineering principles, whilst embracing relevant industry practices and technologies, such as object orientation and requirements engineering. It includes a chapter on software architectures, covering software design patterns.

Agile Processes in Software Engineering and Extreme Programming Apr 09 2022 Interest in agile development continues to grow: the number of practitioners adopting such methodologies is increasing as well as the number of researchers investigating the effectiveness of the different practices and proposing improvements. The XP conference series has actively participated in these processes and supported the evolution of Agile, promoting the conference as a place where practitioners and researchers meet to exchange ideas, experiences, and build connections. XP 2010 continued in the tradition of this conference series and provided an interesting and varied program. As usual, we had a number of different kinds of activities in the conference program including: research papers, experience reports, tutorials, workshops, panels, lightning talks, and posters. These proceedings contain full - search papers, short research papers, and experience reports. Moreover, we have also included in these proceedings the abstracts of the posters, the position papers of the PhD symposium, and the abstract of the panel. This year we had two different program committees for evaluating research papers and experience reports. Each committee included experts in the specific area. This approach allowed us to better evaluate the quality of the papers and provide better suggestions to the authors to improve the quality of their contributions.

Modules, Systems, and Applications in Thermoelectrics Jul 25 2023 Comprising two volumes, Thermoelectrics and Its Energy Harvesting reviews the dramatic improvements in technology and application of thermoelectric energy with a specific intention to reduce and reuse waste heat and improve novel techniques for the efficient acquisition and use of energy. This volume, Modules, Systems and Applications in Thermoelec

Encyclopedia of Artificial Intelligence Jan 31 2024 "This book is a comprehensive and in-depth reference to the most recent developments in the field covering theoretical developments, techniques, technologies, among others"--Provided by publisher.

Cyclic Modules and the Structure of Rings Feb 17 2023 This unique and comprehensive volume provides an up-to-date account of the literature on the subject of determining the structure of rings over which cyclic modules or proper cyclic modules have a finiteness condition or a homological property. The finiteness conditions and homological properties are closely interrelated in the sense that either hypothesis induces the other in some form. This is the first book to bring all of this important material on the subject together. Over the last 25 years or more numerous mathematicians have investigated rings whose factor rings or factor modules have a finiteness condition or a homological property. They made important contributions leading to new directions and questions, which are listed at the end of each chapter for the benefit of future researchers. There is a wealth of material on the topic which is combined in this book, it contains more than 200 references and is not claimed to be exhaustive. This book will appeal to graduate students,

researchers, and professionals in algebra with a knowledge of basic noncommutative ring theory, as well as module theory and homological algebra, equivalent to a one-year graduate course in the theory of rings and modules.

Foundations of Intelligent Systems Apr 02 2024 This volume contains the papers selected for presentation at the 17th International Symposium on Methodologies for Intelligent Systems (ISMIS 2008), held in York University, Toronto, Canada, May 21–23, 2008. ISMIS is a conference series started in 1986. Held twice every three years, ISMIS provides an international forum for exchanging scientific research and technological achievements in building intelligent systems. Its goal is to achieve a vibrant interchange between researchers and practitioners on fundamental and advanced issues related to intelligent systems. ISMIS 2008 featured a selection of latest research work and applications from the following areas related to intelligent systems: active media human–computer interaction, autonomic and evolutionary computation, digital libraries, intelligent agent technology, intelligent information retrieval, intelligent information systems, intelligent language processing, knowledge representation and integration, knowledge discovery and data mining, knowledge visualization, logic for artificial intelligence, soft computing, Web intelligence, and Web services. Researchers and developers from 29 countries submitted more than 100 full papers to the conference. Each paper was rigorously reviewed by three committee members and external reviewers. Out of these submissions, 40% were selected as regular papers and 22% as short papers. ISMIS 2008 also featured three plenary talks given by John Mylopoulos, Jiawei Han and Michael Lowry. They spoke on their recent research in age-oriented software engineering, information network mining, and intelligent software engineering tools, respectively.

Software Architecture and Design for Reliability Predictability Oct 16 2022 Reliability prediction of a software product is complex due to interdependence and interactions among components and the difficulty of representing this behavior with tractable models. Models developed by making simplifying assumptions about the software structure may be easy to use, but their result may be far from what happens in reality. Making assumptions closer to the reality, which allows complex interactions and interdependences among components, results in models that are too complex to use. Their results may also be too difficult to interpret. The reliability prediction problem is worsened by the lack of precise information on the behavior of components and their interactions, information that is relevant for reliability modeling. Usually, the interactions are not known precisely because of subtle undocumented side effects. Without accurate precise information, even mathematically correct models will not yield accurate reliability predictions. Deriving the necessary information from program code is not practical if not impossible. This is because the code contains too much implementation detail to be useful in creating a tractable model. It is also difficult to analyze system reliability completely based on the program code. This book documents the resulting novel approach of designing, specifying, and describing the behavior of software systems in a way that helps to predict their reliability from the reliability of the components and their interactions. The design approach is named design for reliability predictability (DRP). It integrates design for change, precise behavioral documentation and structure based reliability prediction to achieve improved reliability prediction of software systems. The specification and documentation approach builds upon precise behavioral specification of interfaces using the trace function method (TFM). It also introduces a number of structure functions or connection documents. These functions capture both the static and dynamic behaviors of component based software systems. They are used as a basis for a novel document driven structure based reliability prediction model. System reliability assessment is studied in at least three levels: component reliability, which is assumed to be known; interaction reliability, a novel approach to studying software reliability; and service reliability, whose estimation is the primary objective of reliability assessment. System reliability can be expressed as a function of service reliability. A mobile streaming system, designed and developed by the author as an industrial product, is used as a case study to demonstrate the application of the approach.

Designing Distributed Learning Environments with Intelligent Software Agents Feb 05 2022

Designing Distributed Learning Environments with Intelligent Software Agents reports on the most

recent advances in agent technologies for distributed learning. Chapters are devoted to the various aspects of intelligent software agents in distributed learning, including the methodological and technical issues on where and how intelligent agents can contribute to meeting distributed learning needs today and tomorrow. This book benefits the AI (artificial intelligence) and educational communities in their research and development, offering new and interesting research issues surrounding the development of distributed learning environments in the Semantic Web age. In addition, the ideas presented in the book are applicable to other domains such as Agent-Supported Web Services, distributed business process and resource integration, computer-supported collaborative work (CSCW) and e-Commerce.