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Collana	Understanding Complex Systems, , 1860-0840
Disciplina	332.028563 330.028563
Soggetti	Economics Mathematical physics Computer science Dynamics Nonlinear theories Computer engineering Computer networks Social sciences - Mathematics Theoretical, Mathematical and Computational Physics Computer Science Applied Dynamical Systems Computer Engineering and Networks Mathematics in Business, Economics and Finance Economia Processament de dades Intel·ligència artificial Llibres electrònics
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Perspectives from the Development of Agent-based Modelling in Economics and Finance -- Towards a General Model of Financial

Markets -- The U-Mart Futures Exchange Experiment and Her Institutional Design Historically Inherited -- A Bottom-Up Framework for Data-Driven Agent-Based Simulations -- Can News Networks and Topics Influence Assets Return and Volatility? -- Causal Inference and Agent-Based Models -- Finding the Human in Their Stories: Some Thoughts on Digital Humanities Tools -- Interdependence Overcomes the Limitations of Rational Theories of Collective Behavior: The Productivity of Patents by Nations -- Sand Castles and Financial Systems.-Estimation of Agent-Based Models via Approximate Bayesian Computation -- Unravelling Aspects of Decision Making Under Uncertainty -- Logic and Epistemology in Behavioral Economics -- Aggregate Investor Attention and Bitcoin Return: The Machine Learning Approach -- Information and Market Power: An Experimental Investigation into the Hayek Hypothesis -- Algorithmically Learning, Creatively and Intelligently to Play Games -- A Simonian Formalistic Perspective on Collaborative, Distributed Invention -- Modified Sraffan Schemes and Algorithmic Rational Agents.

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#### Sommario/riassunto

This book presents frontier research on the use of computational methods to model complex interactions in economics and finance. Artificial Intelligence, Machine Learning and simulations offer effective means of analyzing and learning from large as well as new types of data. These computational tools have permeated various subfields of economics, finance, and also across different schools of economic thought. Through 16 chapters written by pioneers in economics, finance, computer science, psychology, complexity and statistics/econometrics, the book introduces their original research and presents the findings they have yielded. Theoretical and empirical studies featured in this book draw on a variety of approaches such as agent-based modeling, numerical simulations, computable economics, as well as employing tools from artificial intelligence and machine learning algorithms. The use of computational approaches to perform counterfactual thought experiments are also introduced, which help transcend the limits posed by traditional mathematical and statistical tools. The book also includes discussions on methodology, epistemology, history and issues concerning prediction, validation, and inference, all of which have become pertinent with the increasing use of computational approaches in economic analysis.

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