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Soggetti	Artificial intelligence Computer science - Mathematics Computer science Computer engineering Computer networks Computers, Special purpose Artificial Intelligence Mathematics of Computing Theory of Computation Computer Engineering and Networks Computer Communication Networks Special Purpose and Application-Based Systems
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Nota di contenuto	-- Emergent Dynamics in Heterogeneous Life-Like Cellular Automata. -- Autonomous Traffic Management: Integrating Vissim Traffic Model with a Swarm of Drones. -- Analysing Opinion Dynamics via a Cognitive Model of Structured Beliefs. -- When is Reservoir Computing with Cellular Automata Beneficial?. -- Chemotactic swarming of C. elegans as a collective decision-making process. -- Factors Impacting Landscape Ruggedness in Control Problems: a Case Study. -- Steps to

chemically embodied cognition. -- Benchmarking Decision-Making Mechanisms for Site Selection. -- Emergent Naming System in an Unknown Dynamic Environment: a Collective Perception Scenario. -- Mixed-variable surrogate-based optimization using affinity features to improve the distance for categorical variables. -- Using pseudo-attractors of genetic regulatory networks to analyze biological data. -- Costs of Information Gathering Strategies and Their Impact on Animal Dispersal. -- Cooperation in Evolved Modular Soft Robots. --Energy-Aware Neural Architecture Search: Leveraging Genetic Algorithms for Balancing Performance and Consumption. -- Explainable Multi-label Classification for Predictive Maintenance. -- Cross-Entropy Regularization with Mutual Information in Training CNNs. -- Implementation of the response to synchronization in e-puck2 robots. -- Attractive-repulsive challenge in swarmalators with time-dependent speed. -- A "Plug and Play" Table for Composable Molecular Neural Networks Built with DNA. -- Educational Robotics: from Computational to Complexity Thinking. -- An Ecological Model of Cancer Development and Control. -- Stability of Input Representations in Biological Neural Network Reservoirs. -- Latent agency: A proto-cognitive property of autonomous systems.

Sommario/riassunto

This book constitutes revised selected papers from the 18th Italian Workshop on Artificial Life and Evolutionary Computation, WIVACE 2024, which took place in Namur, Belgium, during September 11-13, 2024. The 23 full papers included in this book were carefully reviewed and selected from 40 submissions. The workshop brings together computer scientists, mathematicians, biologists, psychologists, and cognitive scientists to discuss issues related to the origin of life, evolution and adaptation, collective and social behaviours and other topics related to the development of technological solutions inspired by biological principles.
