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KEY=ANYLOGIC - HARDY GRAHAM

The Big Book of Simulation Modeling Multimethod Modeling with AnyLogic 6 Anylogic North America "The Big Book of Simulation Modeling" is the only book that comprehensively presents all three methods, or paradigms, in simulation modeling: Agent Based, System Dynamics, and Discrete Event. It explains how to choose the right constructs of the modeling language to create a representation of a real world system that is suitable for risk-free dynamic experiments. The book is based on the modeling languages supported by AnyLogic, the software tool that enables a modeler to utilize all three methods and is the only one with the capability to combine them together in a single model. Written by the creator of the software, this book is the most in-depth information resource on AnyLogic and utilization of multimethod modeling that currently exists. It covers topics from building simple Agent Based models with statecharts to developing data exchange with external programs. With over 100 hands-on, step-by-step examples with different levels of complexity and various application areas, this book is extremely useful to both simulation professionals and students learning simulation modeling. **AnyLogic 7 in Three Days A Quick Course in Simulation Modeling** The first practical textbook on AnyLogic 7 from AnyLogic developers. AnyLogic is the unique simulation software that supports three simulation modeling methods: system dynamics, discrete event, and agent based modeling and allows you to create multi-method models. The book is structured around four examples: a model of a consumer market, an epidemic model, a job shop model and an airport model. We also give some theory on different modeling methods. You can consider this book as your first guide in studying AnyLogic 7. **AnyLogic 6 in Three Days A**

Quick Course in Simulation Modeling Anylogic North America This is the first practical textbook on AnyLogic 6 from AnyLogic developers. AnyLogic is the unique simulation software that supports three simulation modeling methods: system dynamics, discrete event, and agent based modeling and allows you to create multi-method models. This book is based on the 3-day AnyLogic training. The book is structured around four examples: a manufacturing model, a warehouse model, a model of a consumer market, and an epidemic model. We also give some theory on different modeling methods. You can consider this book as your first guide in studying AnyLogic.

Simulation Modeling and Analysis 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).

Discrete-Event Simulation and System Dynamics for Management Decision Making John Wiley & Sons 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.

Digital Transformation in Semiconductor Manufacturing Proceedings of the 1st and 2nd European Advances in Digital Transformation Conference, EADTC 2018, Zittau, Germany and EADTC 2019, Milan, Italy Springer Nature This open access book reports on cutting-edge electrical engineering and microelectronics solutions to foster and support digitalization in the semiconductor industry. Based on the outcomes of the European project iDev40, which were presented at the two first conference editions of the European Advances in Digital Transformation Conference (EADTC 2018 and EADTC 2019), the book covers different, multidisciplinary aspects related to digital transformation, including technological and industrial developments, as well as human factors research and applications. Topics include modeling and simulation methods in semiconductor operations, supply chain

management issues, employee training methods and workplaces optimization, as well as smart software and hardware solutions for semiconductor manufacturing. By highlighting industrially relevant developments and discussing open issues related to digital transformation, the book offers a timely, practice-oriented guide to graduate students, researchers and professionals interested in the digital transformation of manufacturing domains and work environments. **Arduino and LEGO Projects** Apress We all know how awesome LEGO is, and more and more people are discovering how many amazing things you can do with Arduino. In Arduino and LEGO Projects, Jon Lazar shows you how to combine two of the coolest things on the planet to make fun gadgets like a Magic Lantern RF reader, a sensor-enabled LEGO music box, and even an Arduino-controlled LEGO train set. Learn that SNOT is actually cool (it means Studs Not on Top) See detailed explanations and images of how everything fits together Learn how Arduino fits into each project, including code and explanations Whether you want to impress your friends, annoy the cat, or just kick back and bask in the awesomeness of your creations, Arduino and LEGO Projects shows you just what you need and how to put it all together. What you'll learn LEGO SNOT (Studs Not On Top) technique for smooth-sided LEGO projects How to incorporate sensors into your LEGO projects Using Arduino to control motors in LEGO projects How to make an LEGO pet How to create your own Crystal Ball RF reader How to make an Arduino-animated LEGO TARDIS Who this book is for Both LEGO and Arduino enthusiasts, and anyone interested in making fun, unique gadgets with LEGO and Arduino. Table of Contents LEGO, Arduino, and The Ultimate Machine Using Sensors with the Android Twitter Pet RFID and the Crystal Ball Animating the TARDIS Controlling LEGO Trains With Arduino Building a Light-Sensitive Box **Handbook on Battery Energy Storage System** Asian Development Bank This handbook serves as a guide to deploying battery energy storage technologies, specifically for distributed energy resources and flexibility resources. Battery energy storage technology is the most promising, rapidly developed technology as it provides higher efficiency and ease of control. With energy transition through decarbonization and decentralization, energy storage plays a significant role to enhance grid efficiency by alleviating volatility from demand and supply. Energy storage also contributes to the grid integration of renewable energy and promotion of microgrid. **Artificial Intelligence and Simulation Modelling and Simulation of Electrical Energy Systems Through a Complex Systems Approach Using Agent-Based Models** KIT Scientific Publishing Complexity science aims to better understand the processes of both natural and man-made systems which are composed of many interacting entities at different scales. A disaggregated approach is proposed for simulating electricity systems, by using agent-based models coupled to continuous ones. The approach can help in acquiring a better understanding of the operation of the system itself, e.g. on emergent phenomena or scale effects; as well as in the improvement and design of future smart grids. **Reliability Engineering Theory and Practice** Springer Science & Business Media Using clear language, this book shows you how to build in, evaluate, and demonstrate reliability and availability of components, equipment, and systems. It presents the state of the art in theory and practice, and is based on the author's 30 years' experience, half in industry and half as professor of reliability engineering at the ETH, Zurich. In this extended

edition, new models and considerations have been added for reliability data analysis and fault tolerant reconfigurable repairable systems including reward and frequency / duration aspects. New design rules for imperfect switching, incomplete coverage, items with more than 2 states, and phased-mission systems, as well as a Monte Carlo approach useful for rare events are given. Trends in quality management are outlined. Methods and tools are given in such a way that they can be tailored to cover different reliability requirement levels and be used to investigate safety as well. The book contains a large number of tables, figures, and examples to support the practical aspects. **Introduction to Information Retrieval** Cambridge University Press Class-tested and coherent, this textbook teaches classical and web information retrieval, including web search and the related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures. **Modeling and Simulation of Logistics Flows 2 Dashboards, Traffic Planning and Management** John Wiley & Sons Volume 2 begins with an introduction and 4 chapters implementing software tools on cases of practical applications and it ends with a conclusion: The various tools used in this volume Operational research with a spreadsheet Dashboards with spreadsheets and pivot tables Scheduling and planning with a project manager The traffic simulation The conclusion shows the new features that are expected to emerge on spreadsheets as well as project managers, developments and convergences between traffic simulators and new infrastructure that are emerging on road networks. Annex 1 focuses on the installation Solver in Microsoft Excel and Annex 2 focuses on the installation of the Java Development Kit. **Neo-Simulation and Gaming Toward Active Learning** Springer Nature This book provides tips to teachers for moving toward active learning by using simulation and gaming. The book is a rare reference for teachers who wish to initiate active learning by applying many real experiences from world experts in simulation and gaming. This cumulative wisdom comes from cutting-edge trials reported at the 49th International Simulation and Gaming Association's annual conference in Thailand 9-13 July 2018. The importance of changing teachers' one-way lecture approach to that of active learning has been commonly understood for several decades and has been promoted especially in recent years in Asian universities. Simulation and gaming meets the requirements of such teaching programs, especially for active learning, but there are few books or references on how to gamify a lecture. This book serves as a guide to facilitate that change. The author recognizes the duty to provide readers with fixed directions toward simulation and gaming in the next generation, which have still not been fully elucidated. Developing a simulation and gaming culture and making it sustainable in the next decade are the purpose of this book.

Agent-Based Modelling and Geographical Information Systems A Practical Primer SAGE This is the era of Big Data and computational social science. It is an era that requires tools which can do more than visualise data but also model the complex relation between data and human action and interaction. Agent-Based Models (ABM) - computational models which simulate human action and interaction - do just that. This textbook explains how to design and build ABM and how to link the models to Geographical Information Systems. It guides you from the basics through to constructing more complex models which work with data and human behaviour in a spatial context. All of the fundamental concepts are explained and related to practical examples to facilitate learning (with models developed in NetLogo with all code examples available on the accompanying website). You will be able to use these models to develop your own applications and link, where appropriate, to Geographical Information Systems. All of the key ideas and methods are explained in detail: geographical modelling; an introduction to ABM; the fundamentals of Geographical Information Science; why ABM and GIS; using QGIS; designing and building an ABM; calibration and validation; modelling human behaviour; visualisation and 3D ABM; using Big Geosocial Data, GIS and ABM. An applied primer, that provides fundamental knowledge and practical skills, it will provide you with the skills to build and run your own models, and to begin your own research projects.

Collaboration in a Data-Rich World 18th IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2017, Vicenza, Italy, September 18-20, 2017, Proceedings Springer This book constitutes the refereed proceedings of the 18th IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2017, held in Vicenza, Italy, in September 2017. The 68 revised full papers were carefully reviewed and selected from 159 submissions. They provide a comprehensive overview of identified challenges and recent advances in various collaborative network (CN) domains and their applications, with a strong focus on the following areas: collaborative models, platforms and systems for data-rich worlds; manufacturing ecosystem and collaboration in Industry 4.0; big data analytics and intelligence; risk, performance, and uncertainty in collaborative data-rich systems; semantic data/service discovery, retrieval, and composition in a collaborative data-rich world; trust and sustainability analysis in collaborative networks; value creation and social impact of collaboration in data-rich worlds; technology development platforms supporting collaborative systems; collective intelligence and collaboration in advanced/emerging applications: collaborative manufacturing and factories of the future, e-health and care, food and agribusiness, and crisis/disaster management. **Evolving Toolbox for Complex Project Management** CRC Press This book enhances learning about complex project management principles and practices through the introduction and discussion of a portfolio of tools presented as an evolving toolbox. Throughout the book, industry practitioners examine the toolsets that are part of the toolbox to develop a broader understanding of complex project management challenges and the available tools to address them. This approach establishes a dynamic, structured platform for a comprehensive analysis and assessment of the modern, rapidly changing, multifaceted business environment to teach the next generation of project managers to successfully cope with the ever increasing complexity of the 21st century. **Agent-Based Modeling of Environmental Conflict and Cooperation** CRC Press

Conflict is a major facet of many environmental challenges of our time. However, growing conflict complexity makes it more difficult to identify win-win strategies for sustainable conflict resolution. Innovative methods are needed to help predict, understand, and resolve conflicts in cooperative ways. Agent-Based Modeling of Environmental Conflict and Cooperation examines computer modeling techniques as an important set of tools for assessing environmental and resource-based conflicts and, ultimately, for finding pathways to conflict resolution and cooperation. This book has two major goals. First, it argues that complexity science can be a unifying framework for professions engaged in conflict studies and resolution, including anthropology, law, management, peace studies, urban planning, and geography. Second, this book presents an innovative framework for approaching conflicts as complex adaptive systems by using many forms of environmental analysis, including system dynamics modeling, agent-based modeling, evolutionary game theory, viability theory, and network analysis. Known as VIABLE (Values and Investments from Agent-Based interaction and Learning in Environmental systems), this framework allows users to model advanced facets of conflicts—including institution building, coalition formation, adaptive learning, and the potential for future conflict—and conflict resolution based on the long-term viability of the actors' strategies. Written for scholars, students, practitioners, and policy makers alike, this book offers readers an extensive introduction to environmental conflict research and resolution techniques. As the result of decades of research, the text presents a strong argument for conflict modeling and reviews the most popular and advanced techniques, including system dynamics modeling, agent-based modeling, and participatory modeling methods. This indispensable guide uses NetLogo, a widely used and free modeling software package, to implement the VIABLE modeling approach in three case study applications around the world. Readers are invited to explore, adapt, modify, and expand these models to conflicts they hope to better understand and resolve. **Principles of Modeling and Simulation A Multidisciplinary Approach** John Wiley & Sons Explores wide-ranging applications of modeling and simulation techniques that allow readers to conduct research and ask "Whatif??" Principles of Modeling and Simulation: A Multidisciplinary Approach is the first book to provide an introduction to modeling and simulation techniques across diverse areas of study. Numerous researchers from the fields of social science, engineering, computer science, and business have collaborated on this work to explore the multifaceted uses of computational modeling while illustrating their applications in common spreadsheets. The book is organized into three succinct parts: Principles of Modeling and Simulation provides a brief history of modeling and simulation, outlines its many functions, and explores the advantages and disadvantages of using models in problem solving. Two major reasons to employ modeling and simulation are illustrated through the study of a specific problem in conjunction with the use of related applications, thus gaining insight into complex concepts. Theoretical Underpinnings examines various modeling techniques and introduces readers to two significant simulation concepts: discrete event simulation and simulation of continuous systems. This section details the two primary methods in which humans interface with simulations, and it also distinguishes the meaning, importance, and significance of verification and validation. Practical Domains delves into specific topics related to transportation, business, medicine,

social science, and enterprisedecision support. The challenges of modeling and simulation are discussed, along with advanced applied principles of modeling and simulation such as representation techniques, integration into the application infrastructure, and emerging technologies. With its accessible style and wealth of real-world examples, *Principles of Modeling and Simulation: A Multidisciplinary Approach* is a valuable book for modeling and simulation courses at the upper-undergraduate and graduate levels. It is also an indispensable reference for researchers and practitioners working in statistics, mathematics, engineering, computer science, economics, and the social sciences who would like to further develop their understanding and knowledge of the field.

Proceedings of the 21st International Symposium on Advancement of Construction Management and Real Estate

Springer This book presents the proceedings of CRIOCM_2016, 21st International Conference on Advancement of Construction Management and Real Estate, sharing the latest developments in real estate and construction management around the globe. The conference was organized by the Chinese Research Institute of Construction Management (CRIOCM) working in close collaboration with the University of Hong Kong. Written by international academics and professionals, the proceedings discuss the latest achievements, research findings and advances in frontier disciplines in the field of construction management and real estate.

Covering a wide range of topics, including building information modelling, big data, geographic information systems, housing policies, management of infrastructure projects, occupational health and safety, real estate finance and economics, urban planning, and sustainability, the discussions provide valuable insights into the implementation of advanced construction project management and the real estate market in China and abroad. The book is an outstanding reference resource for academics and professionals alike. **Rail Transport—Systems Approach** Springer This book shows how the systems approach is employed by scientists in various countries to solve specific problems concerning railway transport. In particular, the book describes the experiences of scientists from Romania, Germany, the Czech Republic, the UK, Russia, Ukraine, Lithuania and Poland. For many of these countries there is a problem with the historical differences between the railways. In particular, there are railways with different rail gauges, with different signaling and communication systems, with different energy supplies and, finally, with different political systems, which are reflected in the different approaches to the management of railway economies. The book's content is divided into two main parts, the first of which provides a systematic analysis of individual means of providing and maintaining rail transport. In turn, the second part addresses infrastructure and management development, with particular attention to security issues. Though primarily written for professionals involved in various problems concerning railway transport, the book will also benefit manufacturers, railway technical staff, managers, and students with transport specialties, as well as a wide range of readers interested in learning more about the current state of transport in different countries. **Simulation and Modeling Methodologies, Technologies and Applications International Conference, SIMULTECH 2015 Colmar, France, July 21-23, 2015 Revised Selected Papers** Springer The present book includes a set of selected extended papers from the 5th International Conference on Simulation and Modeling Methodologies, Technologies and

Applications (SIMULTECH 2015), held in Colmar, France, from 21 to 23 July 2015. The conference brought together researchers, engineers and practitioners interested in methodologies and applications of modeling and simulation. New and innovative solutions are reported in this book. SIMULTECH 2015 received 102 submissions, from 36 countries, in all continents. After a double blind paper review performed by the Program Committee, 19% were accepted as full papers and thus selected for oral presentation. Additional papers were accepted as short papers and posters. A further selection was made after the Conference, based also on the assessment of presentation quality and audience interest, so that this book includes the extended and revised versions of the very best papers of SIMULTECH 2015. Commitment to high quality standards is a major concern of SIMULTECH that will be maintained in the next editions, considering not only the stringent paper acceptance ratios but also the quality of the program committee, keynote lectures, participation level and logistics.

Theory, Methodology, Tools and Applications for Modeling and Simulation of Complex Systems 16th Asia Simulation Conference and SCS Autumn Simulation Multi-Conference, AsiaSim/SCS AutumnSim 2016, Beijing, China, October 8-11, 2016, Proceedings, Part IV Springer 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 fourth volume of the set are organized in topical sections on Modeling and Simulation Applications; Simulation Software; Social Simulations; Verification, Validation and Accreditation.

Database and Expert Systems Applications - DEXA 2022 Workshops 33rd International Conference, DEXA 2022, Vienna, Austria, August 22-24, 2022, Proceedings Springer Nature This volume constitutes the refereed proceedings of the workshops held at the 33rd International Conference on Database and Expert Systems Applications, DEXA 2022, held in Vienna, Austria, in August 2022: The 6th International Workshop on Cyber-Security and Functional Safety in Cyber-Physical Systems (IWCFS 2022); 4th International Workshop on Machine Learning and Knowledge Graphs (MLKgraphs 2022); 2nd International Workshop on Time Ordered Data (ProTime2022); 2nd International Workshop on AI System Engineering: Math, Modelling and Software (AISys2022); 1st International Workshop on Distributed Ledgers and Related Technologies (DLRT2022); 1st International Workshop on Applied Research, Technology Transfer and Knowledge Exchange in Software and Data Science (ARTE2022). The 40 papers were thoroughly reviewed and selected from 62 submissions, and discuss a range of topics including: knowledge discovery, biological data, cyber security, cyber-physical system, machine learning, knowledge graphs, information retriever, data base, and artificial intelligence.

Analytics and Knowledge Management CRC Press The process of transforming data into actionable knowledge is a complex process that requires the use of powerful machines and advanced analytics technique. Analytics and Knowledge Management examines the role of analytics in knowledge management and the integration of big data theories, methods, and techniques into an organizational knowledge management framework. Its chapters written by researchers and professionals provide insight into theories, models, techniques, and

applications with case studies examining the use of analytics in organizations. The process of transforming data into actionable knowledge is a complex process that requires the use of powerful machines and advanced analytics techniques. Analytics, on the other hand, is the examination, interpretation, and discovery of meaningful patterns, trends, and knowledge from data and textual information. It provides the basis for knowledge discovery and completes the cycle in which knowledge management and knowledge utilization happen. Organizations should develop knowledge focuses on data quality, application domain, selecting analytics techniques, and on how to take actions based on patterns and insights derived from analytics. Case studies in the book explore how to perform analytics on social networking and user-based data to develop knowledge. One case explores analyze data from Twitter feeds. Another examines the analysis of data obtained through user feedback. One chapter introduces the definitions and processes of social media analytics from different perspectives as well as focuses on techniques and tools used for social media analytics. Data visualization has a critical role in the advancement of modern data analytics, particularly in the field of business intelligence and analytics. It can guide managers in understanding market trends and customer purchasing patterns over time. The book illustrates various data visualization tools that can support answering different types of business questions to improve profits and customer relationships. This insightful reference concludes with a chapter on the critical issue of cybersecurity. It examines the process of collecting and organizing data as well as reviewing various tools for text analysis and data analytics and discusses dealing with collections of large datasets and a great deal of diverse data types from legacy system to social networks platforms. **Dynamic Simulation and Virtual Reality in Hydrology and Water Resources Management** CRC Press Dynamic Simulation and Virtual Reality in Hydrology and Water Resources Management focuses on the understanding, use, and application of system dynamics simulation and virtual reality approaches for modeling the spatial and temporal behavior of natural and managed hydro-environmental systems. The book discusses concepts of systems thinking and system dynamics approach, and it furthers understanding of the dynamic behavior of natural and engineering systems using feedbacks and dynamic simulation. Numerous examples of models built using different system dynamics simulation modeling environments are provided. It also introduces concepts related to computer animation and virtual reality-based immersive modeling. Applications of systems dynamics, simulation with animation, and virtual reality approaches for modeling and management of hydro-environmental systems are illustrated through case studies. This text is ideal for water resources professionals, graduate students, hydrologic modelers, and engineers who are interested in systems thinking, dynamic simulation, and virtual reality modeling approaches. It will serve as a valuable reference for engineering professionals who model, manage, and operate hydrosystems. Engineering educators will find the book immensely useful to enhance the learning experiences of students. Dr. Ramesh S. V. Teegavarapu is a professor at Florida Atlantic University with expertise in modeling water resources and environmental systems, hydroinformatics, and climate change. Dr. Chandramouli V. Chandramouli is a professor at Purdue University Northwest. His expertise is in water resources and environmental modeling integrating artificial

intelligence techniques. **Service-Oriented Computing - ICSOC 2014 Workshops WESOA; SeMaPS, RMSOC, KASA, ISC, FOR-MOVES, CCSA and Satellite Events, Paris, France, November 3-6, 2014, Revised Selected Papers** Springer This book constitutes the revised selected papers of the 12th International Conference on Service-Oriented Computing, ICSOC 2014, held in Paris, France, in November 2014. The conference hosted the following seven workshops: 10th International Workshop in Engineering Service-Oriented Applications, WESOA 2014; First Workshop on Resource Management in Service-Oriented Computing, RMSOC 2014; First International Workshop on Knowledge Aware Service Oriented Applications, Performance Assessment and Auditing in Service Computing, KASA 2014; Workshop on Intelligent Service Clouds, ISC 2014; Third International Workshop on Self-Managing Pervasive Service Systems, SeMaPS 2014; First International Workshop on Formal Modeling and Verification of Service-Based Systems, FOR-MOVES 2014; 4th International Workshop on Cloud Computing and Scientific Applications, CCSA 2014. The papers included in this volume were carefully reviewed and selected from numerous submissions. They address various topics in the service-oriented computing domain and its emerging applications. **Artificial Intelligence in Intelligent Systems Proceedings of 10th Computer Science On-line Conference 2021, Vol. 2** Springer Nature This book constitutes the refereed proceedings of the artificial intelligence in intelligent systems section of the 10th Computer Science Online Conference 2021 (CSOC 2021), held online in April 2021. Artificial intelligence in intelligent systems topics are presented in this book. Modern hybrid and bio-inspired algorithms and their application are discussed in selected papers. **Thinking in Java** Prentice Hall Professional An overview of the programming language's fundamentals covers syntax, initialization, implementation, classes, error handling, objects, applets, multiple threads, projects, and network programming. **Global Supply Chain and Operations Management A Decision-Oriented Introduction to the Creation of Value** Springer This textbook presents global supply chain and operations management from a comprehensive perspective, combining value creation networks and interacting processes. It focuses on the operational roles in the networks and presents the quantitative and organizational methods needed to plan and control the material, information and financial flows in the supply chain. Each chapter of the book starts with an introductory case study. Numerous examples from various industries and services help to illustrate the key concepts. The book explains how to design operations and supply networks and how to incorporate suppliers and customers. As matching supply and demand is a core aspect of tactical planning, the book focuses on it before turning to the allocation of resources for fulfilling customer demands. Providing readers with a working knowledge of global supply chain and operations management, this textbook can be used in core, special and advanced classes. Therefore, the book targets a broad range of students and professionals involved with supply chain and operations management. Special focus is directed at bridging theory and practice. **Advancements in Geotechnical Engineering The official 2020 publications of the Soil-Structure Interaction Group in Egypt (SSIGE)** Springer Nature This book intends directly the practical engineers, who will be of great interest in reading the interesting chapters. Earthwork projects are critical components in civil construction and often require detailed management

techniques and unique solution methods to address failures. Being earthbound, earthwork is influenced by geomaterial properties at the onset of a project. Hence, an understanding of the in-situ soil properties and all geotechnical aspects is essential. Analytical methods for earth structures remain critical for researchers due to the mechanical complexity of the system. Striving for better earthwork project management, the geotechnical engineering community continues to find improved testing techniques for determining sensitive properties of soil and rock, including stress wave-based, non-destructive testing methods. To minimize failure during earthwork construction, past case studies and data may reveal useful lessons and information to improve project management and minimize economic losses. **Systems Science and Population Health** Oxford University Press Population health is complex and multileveled, encompassing dynamic interactions between cells, societies, and everything in between. Our typical approach to studying population health, however, remains oriented around a reductionist approach to conceptualizing, empirically analyzing, and intervening to improve population health. The trouble is that interventions founded on simplifying a complex world often do not work, sometimes yielding failure or, even worse, harm. The difficult truth is that "silver bullet" health science often fails, and understanding these failures can help us improve our approach to health science, and, ultimately, population health. **SYSTEMS SCIENCE AND POPULATION HEALTH** employs principles from across a range of sciences to refine the way we understand population health. By augmenting traditional analytic approaches with new tools like machine learning, microsimulation, and social network analysis, population health can be studied as a dynamic and complex system. This allows us to understand population health as a complex whole, offering new insights and perspectives that stand to improve the health of the public. This text offers the first educational and practical guide to this forward-thinking approach. Comprising 17 chapters from the vanguard of population health, epidemiology, computer science, and medicine, this book offers a three-part introduction to the subject: · An intellectual and conceptual history of systems science as it intersects with population health · Concise, introductory overviews of important and emerging methodological tools in systems science, including systems dynamics, agent-based modeling, microsimulation, social network analysis, and machine-learning-all with relevant examples drawn from population health literature · An exploration of future implications for systems science and its applications to our understanding of population health issues For researchers, students, and practitioners, **SYSTEMS SCIENCE AND POPULATION HEALTH** redefines many of the foundational elements of how we understand population health. It should not be missed. **Simulation for Industry 4.0 Past, Present, and Future** Springer The book shows how simulation's long history and close ties to industry since the third industrial revolution have led to its growing importance in Industry 4.0. The book emphasises the role of simulation in the new industrial revolution, and its application as a key aspect of making Industry 4.0 a reality - and thus achieving the complete digitisation of manufacturing and business. It presents various perspectives on simulation and demonstrates its applications, from augmented or virtual reality to process engineering, and from quantum computing to intelligent management. Simulation for Industry 4.0 is a guide and milestone for the simulation community, as well as those readers working to achieve the goals of Industry

4.0. The connections between simulation and Industry 4.0 drawn here will be of interest not only to beginners, but also to practitioners and researchers as a point of departure in the subject, and as a guide for new lines of study. **Airport Capacity Constraints and Strategies for Mitigation A Global Perspective** Academic Press When predicting the future of air traffic development, it is imperative for researchers and planners to have the most accurate information about airport capacity constraints. Airport capacity constraints and strategies for mitigation: A global perspective analyses airport capacity constraints with empirical methods that forecast future capacities and capacity shortfalls. The book discusses in detail the importance of airport capacity constraints on air traffic development, especially for international hubs, along with mitigation strategies for already congested airports. It analyses empirical data to provide greater insight into the problems of airport congestion and capacity shortage. The authors present detailed global traffic forecasts for the years 2030 and 2040, and mitigation strategies for overcoming the problem of limited airport capacity. As expanding current airports becomes increasingly difficult, and time consuming - especially for hubs - the study of current and future airport capacity constraints becomes ever more needed. This book provides detailed information about how to correctly assess and quantify the problem of limited airport capacity, while offering strategies for overcoming these issues for a healthy global air traffic network. Focuses on airport capacity constraints in the global air traffic network and their implications for the future of air traffic development Features empirical and model-based approaches that forecast airport capacities and capacity shortcomings Provides over capacity mitigation strategies based on sound and reliable data and methodology Addresses capacity constraints at hub airports, providing insight into how to correctly assess and quantify limited capacity for these important players in the global air transportation network Applies econometric models for the implication of restraining factors on the future volume and structure of air traffic **Model-Driven Engineering and Software Development 5th International Conference, MODELSWARD 2017, Porto, Portugal, February 19-21, 2017, Revised Selected Papers** Springer This book constitutes thoroughly revised and selected papers from the 5th International Conference on Model-Driven Engineering and Software Development, MODELSWARD 2017, held in Porto, Portugal, in February 2017. The 20 thoroughly revised and extended papers presented in this volume were carefully reviewed and selected from 91 submissions. They contribute to the development of highly relevant research trends in model-driven engineering and software development such as methodologies for MDD development and exploitation, model-based testing, model simulation, domain-specific modeling, code generation from models, new MDD tools, multi-model management, model evolution, and industrial applications of model-based methods and technologies. **The Vertical Transportation Handbook** John Wiley & Sons This new edition of a one-of-a-kind handbook provides an essential updating to keep the book current with technology and practice. New coverage of topics such as machine-room-less systems and current operation and control procedures, ensures that this revision maintains its standing as the premier general reference on vertical transportation. A team of new contributors has been assembled to shepherd the book into this new edition and provide the expertise to keep it up to date in future editions. A new copublishing partnership with Elevator World

Magazine ensures that the quality of the revision is kept at the highest level, enabled by Elevator World's Editor, Bob Caporale, joining George Strakosch as co-editor. **Simulation-based Optimization of Energy Efficiency in Production** Springer Nature The importance of the energy and commodity markets has steadily increased since the first oil crisis. The sustained use of energy and other resources has become a basic requirement for a company to competitively perform on the market. The modeling, analysis and assessment of dynamic production processes is often performed using simulation software. While existing approaches mainly focus on the consideration of resource consumption variables based on metrologically collected data on operating states, the aim of this work is to depict the energy consumption of production plants through the utilization of a continuous simulation approach in combination with a discrete approach for the modeling of material flows and supporting logistic processes. The complex interactions between the material flow and the energy usage in production can thus be simulated closer to reality, especially the depiction of energy consumption peaks becomes possible. An essential step towards reducing energy consumption in production is the optimization of the energy use of non-value-adding production phases. **Social, Cultural, and Behavioral Modeling 10th International Conference, SBP-BRiMS 2017, Washington, DC, USA, July 5-8, 2017, Proceedings** Springer This book constitutes the refereed proceedings of the 10th International Conference on Social, Cultural, and Behavioral Modeling & Prediction and Behavior Representation in Modeling and Simulation, SBP-BRiMS 2017, held in Washington, DC, USA, in July 2017. The 16 full papers and 27 short papers presented were carefully reviewed and selected from 79 submissions. Owing to its strong multi-disciplinary heritage, the papers represent a large range of disciplines including computer science, psychology, sociology, communication science, public health, bioinformatics, political science, and organizational science and use numerous types of computational methods such as machine learning, language technology, social network analysis and visualization, agent-based simulation, and statistics. They are organized in the following topical sections: behavioral and social sciences; cyber and intelligence applications; information, systems, and network sciences; and methodology. **The Nature of Code** Nature of Code How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? This book focuses on a range of programming strategies and techniques behind computer simulations of natural systems, from elementary concepts in mathematics and physics to more advanced algorithms that enable sophisticated visual results. Readers will progress from building a basic physics engine to creating intelligent moving objects and complex systems, setting the foundation for further experiments in generative design. Subjects covered include forces, trigonometry, fractals, cellular automata, self-organization, and genetic algorithms. The book's examples are written in Processing, an open-source language and development environment built on top of the Java programming language. On the book's website (<http://www.natureofcode.com>), the examples run in the browser via Processing's JavaScript mode. **Technological Innovation for Applied AI Systems 12th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2021, Costa de**

Caparica, Portugal, July 7-9, 2021, Proceedings Springer Nature This book constitutes the refereed proceedings of the 12th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2021, held in Costa de Caparica, Portugal, in July 2021.* The 34 papers presented were carefully reviewed and selected from 92 submissions. The papers present selected results produced in engineering doctoral programs and focus on technological innovation for industry and service systems. Research results and ongoing work are presented, illustrated and discussed in the following areas: collaborative networks; smart manufacturing; cyber-physical systems and digital twins; intelligent decision making; smart energy management; communications and electronics; classification systems; smart healthcare systems; and medical devices. *The conference was held virtually. Chapters “Characteristics of Adaptable Control of Production Systems and the Role of Self-organization Towards Smart Manufacturing” and “Predictive Manufacturing: Enabling Technologies, Frameworks and Applications” are available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.