

Discrete Event System Simulation 3rd Edition

Introduction to Discrete Event Systems
 Modeling and Tools for Network Simulation
 Discrete Event Simulation of Bus Terminals
 Principles, Methodology, Advances, Applications, and Practice
 Discrete Event & Iterative System Computational Foundations
 Simulation Modeling and Analysis with ARENA
 Ontology, Epistemology, and Teleology for Modeling and Simulation
 Modeling, Programming, and Analysis
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 Handbook of Simulation
 Handbook of Research on Discrete Event Simulation Environments: Technologies and Applications
 20th International Symposium, Istanbul, Turkey, October 26 -- 28, 2005, Proceedings
 A First Course
 Get IT There : Proceedings of MIE2008, the XX1st International Congress of the European Federation for Medical Informatics
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 Discrete-Event Modeling and Simulation

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MORRIS YADIRA

Introduction to Discrete Event Systems Springer Science & Business Media
 Complex artificial dynamic systems require advanced modeling techniques that can accommodate their asynchronous, concurrent, and highly non-linear nature. Discrete Event systems Specification (DEVS) provides a formal framework for hierarchical construction of discrete-event models in a modular manner, allowing for model re-use and reduced development time. Discrete Event Modeling and Simulation presents a practical approach focused on the creation of discrete-event applications. The book introduces the CD++ tool, an open-source framework that enables the simulation of discrete-event models. After setting up the basic theory of DEVS and Cell-DEVS, the author focuses on how to use the CD++ tool to define a variety of models in biology, physics, chemistry, and artificial systems. They also demonstrate how to map different modeling techniques, such as Finite State Machines and VHDL, to DEVS. The in-depth coverage elaborates on the creation of simulation software for DEVS models and the 3D visualization environments

associated with these tools. A much-needed practical approach to creating discrete-event applications, this book offers world-class instruction on the field's most useful modeling tools.

Modeling and Tools for Network Simulation Springer

In this book, internationally recognized experts in philosophy of science, computer science, and modeling and simulation are contributing to the discussion on how ontology, epistemology, and teleology will contribute to enable the next generation of intelligent modeling and simulation applications. It is well understood that a simulation can provide the technical means to display the behavior of a system over time, including following observed trends to predict future possible states, but how reliable and trustworthy are such predictions? The questions about what we can know (ontology), how we gain new knowledge (epistemology), and what we do with this knowledge (teleology) are therefore illuminated from these very different perspectives, as each expert uses a different facet to look at these challenges. The result of bringing these perspectives into one book is a challenging compendium that gives room for a spectrum of challenges: from general philosophy questions, such as can we use modeling and simulation and other computational means at all to discover new knowledge, down to computational methods to improve semantic

interoperability between systems or methods addressing how to apply the recent insights of service oriented approaches to support distributed artificial intelligence. As such, this book has been compiled as an entry point to new domains for students, scholars, and practitioners and to raise the curiosity in them to learn more to fully address the topics of ontology, epistemology, and teleology from philosophical, computational, and conceptual viewpoints.

Discrete Event Simulation of Bus Terminals CRC Press

In the last decade there has been a phenomenal growth in interest in crime pattern analysis. Geographic information systems are now widely used in urban police agencies throughout industrial nations. With this, scholarly interest in understanding crime patterns has grown considerably. Artificial Crime Analysis Systems: Using Computer Simulations and Geographic Information Systems discusses leading research on the use of computer simulation of crime patterns to reveal hidden processes of urban crimes, taking an interdisciplinary approach by combining criminology, computer simulation, and geographic information systems into one comprehensive resource.

Principles, Methodology, Advances, Applications, and Practice CRC Press

The first part of the MIE 2008 conference theme - eHealth Beyond the Horizon - highlights the expectations for the future of ehealth and raises the question: What sort of developments in ehealth services can we imagine emerging above the horizon in the years to come? EHealth Beyond the Horizon contains a good number of high-quality papers giving different perspectives of this future, some of them already available today in picot scale, some of them outlined in visions. The second part of the theme - Get IT There - has triggered a large number of papers describing how to create, evaluate, adjust and deliver products and deploy services in healthcare organizations for the necessary information technology as a basis for the ehealth applications that are essential in order to respond to the challenges of the health systems. The papers in the proceedings are grouped by themes according to the submission categories and the supplied keywords. As the last theme, three doctoral students from different areas of medical informatics were selected to present and discuss their research under the guidance of a panel of distinguished research faculties.

Discrete Event & Iterative System Computational Foundations CRC Press

A fundamental challenge for medical informatics is to develop and apply better ways of understanding how information technologies and methods can help support the best care for every patient every day given available medical knowledge and resources. In order to provide the most effective healthcare possible, the activities of teams of health professionals have to be coordinated through well-designed processes centered on the needs of patients. For information systems to be accepted and used in such an environment, they must balance standardization based on shared medical knowledge with the flexibility required for customization to the individual patient. Developing innovative approaches to design and build evidence-based careflow management systems is essential for providing the knowledge management infrastructure of health care organizations that seeks to increase performance in delivering high quality care services by efficiently exploiting available resources. Parallel challenges arise in the organization of research at the biological and clinical levels, where the focus on systematically organizing and supporting processes of scientific inquiry by novel informatics methods and databases are in their very early stages. These Proceedings of Medinfo 2004 demonstrate the base of knowledge medical informatics professionals will collectively draw upon in the years ahead to meet these challenges and realize opportunities.

Simulation Modeling and Analysis with ARENA Springer Science & Business Media

Considered by many authors as a technique for modelling stochastic, dynamic and discretely evolving systems, this technique has gained widespread acceptance among the practitioners who want to represent and improve complex systems. Since DES is a technique applied in incredibly different areas, this book reflects many different points of view about DES, thus, all authors describe how it is understood and applied within their context of work, providing an extensive understanding of what DES is. It can be said that the name of the book itself reflects the plurality that these points of view represent. The book embraces a number of topics covering theory, methods and applications to a wide range of sectors and problem areas that have been categorised into five groups. As well as the previously explained variety of points of view concerning DES, there is one additional thing to remark about this book: its richness when talking about actual data or actual data based analysis. When most academic areas are lacking application cases, roughly the half part of the chapters included in this book deal with actual problems or at least are based on actual data. Thus, the editor firmly believes that this book will be interesting for both beginners and practitioners in the area of DES.

Ontology, Epistemology, and Teleology for Modeling and Simulation Springer Science & Business Media

Since the publication of the first edition in 1982, the goal of Simulation Modeling and Analysis has always been to provide a comprehensive, state-of-the-art, and technically correct treatment of all important aspects of a simulation study. The book strives to make this material understandable by the use of intuition and numerous figures, examples, and problems. It is equally well suited for use in university courses, simulation practice, and self study. The book is widely regarded as the "bible" of simulation and now has more than 100,000 copies in print. The book can serve as the primary text for a variety of courses; for example: *A first course in simulation at the junior, senior, or beginning-graduate-student level in engineering, manufacturing, business, or computer science (Chaps. 1 through 4, and parts of Chaps. 5 through 9). At the end of such a course, the students will be prepared to carry out complete and effective simulation studies, and to take advanced simulation courses. *A second course in simulation for graduate students in any of the above

disciplines (most of Chaps. 5 through 12). After completing this course, the student should be familiar with the more advanced methodological issues involved in a simulation study, and should be prepared to understand and conduct simulation research. *An introduction to simulation as part of a general course in operations research or management science (part of Chaps. 1, 3, 5, 6, and 9).

Modeling, Programming, and Analysis Wiley

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.

Appliance and Research IOS Press

"This is an excellent and well-written text on discrete event simulation with a focus on applications in Operations Research. There is substantial attention to programming, output analysis, pseudo-random number generation and modelling and these sections are quite thorough. Methods are provided for generating pseudo-random numbers (including combining such streams) and for generating random numbers from most standard statistical distributions." --ISI Short Book Reviews, 22:2, August 2002

Handbook of Simulation John Wiley & Sons

Discrete-event System Simulation Prentice Hall

Handbook of Research on Discrete Event Simulation Environments: Technologies and Applications

Pearson Higher Ed

CONTENIDO: Models - Random-number generation - Discrete-event simulation - Statistics - Next-event simulation - Discrete random variables - Continuous random variables - Output analysis - Input modeling - Projects.

Springer Science & Business Media

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.

20th International Symposium, Istanbul, Turkey, October 26 -- 28, 2005, Proceedings Springer

Science & Business Media

Public transport is important to society as it provides spatial accessibility and reduces congestion and pollution in comparison to other motorized modes. To assure a high-quality service, all parts of the system need to be well-functioning and properly planned. One important aspect for the system's bus terminals is their capacity. This needs to be high enough to avoid congestion and queues and the delays these may lead to. During planning processes, various suggested designs and solutions for a terminal need to be evaluated. Estimating capacity and how well the suggestions will function is a challenging problem, however. It requires analysis of complex interactions and behaviour of the vehicles. This sort of analyses can preferably be carried out using

microsimulation. Furthermore, a discrete event simulation approach can make use of the fact that the path of a vehicle through a terminal can readily be described by a sequence of events (such as arriving, starting to drive to a stop etc.). The overall aim of this thesis is to investigate how discrete event simulation can be used to evaluate bus terminal design and traffic control policies. The main contribution is the development of a method for bus terminal simulation. As a first step, a discrete event simulation model of a combined bus and tram stop is formulated. The model is tested on a real system where the current design is compared to an alternative one. The test shows that a model developed with a discrete event approach can be used to evaluate the situation at a stop and compare design alternatives. In the next step, a general discrete event simulation model of bus terminals is formulated. A modular approach is introduced, where a terminal can be constructed from a set of module building blocks. Another important contribution of the model is its spatial resolution that allows for queues and blockages to occur throughout the terminal. By applying the simulation model in a case study, it is shown that the model can be used to evaluate and compare various scenarios related to the layout, number of passengers and the outside traffic situation. Lastly, the bus terminal simulation model is used in a second case study in order to compare model output with empirical data. This study identified a number of factors that may have had an influence on differences between observations and simulation results and that is of interest to look further into. This includes the actual adherence to terminal rules and the effects of model parameters.

A First Course IGI Global

This volume comprises the proceedings of ICITCS 2020. It aims to provide a snapshot of the latest issues encountered in IT convergence and security. The book explores how IT convergence and security is core to most current research, industrial and commercial activities. Topics covered in this volume include machine learning & deep learning, communication and signal processing, computer vision and applications, future network technology, artificial intelligence and robotics, software engineering and knowledge engineering, intelligent vehicular networking and applications, healthcare and wellness, web technology and applications, internet of things, and security & privacy. Through this volume, readers will gain an understanding of the current state-of-the-art information strategies and technologies in IT convergence and security. The book will be of use to researchers in academia, industry and other research institutes focusing on IT convergence and security.

Get IT There : Proceedings of MIE2008, the XXIst International Congress of the European Federation for Medical Informatics Lee & Seshia

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. It offers an up-to-date treatment of simulation of manufacturing and material handling systems, computer systems, and computer networks. Students and instructors will find a variety of resources at the associated website, www.bcn.net/, including simulation source code for download, additional exercises and solutions, web links and errata.

Technologies and Applications Springer Science & Business Media

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.

Proceedings of ICITCS 2020 John Wiley & Sons

SIMAN is a simulation language used throughout the world, much like GPSS and SLAM. In industrial engineering, SIMAN and SLAM are the dominant simulation languages.

Modeling and Simulation of Discrete Event Systems John Wiley & Sons

This user's reference is a companion to the separate book also titled "Guide to Modelling and Simulation of Systems of Systems." The principal book explicates integrated development

environments to support virtual building and testing of systems of systems, covering in some depth the MS4 Modelling Environment™. This user's reference provides a quick reference and exposition of the various concepts and functional features covered in that book. The topics in the user's reference are grouped in alignment with the workflow displayed on the MS4 Modeling Environment™ launch page, under the headings Atomic Models, System Entity Structure, Pruning SES, and Miscellaneous. For each feature, the reference discusses why we use it, when we should use it, and how to use it. Further comments and links to related features are also included.
Discrete Event Simulation for Health Technology Assessment Academic Press

This book provides a self-contained review of all the relevant topics in probability theory. A software package called MAXIM, which runs on MATLAB, is made available for downloading. Vidyadhar G. Kulkarni is Professor of Operations Research at the University of North Carolina at Chapel Hill.

[Medinfo](#) IOS Press

"This book provides a comprehensive overview of theory and practice in simulation systems focusing on major breakthroughs within the technological arena, with particular concentration on the accelerating principles, concepts and applications"--Provided by publisher.

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