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   Titolo   Guide to Simulation-Based Disciplines : Advancing Our Computational
                       Future / / edited by Saurabh Mittal, Umut Durak, Tuncer Ören

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   Collana   Simulation Foundations, Methods and Applications, , 2195-2825

   Disciplina   003.3

   Soggetti   Computer simulation
                       Social sciences - Data processing
                       Engineering design
                       Bioinformatics
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                       Computer Application in Social and Behavioral Sciences
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                       Computational and Systems Biology

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   Livello bibliografico   Monografia

   Nota di bibliografia   Includes bibliographical references at the end of each chapters and
                       indexes.

   Nota di contenuto   Part I: Background -- The Evolution of Simulation and its Contributions
                       to Many Disciplines -- The Modeling and Simulation (M&S) Technology
                       Landscape -- Part II: Engineering and Architecture -- Simulation-Based
                       Engineering -- Simulation-Based Systems Engineering -- Simulation-
                       Based Cyber-Physical Systems and the Internet of Things --
                       Simulation-Based Complex Adaptive Systems -- Simulation-Based
                       Software Engineering -- Simulation-Based Architecture -- Part III:
                       Natural Sciences -- Simulation-Based Science: Toward Cognitive
                       Generative Architectures for Simulation-Driven Discovery -- Systems
                       Design, Modeling and Simulation in Medicine -- Part IV: Social Sciences
                       and Management -- Flipping Coins and Coding Turtles: The Evolution
                       of M&S in the Social Sciences -- Simulation-Based Enterprise
                       Management: Model Driven from Business Process to Simulation -- Part
                       V: Learning, Education and Training -- Simulation-Based Learning and

Education -- Simulation-Based Military Training -- Epilogue.

| Sommario/riassunto | This invaluable text/reference reviews the state of the art in simulation-based approaches across a wide range of different disciplines, and provides evidence of using simulation-based approaches to advance these disciplines. Highlighting the benefits that simulation can bring to any field, the volume presents case studies by the leading experts from such diverse domains as the life sciences, engineering, architecture, arts, and social sciences. Topics and features: Includes review questions at the end of every chapter Provides a broad overview of the evolution of the concept of simulation, stressing its importance across numerous sectors and disciplines Addresses the role of simulation in engineering design, and emphasizes the benefits of integrating simulation into the systems engineering paradigm Explains the relation of simulation with Cyber-Physical Systems and the Internet of Things, and describes a simulation infrastructure for complex adaptive systems Investigates how simulation is used in the Software Design Life Cycle to assess complex solutions, and examines the use of simulation in architectural design Reviews the function and purpose of simulation within the context of the scientific method, and its contribution to healthcare and health education training Discusses the position of simulation in research in the social sciences, and describes the simulation of service systems for simulation-based enterprise management Describes the role of simulation in learning and education, as well as in in military training With its near-exhaustive coverage of disciplines, this comprehensive collection is essential reading for all researchers, practitioners and students seeking insights into the use of various modeling paradigms and the need for robust simulation infrastructure to advance their field into a computational future. |