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Titolo	Trends and Challenges in Cognitive Modeling : An Interdisciplinary Approach Towards Thinking, Memory, and Decision-Making Simulations / / edited by Tomas Veloz, Andrei Khrennikov, Bourama Toni, Ramón D. Castillo
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Collana	STEAM-H: Science, Technology, Engineering, Agriculture, Mathematics & Health, , 2520-1948
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Soggetti	Neural networks (Computer science) Quantum computing Computational complexity Computer science - Mathematics Mathematical Models of Cognitive Processes and Neural Networks Quantum Information Computational Complexity Mathematical Applications in Computer Science
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Nota di contenuto	Preface -- Introduction: Modern Approaches to the Study of Human Cognition -- Use of Agent-based Modeling (ABM) in Psychological Research -- Nyayasutra proof pattern: An interpretation of similarity as the fact of sharing two properties -- Using Pheromone Trail Algorithm to Model Analog Memory -- Review on social laser theory and its applications -- Challenges from probabilistic learning for models of brain and behavior -- The Emergence of Cognitive and Computation: A Physicalistic Perspective -- Analyzing the conjunction fallacy as a fact -- Yes ghosts, no unicorns: quantum modeling and causality in physics and beyond -- Compositional vector semantics in spiking neural networks -- Optimality, Prototypes, and Bilingualism -- The Dimensionality of Color Perception -- Index.

Sommario/riassunto

This book presents interdisciplinary research in the science of Human Cognition through mathematical and computational modeling and simulation. Featuring new approaches developed by leading experts in the field of cognitive science, it highlights the relevance and depth of this important area of social sciences and its expanding reach into the biological, physical, computational and mathematical sciences. This contributed volume compiles the most recent advancements and cutting-edge applications of cognitive modeling, employing a genuinely multidisciplinary approach to simulate thinking, memory, and decision-making. The topics covered encompass a wide range of subjects, such as Agent-based Modeling in psychological research, the Nyayasutra proof pattern, the utilization of the Pheromone Trail Algorithm for modeling Analog Memory, the theory and practical applications of Social Laser Theory, addressing the challenges of probabilistic learning in brain and behavior models, adopting a Physicalistic perspective to understand the emergence of cognition and computation, an in-depth analysis of the conjunction fallacy as a factual occurrence, exploring quantum modeling and causality in physics and its extensions, examining compositional vector semantics within spiking neural networks, delving into the realms of Optimality, Prototypes, and Bilingualism, and finally, investigating the intricate dimensionality of color perception. Given its scope and approach, the book will benefit researchers and students of computational social sciences, mathematics and its applications, quantum physics.