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[Modeling Discrete-Event Systems with GPenSIM](#) Oct 14 2021 [Modeling Discrete-Event Systems with GPenSIM](#) describes the design and applications of General Purpose Petri Net Simulator (GPenSIM), which is a software tool for modeling, simulation, and performance analysis of discrete-event systems. The brief explains the principles of modelling discrete-event systems, as well as the design and applications of GPenSIM. It is based on the author's lectures that were given on "modeling, simulation, and performance analysis of discrete event systems". The brief uses GPenSIM to enable the efficient modeling of complex and large-scale discrete-event systems. GPenSIM, which is based on MATLAB®, is designed to allow easy integration of Petri net models with a vast number of toolboxes that are available on the MATLAB®. The book offers an approach for developing models that can interact with the external environment; this will help readers to solve problems in industrial diverse fields. These problems include: airport capacity evaluation for aviation authorities; finding bottlenecks in supply chains; scheduling drilling operations in the oil and gas industry; and optimal scheduling of jobs in grid computing. This brief is of interest to researchers working on the modeling, simulation and performance evaluation of discrete-event systems, as it shows them the design and applications of an efficient modeling package. Since the book also explains the basic principles of modeling discrete-event systems in a step-by-step manner, it is also of interest to final-year undergraduate and postgraduate students.

[Issues in Artificial Intelligence, Robotics and Machine Learning: 2013 Edition](#) Jan 25 2020 [Issues in Artificial Intelligence, Robotics and Machine Learning: 2013 Edition](#) is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Expert Systems. The editors have built [Issues in Artificial Intelligence, Robotics and Machine Learning: 2013 Edition](#) on the vast information databases of ScholarlyNews.™ You can expect the information about Expert

Systems in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of *Issues in Artificial Intelligence, Robotics and Machine Learning: 2013 Edition* has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Multifaceted Modelling and Discrete Event Simulation Aug 20 2019

Innovative Techniques in Instruction Technology, E-learning, E-assessment and Education Dec 04 2020 *Innovative Techniques in Instruction Technology, E-Learning, E-Assessment and Education* is a collection of world-class paper articles addressing the following topics: (1) E-Learning including development of courses and systems for technical and liberal studies programs; online laboratories; intelligent testing using fuzzy logic; evaluation of on line courses in comparison to traditional courses; mediation in virtual environments; and methods for speaker verification. (2) Instruction Technology including internet textbooks; pedagogy-oriented markup languages; graphic design possibilities; open source classroom management software; automatic email response systems; tablet-pcs; personalization using web mining technology; intelligent digital chalkboards; virtual room concepts for cooperative scientific work; and network technologies, management, and architecture. (3) Science and Engineering Research Assessment Methods including assessment of K-12 and university level programs; adaptive assessments; auto assessments; assessment of virtual environments and e-learning. (4) Engineering and Technical Education including cap stone and case study course design; virtual laboratories; bioinformatics; robotics; metallurgy; building information modeling; statistical mechanics; thermodynamics; information technology; occupational stress and stress prevention; web enhanced courses; and promoting engineering careers. (5) Pedagogy including benchmarking; group-learning; active learning; teaching of multiple subjects together; ontology; and knowledge representation. (6) Issues in K-12 Education including 3D virtual learning environment for children; e-learning tools for children; game playing and systems thinking; and tools to learn how to write foreign languages.

Model Checking Software Dec 24 2019 This book constitutes the refereed proceedings of the 23rd International Symposium on Model Checking Software, SPIN 2016, held in Eindhoven, The Netherlands, in April 2016. The 16 papers presented, consisting of 11 regular papers, 1 idea paper, and 4 tool demonstrations, were carefully reviewed and selected from 27 submissions. Topics covered include model checking techniques, model checking tools, concurrent system semantics, equivalence checking, temporal logics, probabilistic systems, schedule and strategy synthesis using model checking, and verification case studies.

Simulation of Industrial Systems Apr 20 2022 In any production environment, discrete event simulation is a powerful tool for the analysis, planning, and operating of a manufacturing facility. Operations managers can use simulation to improve their production systems by eliminating bottlenecks, reducing cycle time and cost, and increasing capacity utilization. Offering a hands-on tutorial on h

Complex Event Processing Oct 02 2020 Eine wichtige Aufgabe für die IT der vernetzten Welt ist die maschinelle Auswertung und Verarbeitung von Informationen, die für eine Anwendung relevant sind und übers Netz verschickt werden. Mit Complex Event Processing (CEP) können große Mengen von zeitbehafteten Daten unterschiedlichster Art in nahezu Echtzeit analysiert und weiterverarbeitet werden. Die grundlegende Vorgehensweise beim CEP entspricht der menschlichen Entscheidungsfindung in Prozessabläufen des täglichen Lebens und stellt eine Erweiterung bekannter Methoden des Data Analytics wie Data Mining, statistische Analyse oder regelbasierte Wissensverarbeitung dar. Typische Anwendungsgebiete sind Big-Data-Systeme, Internet of Things, Industrie 4.0.

Applied System Simulation Aug 12 2021 Simulation and modeling are efficient techniques that can aid the city and regional planners and engineers in optimizing the operation of urban systems such

as traffic light control, highway toll automation, consensus building, public safety, and environmental protection. When modeling transportation systems such as freeway systems, arterial or downtown grid systems, the city planner and engineer is concerned with capturing the varied interactions between drivers, automobiles, and the infrastructure. Modeling and simulation are used to effectively optimize the design and operation of all of these urban systems. It is possible that in an urban simulation community workshop, citizens can work interactively in front of computers and be able using the click of the mouse to walk up to their own front porch, looking at the proposed shopping mall alternatives across the street from virtually any angle and proposed bridge or tunnel and see how it can reduce traffic congestion. Buildings can be scaled down or taken out, their orientation can be changed in order to check the view and orientation in order to have better site with efficient energy-conservation. The stone or brick material on a building can be replaced by colored concrete, or more trees and lampposts can be placed on the site. Such flexibility in simulation and animation allows creative ideas in the design and orientation of urban sites to be demonstrated to citizens and decision makers before final realization.

Enhancing Embedded Systems Simulation Mar 07 2021 Christian Köhler covers the connection between μ C and simulation, the interface abstraction as well as the analysis and optimization of coupling systems with the Chip-Hardware-in-the-Loop Simulation (CHILS) approach. He develops the hardware to simulation coupling system with a focus on less hardware effort, the capabilities to couple with different simulation environments, and the efficiency of coupling. Furthermore, the author presents existing concepts to simulate complex systems and compares them with the new approach.

Recent Advances in Intelligent Manufacturing Jun 17 2019 The three-volume set CCIS 923, CCIS 924, and CCIS 925 constitutes the thoroughly refereed proceedings of the First International Conference on Intelligent Manufacturing and Internet of Things, and of the 5th International Conference on Intelligent Computing for Sustainable Energy and Environment, ICSEE 2018, held in Chongqing, China, in September 2018. The 135 revised full papers presented were carefully reviewed and selected from over 385 submissions. The papers of this volume are organized in topical sections on: digital manufacturing; industrial product design; logistics, production and operation management; manufacturing material; manufacturing optimization; manufacturing process; mechanical transmission system; robotics.

Stochastic Discrete Event Systems May 21 2022 Stochastic discrete-event systems (SDES) capture the randomness in choices due to activity delays and the probabilities of decisions. This book delivers a comprehensive overview on modeling with a quantitative evaluation of SDES. It presents an abstract model class for SDES as a pivotal unifying result and details important model classes. The book also includes nontrivial examples to explain real-world applications of SDES.

Performance Evaluation of Industrial Systems Jun 10 2021 Basic approaches to discrete simulation have been process simulation languages (e.g., GPSS) and event-scheduling type (e.g., SIMSCRIPT). The trade-offs are that event-scheduling languages offer more modeling flexibility and process-oriented languages are more intuitive to the user. With these considerations in mind, authors David Elizandro and Hamdy Taha embarked on the development of a new discrete simulation environment that is easy to use, yet flexible enough to model complex production systems. They introduced this environment, Design Environment for Event Driven Simulation (DEEDS), in *Simulation of Industrial Systems: Discrete Event Simulation in Using Excel/VBA*. The DEEDS environment is itself an Excel/VBA add-in. Based on this foundation, the second edition, now titled *Performance Evaluation of Industrial Systems: Discrete Event Simulation in Using Excel/VBA* incorporates the use of discrete simulation to statistically analyze a system and render the most efficient time sequences, designs, upgrades, and operations. This updated edition includes new visualization graphics for DEEDS software, improvements in the optimization of the simulation algorithms, a new chapter on queuing models, and an Excel 2007 version of the DEEDS software. Organized into three parts, the book presents concepts of discrete simulation, covers DEEDS, and discusses a variety of applications using DEEDS. The flexibility of DEEDS makes it a great tool for students or novices to learn

concepts of discrete simulation and this book can form the basis of an introductory undergraduate course on simulation. The expanded depth of coverage in the second edition gives it a richness other introductory texts do not have and provides practitioners a reference for their simulation projects. It may also be used as a research tool by faculty and graduate students who are interested in "optimizing" production systems.

Discrete-Event Modeling and Simulation Sep 01 2020 Collecting the work of the foremost scientists in the field, *Discrete-Event Modeling and Simulation: Theory and Applications* presents the state of the art in modeling discrete-event systems using the discrete-event system specification (DEVS) approach. It introduces the latest advances, recent extensions of formal techniques, and real-world examples of various applications. The book covers many topics that pertain to several layers of the modeling and simulation architecture. It discusses DEVS model development support and the interaction of DEVS with other methodologies. It describes different forms of simulation supported by DEVS, the use of real-time DEVS simulation, the relationship between DEVS and graph transformation, the influence of DEVS variants on simulation performance, and interoperability and composability with emphasis on DEVS standardization. The text also examines extensions to DEVS, new formalisms, and abstractions of DEVS models as well as the theory and analysis behind real-world system identification and control. To support the generation and search of optimal models of a system, a framework is developed based on the system entity structure and its transformation to DEVS simulation models. In addition, the book explores numerous interesting examples that illustrate the use of DEVS to build successful applications, including optical network-on-chip, construction/building design, process control, workflow systems, and environmental models. A one-stop resource on advances in DEVS theory, applications, and methodology, this volume offers a sampling of the best research in the area, a broad picture of the DEVS landscape, and trend-setting applications enabled by the DEVS approach. It provides the basis for future research discoveries and encourages the development of new applications.

Computernetzwerke und Internets Jan 05 2021

[Performance Evaluation for Network Services, Systems and Protocols](#) Feb 06 2021 This book provides a comprehensive view of the methods and approaches for performance evaluation of computer networks. It offers a clear and logical introduction to the topic, covering both fundamental concepts and practical aspects. It enables the reader to answer a series of questions regarding performance evaluation in modern computer networking scenarios, such as 'What, where, and when to measure?', 'Which time scale is more appropriate for a particular measurement and analysis?', 'Experimentation, simulation or emulation? Why?', and 'How do I best design a sound performance evaluation plan?'. The book includes concrete examples and applications in the important aspects of experimentation, simulation and emulation, and analytical modeling, with strong support from the scientific literature. It enables the identification of common shortcomings and highlights where students, researchers, and engineers should focus to conduct sound performance evaluation. This book is a useful guide to advanced undergraduates and graduate students, network engineers, and researchers who plan and design proper performance evaluation of computer networks and services. Previous knowledge of computer networks concepts, mechanisms, and protocols is assumed. Although the book provides a quick review on applied statistics in computer networking, familiarity with basic statistics is an asset. It is suitable for advanced courses on computer networking as well as for more specific courses as a secondary textbook.

[Discrete Event Systems](#) Sep 13 2021

[Introduction to Discrete Event Systems](#) Jul 23 2022 This unique textbook comprehensively introduces the field of discrete event systems, offering a breadth of coverage that makes the material accessible to readers of varied backgrounds. The book emphasizes a unified modeling framework that transcends specific application areas, linking the following topics in a coherent manner: language and automata theory, supervisory control, Petri net theory, Markov chains and queueing theory, discrete-event simulation, and concurrent estimation techniques. Topics and features: detailed treatment of automata and language theory in the context of discrete event

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systems, including application to state estimation and diagnosis comprehensive coverage of centralized and decentralized supervisory control of partially-observed systems timed models, including timed automata and hybrid automata stochastic models for discrete event systems and controlled Markov chains discrete event simulation an introduction to stochastic hybrid systems sensitivity analysis and optimization of discrete event and hybrid systems new in the third edition: opacity properties, enhanced coverage of supervisory control, overview of latest software tools This proven textbook is essential to advanced-level students and researchers in a variety of disciplines where the study of discrete event systems is relevant: control, communications, computer engineering, computer science, manufacturing engineering, transportation networks, operations research, and industrial engineering. Christos G. Cassandras is Distinguished Professor of Engineering, Professor of Systems Engineering, and Professor of Electrical and Computer Engineering at Boston University. Stéphane Lafortune is Professor of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor.

Discrete Event Systems: Modeling and Control Jul 11 2021 Research of discrete event systems is strongly motivated by applications in flexible manufacturing, in traffic control and in concurrent and real-time software verification and design, just to mention a few important areas. Discrete event system theory is a promising and dynamically developing area of both control theory and computer science. Discrete event systems are systems with non-numerically-valued states, inputs, and outputs. The approaches to the modelling and control of these systems can be roughly divided into two groups. The first group is concerned with the automatic design of controllers from formal specifications of logical requirements. This research owes much to the pioneering work of P.J. Ramadge and W.M. Wonham at the beginning of the eighties. The second group deals with the analysis and optimization of system throughput, waiting time, and other performance measures for discrete event systems. The present book contains selected papers presented at the Joint Workshop on Discrete Event Systems (WODES'92) held in Prague, Czechoslovakia, on August 26-28, 1992 and organized by the Institute of Information Theory and Automation of the Czechoslovak Academy of Sciences, Prague, Czechoslovakia, by the Automatic Control Laboratory of the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, and by the Department of Computing Science of the University of Groningen, Groningen, the Netherlands.

Post-Earthquake Rehabilitation and Reconstruction Oct 22 2019 Damage assessment, rehabilitation, decision-making, social consequences, repair and reconstruction; these are all critical factors for considerations following natural disasters such as earthquakes. In order to address these issues, the United States of America and the Peoples Republic of China regularly organize bilateral symposia/workshops to investigate multiple hazard mitigation, particularly with respect to earthquake engineering. This book contains state-of-the-art reports presented by world-renowned researchers at the US/PRC Symposium Workshop on Post-Earthquake Rehabilitation and Reconstruction held in Kunming, Yunnan, China, May 1995. The following key areas are addressed: damage assessment of structures after earthquakes; lessons of post-earthquake recovery, rehabilitation and reconstruction, including public policy, land use options, urban planning, and design; issues in and examples of decision-making, and implementation of rehabilitation and reconstruction plans and policies; repair, strengthening, retrofit and control of structures and lifeline systems, post-earthquake socio-economic problems covering issues of relief and recovery; human and organizational behavior during emergency response, and strategies for improvement; real-time monitoring of earthquake response and damage.

Object-Oriented Computer Simulation of Discrete-Event Systems Sep 20 2019 Object-Oriented Computer Simulation of Discrete-Event Systems offers a comprehensive presentation of a wide repertoire of computer simulation techniques available to the modelers of dynamic systems. Unlike other books on simulation, this book includes a complete and balanced description of all essential issues relevant to computer simulation of discrete event systems, and it teaches simulation users how to design, program and exploit their own computer simulation models. In addition, it uses the object-oriented methodology throughout the book as its main programming platform. The reader is

expected to have some background in the theory of probability and statistics and only a little programming experience in C++, as the book is not tied down to any particular simulation language. The book also provides 50 complete simulation problems to assist with writing such simulation programs. Object-Oriented Computer Simulation of Discrete-Event Systems demonstrates the basic and generic concepts used in computer simulation of discrete-event systems in a comprehensive, uniform and self-contained manner.

System Simulation Techniques with MATLAB and Simulink Nov 03 2020 System Simulation Techniques with MATLAB and Simulink comprehensively explains how to use MATLAB and Simulink to perform dynamic systems simulation tasks for engineering and non-engineering applications. This book begins with covering the fundamentals of MATLAB programming and applications, and the solutions to different mathematical problems in simulation. The fundamentals of Simulink modelling and simulation are then presented, followed by coverage of intermediate level modelling skills and more advanced techniques in Simulink modelling and applications. Finally the modelling and simulation of engineering and non-engineering systems are presented. The areas covered include electrical, electronic systems, mechanical systems, pharmacokinetics systems, video and image processing systems and discrete event systems. Hardware-in-the-loop simulation and real-time application are also discussed. Key features: Progressive building of simulation skills using Simulink, from basics through to advanced levels, with illustrations and examples Wide coverage of simulation topics of applications from engineering to non-engineering systems Dedicated chapter on hardware-in-the-loop simulation and real-time control End of chapter exercises A companion website hosting a solution manual and powerpoint slides System Simulation Techniques with MATLAB and Simulink is a suitable textbook for senior undergraduate/postgraduate courses covering modelling and simulation, and is also an ideal reference for researchers and practitioners in industry.

Operations Research Feb 24 2020 Students with diverse backgrounds will face a multitude of decisions in a variety of engineering, scientific, industrial, and financial settings. They will need to know how to identify problems that the methods of operations research (OR) can solve, how to structure the problems into standard mathematical models, and finally how to apply or develop computational tools to solve the problems. Perfect for any one-semester course in OR, Operations Research: A Practical Introduction answers all of these needs. In addition to providing a practical introduction and guide to using OR techniques, it includes a timely examination of innovative methods and practical issues related to the development and use of computer implementations. It provides a sound introduction to the mathematical models relevant to OR and illustrates the effective use of OR techniques with examples drawn from industrial, computing, engineering, and business applications Many students will take only one course in the techniques of Operations Research. Operations Research: A Practical Introduction offers them the greatest benefit from that course through a broad survey of the techniques and tools available for quantitative decision making. It will also encourage other students to pursue more advanced studies and provides you a concise, well-structured, vehicle for delivering the best possible overview of the discipline.

Review of Modern Engineering Solutions for the Industry Jul 19 2019 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

Building Software for Simulation Jun 29 2020 Fundamentals of Turbulent and Multiphase Combustion Detailed coverage of advanced combustion topics from the author of Principles of Combustion, Second Edition Turbulence, turbulent combustion, and multiphase reacting flows have become major research topics in recent decades due to their application across diverse fields, including energy, environment, propulsion, transportation, industrial safety, and nanotechnology. Most of the knowledge accumulated from this research has never been published in book form—until now. Fundamentals of Turbulent and Multiphase Combustion presents up-to-date, integrated

coverage of the fundamentals of turbulence, combustion, and multiphase phenomena along with useful experimental techniques, including non-intrusive, laser-based measurement techniques, providing a firm background in both contemporary and classical approaches. Beginning with two full chapters on laminar premixed and non-premixed flames, this book takes a multiphase approach, beginning with more common topics and moving on to higher-level applications. In addition, *Fundamentals of Turbulent and Multiphase Combustion*: Addresses seven basic topical areas in combustion and multiphase flows, including laminar premixed and non-premixed flames, theory of turbulence, turbulent premixed and non-premixed flames, and multiphase flows Covers spray atomization and combustion, solid-propellant combustion, homogeneous propellants, nitramines, reacting boundary-layer flows, single energetic particle combustion, and granular bed combustion Provides experimental setups and results whenever appropriate Supported with a large number of examples and problems as well as a solutions manual, *Fundamentals of Turbulent and Multiphase Combustion* is an important resource for professional engineers and researchers as well as graduate students in mechanical, chemical, and aerospace engineering.

Discrete-event System Simulation Oct 26 2022 For junior- and senior-level simulation courses in engineering, business, or computer science. While most books on simulation focus on particular software tools, *Discrete Event System Simulation* examines the principles of modeling and analysis that translate to all such tools. This language-independent text explains the basic aspects of the technology, including the proper collection and analysis of data, the use of analytic techniques, verification and validation of models, and designing simulation experiments.

Modeling and Simulation of Discrete Event Systems Jun 22 2022 Computer modeling and simulation (M&S) allows engineers to study and analyze complex systems. Discrete-event system (DES)-M&S is used in modern management, industrial engineering, computer science, and the military. As computer speeds and memory capacity increase, so DES-M&S tools become more powerful and more widely used in solving real-life problems. Based on over 20 years of evolution within a classroom environment, as well as on decades-long experience in developing simulation-based solutions for high-tech industries, *Modeling and Simulation of Discrete-Event Systems* is the only book on DES-M&S in which all the major DES modeling formalisms - activity-based, process-oriented, state-based, and event-based - are covered in a unified manner: A well-defined procedure for building a formal model in the form of event graph, ACD, or state graph Diverse types of modeling templates and examples that can be used as building blocks for a complex, real-life model A systematic, easy-to-follow procedure combined with sample C# codes for developing simulators in various modeling formalisms Simple tutorials as well as sample model files for using popular off-the-shelf simulators such as SIGMA®, ACE®, and Arena® Up-to-date research results as well as research issues and directions in DES-M&S *Modeling and Simulation of Discrete-Event Systems* is an ideal textbook for undergraduate and graduate students of simulation/industrial engineering and computer science, as well as for simulation practitioners and researchers.

Parallel and Distributed Discrete Event Simulation Apr 08 2021 Discrete-event simulation has long been an integral part of the design process of complex engineering systems and the modelling of natural phenomena. Many of the systems that we seek to understand or control can be modelled as digital systems. In a digital model, we view the system at discrete instants of time, in effect taking snapshots of the system at these instants. For example, in a computer network simulation an event can be the sending of a message from one node to another node while in a VLSI logic simulation, the arrival of a signal at a gate may be viewed as an event. Digital systems such as computer systems are naturally susceptible to this approach. However, a variety of other systems may also be modelled this way. These include transportation systems such as air-traffic control systems, epidemiological models such as the spreading of a virus, and military war-gaming models. This book is representative of the advances in this field.

Numerical Simulations and Case Studies Using Visual C++.Net May 29 2020 Master the numerical simulation process required to design, test and support mobile and parallel computing systems. An accompanying ftp site contains all the Visual C++ based programs discussed in the text to help

readers create their own programs. With its focus on problems and solutions, this is an excellent text for upper-level undergraduate and graduate students, and a must-have reference for researchers and professionals in the field of simulations. More information about Visual C++ based programs can be found at: ftp://ftp.wiley.com/public/sci_tech_med/numerical_simulations/

Object-Oriented Computer Simulation of Discrete-Event Systems Mar 19 2022 Object-Oriented Computer Simulation of Discrete-Event Systems offers a comprehensive presentation of a wide repertoire of computer simulation techniques available to the modelers of dynamic systems. Unlike other books on simulation, this book includes a complete and balanced description of all essential issues relevant to computer simulation of discrete event systems, and it teaches simulation users how to design, program and exploit their own computer simulation models. In addition, it uses the object-oriented methodology throughout the book as its main programming platform. The reader is expected to have some background in the theory of probability and statistics and only a little programming experience in C++, as the book is not tied down to any particular simulation language. The book also provides 50 complete simulation problems to assist with writing such simulation programs. Object-Oriented Computer Simulation of Discrete-Event Systems demonstrates the basic and generic concepts used in computer simulation of discrete-event systems in a comprehensive, uniform and self-contained manner.

Discrete-event System Simulation Sep 25 2022 INDICE: Introduction to simulation. Simulation examples. General principles. Simulation software. Statistical models in simulation. Queueing models. Random-number generation. Random-variate generation. Input modeling. Verification and validation of simulation models. Output analysis for a single model. Comparison and evaluation of alternative system designs. Simulation of manufacturing and material handling systems. Simulation of computer systems.

Modeling and Simulation of Systems Using MATLAB and Simulink Dec 16 2021 Not only do modeling and simulation help provide a better understanding of how real-world systems function, they also enable us to predict system behavior before a system is actually built and analyze systems accurately under varying operating conditions. Modeling and Simulation of Systems Using MATLAB® and Simulink® provides comprehensive, state-of-the-art coverage of all the important aspects of modeling and simulating both physical and conceptual systems. Various real-life examples show how simulation plays a key role in understanding real-world systems. The author also explains how to effectively use MATLAB and Simulink software to successfully apply the modeling and simulation techniques presented. After introducing the underlying philosophy of systems, the book offers step-by-step procedures for modeling different types of systems using modeling techniques, such as the graph-theoretic approach, interpretive structural modeling, and system dynamics modeling. It then explores how simulation evolved from pre-computer days into the current science of today. The text also presents modern soft computing techniques, including artificial neural networks, fuzzy systems, and genetic algorithms, for modeling and simulating complex and nonlinear systems. The final chapter addresses discrete systems modeling. Preparing both undergraduate and graduate students for advanced modeling and simulation courses, this text helps them carry out effective simulation studies. In addition, graduate students should be able to comprehend and conduct simulation research after completing this book.

Theory, Methodology, Tools and Applications for Modeling and Simulation of Complex Systems Nov 15 2021 This four-volume set (CCIS 643, 644, 645, 646) constitutes the refereed proceedings of the 16th Asia Simulation Conference and the First Autumn Simulation Multi-Conference, AsiaSim / SCS AutumnSim 2016, held in Beijing, China, in October 2016. The 265 revised full papers presented were carefully reviewed and selected from 651 submissions. The papers in this first volume of the set are organized in topical sections on modeling and simulation theory and methodology; model engineering for system of systems; high performance computing and simulation; modeling and simulation for smart city.

Smart Ports Mar 27 2020 This book demonstrates the concept of ecological system of the smart ports. The innovation is emphasized as the essence of the ecological system as well as the

prerequisite and foundation of sustainable development of smart ports. The main supporting technologies of smart ports, including cyber-physical system, middle-office system, blockchain, artificial intelligence, machine vision, AR/VR, system simulation and emulation, digital monitoring and diagnosis, etc., are introduced with concepts and development descriptions as well as practical application cases. It could be used as demonstration and reference for the administrative staff, engineers and technicians as well as researchers in construction and operation of smart ports.

Handbook of Dynamic System Modeling Feb 18 2022 The topic of dynamic models tends to be splintered across various disciplines, making it difficult to uniformly study the subject. Moreover, the models have a variety of representations, from traditional mathematical notations to diagrammatic and immersive depictions. Collecting all of these expressions of dynamic models, the Handbook of Dynamic System Modeling explores a panoply of different types of modeling methods available for dynamical systems. Featuring an interdisciplinary, balanced approach, the handbook focuses on both generalized dynamic knowledge and specific models. It first introduces the general concepts, representations, and philosophy of dynamic models, followed by a section on modeling methodologies that explains how to portray designed models on a computer. After addressing scale, heterogeneity, and composition issues, the book covers specific model types that are often characterized by specific visual- or text-based grammars. It concludes with case studies that employ two well-known commercial packages to construct, simulate, and analyze dynamic models. A complete guide to the fundamentals, types, and applications of dynamic models, this handbook shows how systems function and are represented over time and space and illustrates how to select a particular model based on a specific area of interest.

Systems Modeling and Computer Simulation, Second Edition May 09 2021 This second edition describes the fundamentals of modelling and simulation of continuous-time, discrete time, discrete-event and large-scale systems. Coverage new to this edition includes: a chapter on non-linear systems analysis and modelling, complementing the treatment of of continuous-time and discrete-time systems; and a chapter on the computer animation and visualization of dynamical systems motion.;College or university bookstores may order five or more copies at a special student price, available on request from Marcel Dekker Inc.

Discrete Event System Simulation Aug 24 2022

Computer Simulation Applications Nov 22 2019

Discrete-Event Simulation and System Dynamics for Management Decision Making Jan 17 2022 In recent years, there has been a growing debate, particularly in the UK and Europe, over the merits of using discrete-event simulation (DES) and system dynamics (SD); there are now instances where both methodologies were employed on the same problem. This book details each method, comparing each in terms of both theory and their application to various problem situations. It also provides a seamless treatment of various topics--theory, philosophy, detailed mechanics, practical implementation--providing a systematic treatment of the methodologies of DES and SD, which previously have been treated separately.

Dienstleistungsmanagement im Krankenhaus I Apr 27 2020 Das Management von Dienstleistungen zählt zu den zentralen Herausforderungen im Gesundheitssektor. Dabei gilt es Optimierungs- und Gestaltungspotenziale zu erkennen und Verbesserungsmaßnahmen einzuleiten. Vor diesem Hintergrund wurde dem Thema „Prozess-, Produktivitäts- und Diversitätsmanagement“ ein Sammelband gewidmet, in dem profilierte Wissenschaftler und Vertreter aus der Praxis in insgesamt 19 Beiträgen zeigen, welche Möglichkeiten, Vorgehenweisen und Methoden bestehen, um Dienstleistungen im Krankenhaus zu optimieren und zu gestalten. Aus theoretischen Erkenntnissen, werden zahlreiche praktische Handlungsempfehlungen für Krankenhäuser abgeleitet. In Band I diskutieren Experten das Prozess-, Produktivitäts- und Diversitätsmanagement im Krankenhausbereich.

Operations Research Jul 31 2020 Operations Research: A Practical Introduction is just that: a hands-on approach to the field of operations research (OR) and a useful guide for using OR techniques in scientific decision making, design, analysis and management. The text accomplishes

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two goals. First, it provides readers with an introduction to standard mathematical models and algorithms. Second, it is a thorough examination of practical issues relevant to the development and use of computational methods for problem solving. Highlights: All chapters contain up-to-date topics and summaries A succinct presentation to fit a one-term course Each chapter has references, readings, and list of key terms Includes illustrative and current applications New exercises are added throughout the text Software tools have been updated with the newest and most popular software Many students of various disciplines such as mathematics, economics, industrial engineering and computer science often take one course in operations research. This book is written to provide a succinct and efficient introduction to the subject for these students, while offering a sound and fundamental preparation for more advanced courses in linear and nonlinear optimization, and many stochastic models and analyses. It provides relevant analytical tools for this varied audience and will also serve professionals, corporate managers, and technical consultants.