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   Nota di contenuto   Invited Papers -- Spontaneous Coalition Forming. Why Some Are Stable? -- Simulating Spatial Dynamics by Probabilistic Cellular Automata -- Cellular Automata Models for Transportation Applications -- Contributed Papers -- An Evolutionary Approach to the Study of Non-trivial Collective Behavior in Cellular Automata -- Artificially Evolved Asynchronous Cellular Automata for the Density Task -- Evolving Cellular Automata as Pattern Classifier -- An Efficient Mapping Scheme for Embedding Any One-Dimensional Firing Squad Synchronization Algorithm onto Two-Dimensional Arrays -- Chaotic Subshifts Generated by One Dimensional Elementary CA. The Role of Transitivity -- Stochastic Analysis of Cellular Automata and the Voter Model -- Universality Class of Probabilistic Cellular Automata -- Kinetic Approach to Lattice Quantum Mechanics -- Emergence of Self-Replicating Loops in an Interactive, Hardware-Implemented Game-of-Life Environment -- Spontaneous Emergence of Robust Cellular

Replicators -- Emergence of Macro Spatial Structures in Dissipative Cellular Automata -- Enhancing Cellular Spaces by Multilayered Multi Agent Situated Systems -- Perturbing the Regular Topology of Cellular Automata: Implications for the Dynamics -- A Path-Planner for Mobile Robots of Generic Shape with Multilayered Cellular Automata -- Dynamics of Populations in Extended Systems -- Simulation of Vegetable Populations Dynamics Based on Cellular Automata -- A Fish Migration Model -- A Parallel Cellular Ant Colony Algorithm for Clustering and Sorting -- A Multiparticle Lattice Gas Automata Model for a Crowd -- CA Approach to Collective Phenomena in Pedestrian Dynamics -- Opinion Formation and Phase Transitions in a Probabilistic Cellular Automaton with Two Absorbing States -- Cellular Automata Based Authentication (CAA) -- Cellular Automata Machine for Pattern Recognition -- Cellular Automata Model of Drug Therapy for HIV Infection -- Cellular Automata Approaches to Enzymatic Reaction Networks -- Modelling Surface Flows for Macroscopic Phenomena by Cellular Automata: An Application to Debris Flows -- Simulation Framework for the Autobahn Traffic in North Rhine-Westphalia -- Cellular Automata Based Temporal Process Understanding of Urban Growth -- Playing with Automata. An Innovative Perspective for Gaming Simulation -- Urban Cellular Automata: The Inverse Problem -- Regional Controllability with Cellular Automata Models.

| Sommario/riassunto | This volume contains the proceedings of the Fifth International Conference on Cellular Automata for Research and Industry (ACRI 2002) that was held in - neva on October 9–11, 2002. After more modest beginnings in 1994 as a largely Italian conference, over the years ACRI has gradually become ?rmly established as one of the premier conferences in the ?eld of cellular automata in Europe and beyond. Althoughthe?eldofcellularautomataisarelativelyoldandestablishedone, these simple but powerful systems and their newer variations continue to attract the interest of researchers after more than half a century since the seminal work of Ulam and Von Neumann. The ACRI series of conferences has the ambition of being an internationally renowned forum for all those interested in the theory and applications of cellular systems. The contributions collected in this volume concern cellular automata in - rious?eldssuchastheory,implementationsandapplications. Inaddition,several ?eldsofresearch(e.g.themulti-agentsapproach) adoptmethodologiesthatshow strict a?nities to cellular automata, but without the label "Cellular Automata". Therefore, one of our intentions was to enlarge the cellular automata community to include new related techniques. |