

1. Record Nr.	UNINA9910420926103321
Titolo	Complex Social and Behavioral Systems : Game Theory and Agent-Based Models // edited by Marilda Sotomayor, David Pérez-Castrillo, Filippo Castiglione
Pubbl/distr/stampa	New York, NY : , : Springer US : , : Imprint : Springer, , 2020
ISBN	9781071603680 107160368X
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (940 pages) : illustrations
Collana	Encyclopedia of Complexity and Systems Science Series
Disciplina	519.3
Soggetti	Game theory Social sciences—Data processing Social sciences—Computer programs Operations research Decision making Computer simulation Statistical physics Dynamics Game Theory, Economics, Social and Behav. Sciences Game Theory Computational Social Sciences Operations Research/Decision Theory Simulation and Modeling Complex Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Game Theory -- Game Theory, Introduction to -- Cooperative Games -- Cooperative Games (von Neumann–Morgenstern Stable Sets) -- Cost Sharing -- Fair Division -- Two-Sided Matching Models -- Networks and Stability -- Market Games and Clubs -- Voting -- Voting Procedures, Complexity of -- Social Choice Theory -- Static Games -- Game Theory and Strategic Complexity -- Zero-Sum Two Person Games -- Differential Games -- Bayesian Games: Games with

Incomplete Information -- Correlated Equilibria and Communication in Games -- Signaling Games -- Auctions -- Repeated Games with Complete Information -- Repeated Games with Incomplete Information -- Reputation Effects -- Learning in Games -- Dynamic Games with an Application to Climate Change Models -- Evolutionary Game Theory -- Stochastic Games -- Implementation Theory -- Mechanism Design -- Market Design -- Principal-Agent Models -- Inspection Games -- Experimental Games -- Part II Agent Based Modeling and Simulation -- Agent Based Modeling and Simulation, Introduction to -- Agent Based Modeling and Simulation -- Embodied and Situated Agents, Adaptive Behavior in -- Swarm Intelligence -- Agent-Based Modeling and Artificial Life -- Interaction Based Computing in Physics -- Cellular Automaton Modeling of Tumor Invasion -- Agent Based Computational Economics -- Social Phenomena Simulation -- Computer Graphics and Games, Agent Based Modeling in -- Agent Based Modeling, Large Scale Simulations -- Agent Based Modeling for Multi-scale systems -- Agent Based Modeling, Mathematical Formalism for -- Logic and Geometry of Agents in Agent-Based Modeling -- Agent-Based Modeling and Computer.

Sommario/riassunto

This volume in the Encyclopedia of Complexity and Systems Science, Second Edition, combines the main features of Game Theory, covering most of the fundamental theoretical aspects under the cooperative and non-cooperative approaches, with the procedures of Agent-Based Modeling for studying complex systems composed of a large number of interacting entities with many degrees of freedom. In Game Theory, the cooperative approach focuses on the possible outcomes of the decision-makers' interaction by abstracting from the "rational" actions or decisions that may lead to these outcomes. The non-cooperative approach focuses on the actions that the decision-makers can take. As John von Neumann and Oskar Morgenstern argued in their path-breaking book of 1944 entitled Theory of Games and Economic Behavior, most economic questions should be analyzed as games. The models of game theory are abstract representations of a number of real-life situations and have applications to economics, political science, computer science, evolutionary biology, social psychology, and law among others. Agent-Based Modeling (ABM) is a relatively new computational modeling paradigm which aims to construct the computational counterpart of a conceptual model of the system under study on the basis of discrete entities (i.e., the agent) with some properties and behavioral rules, and then to simulate them in a computer to mimic the real phenomena. Given the relative immaturity of this modeling paradigm, and the broad spectrum of disciplines in which it is applied, a clear cut and widely accepted definition of high level concepts of agents, environment, interactions and so on, is still lacking. This volume explores the state-of-the-art in the development of a real ABM ontology to address the epistemological issues related to this emerging paradigm for modeling complex systems. .
