1. Record Nr. UNINA9910484834803321

Titolo	Cellular Automata : 9th International Conference on Cellular Automata for Research and Industry, ACRI 2010, Ascoli Piceno, Italy, September 21-24, 2010, Proceedings / / edited by Stefania Bandini, Sara Manzoni, Hiroshi Umeo, Giuseppe Vizzari
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
ISBN	1-280-38930-3 9786613567222 3-642-15979-6
Edizione	[1st ed. 2010.]
Descrizione fisica	1 online resource (XVI, 672 p. 332 illus.)
Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 6350
Altri autori (Persone)	BandiniStefania
Disciplina	005.0151135
Soggetti	Computer science Algorithms Computer simulation Computer networks Bioinformatics Theory of Computation Computer Modelling Computer Communication Networks Computational and Systems Biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Theoretical Results on Cellular Automata -- Information Transfer among Coupled Random Boolean Networks -- Open Environment for 2d Lattice-Grain CA -- All-to-All Communication with CA Agents by Active Coloring and Acknowledging -- The Sandpile Model: Parallelization of Efficient Algorithms for Systems with Shared Memory -- Theory and Application of Equal Length Cycle Cellular Automata (ELCCA) for Enzyme Classification -- Cellular Automata Model for Size Segregation of Particles -- Convex Hulls on Cellular Automata -- Square Kufic Pattern Formation by Asynchronous Cellular Automata -- Modeling and Simulation with Cellular Automata -- Development and

Calibration of a Preliminary Cellular Automata Model for Snow Avalanches -- Tracking Uncertainty in a Spatially Explicit Susceptible-Infected Epidemic Model -- A Proximal Space Approach for Embedding Urban Geography into CA Models -- Bone Remodelling: A Complex Automata-Based Model Running in BioShape -- CANv2: A Hybrid CA Model by Micro and Macro-dynamics Examples -- Simulation of Traffic Flow at a Signalised Intersection -- A Novel Method for Simulating Cancer Growth -- Towards Cellular Automata Football Models with Mentality Accounting -- The Complexity of Three-Dimensional Critical Avalanches -- Using Cellular Automata on a Graph to Model the Exchanges of Cash and Goods -- Montebello: A Metapopulation Based Model of Carcinogenesis -- CA Dynamics, Control and Synchronization -- Towards Generalized Measures Grasping CA Dynamics -- Synchronization and Control of Cellular Automata -- Discovery by Genetic Algorithm of Cellular Automata Rules for Pattern Reconstruction Task -- Addition of Recurrent Configurations in Chip Firing Games: Finding Minimal Recurrent Configurations with Markov Chains -- A Seven-State Time-Optimum Square Synchronizer -- Codes andCryptography with Cellular Automata -- Null Boundary 90/150 Cellular Automata for Multi-byte Error Correcting Code -- Generating Cryptographically Suitable Non-linear Maximum Length Cellular Automata -- Chaotic Cellular Automata with Cryptographic Application -- d-Monomial Tests of Nonlinear Cellular Automata for Cryptographic Design -- Programmable Cellular Automata (PCA) Based Advanced Encryption Standard (AES) Hardware Architecture -- Exhaustive Evaluation of Radius 2 Toggle Rules for a Variable-Length Cryptographic Cellular Automata-Based Model -- Cellular Automata and Networks -- Network Decontamination with Temporal Immunity by Cellular Automata -- Characterization of CA Rules for SACA Targeting Detection of Faulty Nodes in WSN -- Cellular Automata Applied in Remote Sensing to Implement Contextual Pseudo-fuzzy Classification -- Impact of Coupling of Distributed Denial of Service Attack with Routing on Throughput of Packet Switching Network -- CA-Based Hardware -- A Cellular Automata-Based Modular Lighting System -- Modeling and Programming Asynchronous Automata Networks: The MOCA Approach -- Efficient Circuit Construction in Brownian Cellular Automata Based on a New Building-Block for Delay-Insensitive Circuits -- A Cellular Automaton Controlled Shading for a Building Facade -- FPGA Design of a Cellular Automaton Model for Railway Traffic Flow with GPS Module -- ACA - Int. Workshop on Asynchronous CA -- What Do We Mean by Asynchronous CA? A Reflection on Types and Effects of Asynchronicity -- Parallel Composition of Asynchronous Cellular Automata Simulating Reaction Diffusion Processes -- Comparative Study of Parallel Algorithms for Asynchronous Cellular Automata Simulation on Different Computer Architectures -- Coxeter Groups and Asynchronous Cellular Automata -- Some Formal Properties of Asynchronous Cellular Automata -- A Study on the Automatic Generation of Asynchronous Cellular Automata Rules by Means of Genetic Algorithms -- C&CA - Int. Workshop on Crowds and CA -- Towards Patterns of Comfort: A Multilayered Model Based on Situated Multi-agent Systems -- A Pedestrian Movement Model That Takes into Account the Capacity Drop Phenomenon in the Motion of Crowd -- A Cellular Automaton Model for Crowd Evacuation and Its Auto-Defined Obstacle Avoidance Attribute -- A Learning Algorithm for the Simulation of Pedestrian Flow by Cellular Automata -- On Influencing of a Space Geometry on Dynamics of Some CA Pedestrian Movement Model -- The Dynamic Distance Potential Field in a Situation with Asymmetric Bottleneck Capacities -- Solving the Direction Field for

Discrete Agent Motion -- Phase Coexistence in Congested States of Pedestrian Dynamics -- Stochastic Transition Model for Discrete Agent Movements -- Analysis of Obstacle Density Effect on Pedestrian Congestion Based on a One-Dimensional Cellular Automata -- Excluded Volume Effect in a Pedestrian Queue -- T&CA - Int. Workshop on Traffic and CA -- Simulation on Vehicle Emission by the Brake-Light Cellular Automata Model -- Bidirectional Traffic on Microtubules -- Cellular Automata for a Traffic Roundabout -- Cellular Automata for a Cyclic Bus -- Dynamics of a Tagged Particle in the Asymmetric Exclusion Process with Particlewise Disorder -- Chase and Escape in Groups -- A Velocity-Clearance Relation in the Rule-184 Cellular Automaton as a Model of Traffic Flow -- CA and MAS – With the NaSch as Example -- Productivity Enhancement through Lot Size Optimization -- Multilane Single GCA-w Based Expressway Traffic Model -- Properties of Cellular Automaton Model for On-ramp System -- Inversion of Flux between Zipper and Non-ZipperMerging in Highway Traffic -- Clustering and Transport Efficiency in Public Conveyance System -- Clusters in the Helbing’s Improved Model -- Phase Transitions in Cellular Automata for Cargo Transport and Kinetically Constrained Traffic -- A New Computational Methodology Using Infinite and Infinitesimal Numbers -- IWNC - Int. Workshop on Natural Computing -- Molecular Implementations of Cellular Automata -- Achieving Universal Computations on One-Dimensional Cellular Automata.

Sommario/riassunto

Thisvolumecollectsthepapersselectedforpresentationatthe9thInternation al Conference on Cellular Automata for Research and Industry (ACRI 2010), held in Ascoli Piceno (Italy), September 21-24, 2010. ACRI conferences have been o'ering since 1994 a biennial scienti'c meeting to both scientists and innovation managersin academia and industriy to express and discuss their viewpoints on current and future trends, challenges, and sta- of-the-art solutions to various problems in the ? elds of arts, biology, chemistry, communication,ecology,economy, engineering,networks,physics, socialscience, and tra'c control. ACRI 2010 was organized by the Complex Systems and - ti'cial Intelligence (CSAI) research center of the University of Milano-Bicocca as a forum for the presentation and discussion of specialized results as well as general contributions to the growth of the cellular automata approach and its application. Cellular automata represent a very powerful approach to the study of spatio-temporal systems where complex phenomena are built up out of many simple localinteractions. The ACRI conferenceserieswas'rstorganizedin Italy (ACRI1994inRende, ACRI1996inMilan,andACRI1998inTrieste),andafter having moved to other Europeanand international settings, this year came back to Italy: ACRI 2000 in Karlsruhe (Germany), ACRI 2002 in Geneva (Switz- land), ACRI 2004 in Amsterdam (The Netherlands), ACRI 2006 in Perpignan (France), and ACRI 2008 in Yokohama (Japan). In order to give a perspective in which both theoretical and applicational - pectsofcellularautomatacontributetothegrowthofthearea, thisbookmirrors the structure of the conference, groupingthe 74 papers into two main parts.