

# ACRI 2010 program (draft)

## IX International Conference on Cellular Automata for Research and Industry

Ascoli Piceno, 21<sup>st</sup>-24<sup>th</sup> September 2010

Tuesday September, 21 <sup>st</sup>					
c/o CUP – Centro Universitario Piceno (Colle dell'Annunziata )	09.00-13.00		Workshop on Crowds &CA	Workshop on Traffic &CA	
	14.00-18.00	Workshop on Asynchronous CA	Workshop on Crowds &CA	Workshop on Traffic &CA	Workshop on Natural Computing
	18.00-19.00	Invited Speaker: TBD			
	19.00-20.00	Social event: aperitif at ArchiCafè (Colle dell'Annunziata)			
c/o Teatro Comunale Ascoli Piceno	20.00-22.00	ACRI 2010 opening (musical event) <i>Organized with the collaboration of Saturnino Celani, Katsuhiko Nishinari and Yuri Shingu</i>			
Wednesday September, 22 <sup>nd</sup>					
c/o Auditorium Fondazione Casse di Risparmio	09.00-13.00	ACRI2010 – CA Theory			
	14.00-15.00	Invited speaker: <i>Nabeel Koshak (Hajj&amp;Umrah research center, Saudi Arabia)</i>			
	15.00-18.00	ACRI2010 – CA dynamics, control and synchronization			
Thursday September, 23 <sup>rd</sup>					
c/o Auditorium Fondazione Casse di Risparmio	09.00-13.00	ACRI2010 – Modelling and Simulation with CA			
	14.00-15.00	Invited speaker: <i>Vito Acconci (Acconci Studio, NY)</i>			
	15.00-18.00	ACRI2010 – CA-based Hardware			
c/o Ristorante TBD	20.00-22.00	Social dinner			
Friday September, 24 <sup>th</sup>					
c/o Auditorium Fondazione Casse di Risparmio	9.30-10.30	Invited speaker vs Social event (Ascoli Piceno sightseeing)			
	10.30-13.00	ACRI2010 – CA Networks			
	14.00-17.00	ACRI2010 – CA codes and cryptography			

Wednesday September, 22 <sup>nd</sup>		
	09.00	<b>ACRI 2010 Opening</b> – S. Bandini, I. Humeo
CA Theory	09.20	Chiara Damiani, Stuart Kauffman, Roberto Serra, Marco Villani and Annamaria Colacci. Information transfer among coupled Random Boolean Networks
	09.45	Soumyabrata Ghosh, Tirthankar Bachhar, Nirmalya S. Maiti, Indrajit Mitra and Parimal Pal Chaudhuri. Theory and Application of Equal Length Cycle Cellular Automata (ELCCA) for Enzyme Classification
	10.10	Toshihiko Komatsuzaki and Yoshio Iwata. Cellular Automata Model for the Size Segregation of Particles
	10.35	Sebastian Frehmel. The Sandpile Model: Parallelization of Efficient Algorithms for Systems with Shared Memory
	11.00	<b>Coffee break</b>
	11.45	Luidnel Maignan and Frédéric Gruau. Convex Hulls on Cellular Automata
	12.10	Dominique Désérable and Guillaume Cottenceau. Open environment for 2d lattice grain CA
	12.35	Patrick Ediger and Rolf Hoffmann. All to all Communication with CA Agents by Active Coloring and Acknowledging
	13.00	<b>Lunch</b>
Invited speaker	14.00	<b>Dr. Nabeel Koshak (Hajj&amp;Umrah research center, Saudi Arabia)</b>
CA dynamics, control and synchronization	15.00	Jan Baetens and Bernard De Baets. Towards generalized measures grasping CA dynamics
	15.25	Franco Bagnoli, Samira El Yacoubi and Raul Rechtman. Synchronization and control of cellular automata
	15.50	Anna Piwonska and Franciszek Seredynski. Discovery by Genetic Algorithm of Cellular Automata Rules for Pattern Reconstruction Task
	16.15	<b>Coffee break</b>
	17.00	Matthias Schulz. Addition of Recurrent Configurations in Chip Firing Games: Finding Minimal Recurrent Configurations with Markov Chains
	17.25	Hiroshi Umeo. A Seven State Time Optimum Square Synchronizer
Thursday September, 23 <sup>rd</sup>		
Modeling and Simulation	09.00	Maria Vittoria Avolio, Alessia Errera, Valeria Lupiano, Paolo Mazzanti and Salvatore Di Gregorio. Development and calibration of a preliminary Cellular Automata Model for Snow Avalanches
	09.25	Jan Baetens and Bernard De Baets. Tracking uncertainty in a spatially explicit epidemic model
	09.50	Ivan Blečić, Arnaldo Cecchini and Giuseppe A. Trunfio. A Proximal Space Approach for Embedding Urban Geography into CA Models
	10.15	Diletta Cacciagrano, Flavio Corradini and Emanuela Merelli. Bone Remodelling: a Complex Automata-based model running in BioShape
	10.40	<b>Coffee break</b>
	11.15	Claudia Roberta Calidonna, Adele Naddeo, Salvatore Di Gregorio and Giuseppe Andrea Trunfio. Canv2: a hybrid CA model by micro and macro-dynamics examples
	11.40	Mehrdad Ghaemi, Omid Naderi and Zahra Zabihinpour. A Novel Method for Simulating Cancer Growth
	12.05	Andres Montoya and Mejia Carolina. The Complexity of Three-dimensional Avalanches
	12.30	Ranaivo Mahaleo Razakanirina and Bastien Chopard. Using Cellular Automata on a Graph to Model the Exchanges of Cash and Goods
		13.00
Invited speaker	14.00	<b>Vito Acconci (Acconci Studio, New York)</b>

CA based hardware	15.00	Stefania Bandini, Andrea Bonomi and Giuseppe Vizzari. A Cellular Automata based Modular Illumination System
	15.25	Stefania Bandini, Andrea Bonomi and Giuseppe Vizzari. Modeling and Programming Asynchronous Automata Networks: the MOCA Approach
	15.50	<b>Coffee break</b>
	16.30	Jia Lee and Ferdinand Peper. Efficient Circuit Construction in Brownian Cellular Automata Based on A New Building Block for Delay Insensitive Circuits
	16.55	Machi Zawidzki, A cellular automaton controlled shading for a building façade
	17.20	Anastasios Tsiftsis, Georgios Ch. Sirakoulis and John Lygouras. FPGA Design of a Cellular Automaton Model for Railway Traffic Flow with GPS Module
	20.00	<b>Social dinner</b>
<b>Friday September, 24<sup>th</sup></b>		
Invited speaker	09.30	TBD
	10.30	<b>Coffee break</b>
CA and networks	10.00	Yassine Daadaa, Paola Flocchini and Nejib Zaguia. Network Disinfection with Temporal Immunity by Cellular Automata
	11.25	Sukanta Das, Nazma N Naskar, Sukanya Mukherjee, Mamata Dalui and Biplab K Sikdar. Characterization of CA Rules For SACA Targeting Detection of Faulty Nodes In WSN
	11.50	Moisés Espínola, Rosa Ayala, Saturnino Leguizamón, Luis Iribarne and Massimo Menenti. Cellular automata applied in remote sensing to implement contextual pseudo fuzzy classification
	12.15	Anna T. Lawniczak, Hao Wu and Bruno N. Di Stefano. Impact of Coupling of Distributed Denial of Service Attack with Routing on Throughput of Packet Switching Network
	12.40	<b>Lunch</b>
Codes and cryptography	14.00	Jaydeb Bhaumik, Dipanwita Roy Chowdhury and Indrajit Chakrabarti. Null Boundary 90/150 Cellular Automata for Multi-byte Error Correcting Code
	14.25	Sourav Das and Dipanwita Roy Chowdhury. Generating Cryptographically Suitable Non linear Maximum Length Cellular Automata
	14.50	Amparo Fuster-Sabater, Pino Caballero- Gil. Chaotic Cellular Automata with Cryptographic Application
	15.15	<b>Coffee break</b>
	15.45	Sandip Karmakar, Debdeep Mukhopadhyay and Dipanwita Roy Chowdhury. D-Monomial Tests of Nonlinear Cellular Automata for Cryptographic Design
	16.10	Gina Oliveira and Luiz Gustavo Martins. Exhaustive Evaluation of Radius 2 Toggle Rules for a Variable- Length Cellular Automata Cryptographic Model

## Poster session – 22-24 September 2010 (@ coffee breaks)

Seyyed Amir Hadi Minoofam and Azam Bastanfard. SQUARE KUFIC PATTERN FORMATION BY ASYNCHRONOUS CELLULAR AUTOMATA

Nirmalya S Maiti, Soumyabrata Ghosh, Biplab K Sikdar and Parimal Pal Chaudhuri. Programmable Cellular Automata (PCA) Based Advanced Encryption Standard (AES) Hardware Architecture

Ebrahim Foulaadvand and Somayyeh Belbasi. Simulation of traffic flow at a signalized intersection

Oleksandr MAKARENKO, Dmitriy Krushinskiy, Anton Musienko and Boris Goldengorin. Cellular Automata Football Models

David Tuck, Willard Miranker and Jose Costa. A Metapopulation Based Model of Carcinogenesis

<http://maps.google.it/maps/ms?ie=UTF8&hl=it&msa=0&msid=114830151949738592231.000486ee38c286cff7ced&ll=42.854921,13.573351&spn=0.011011,0.018239&z=15&source=embed>



**ACA workshop – Tuesday, September 21<sup>st</sup> 2010 (15.00-18.00)**

Stefania Bandini, Andrea Bonomi, Giuseppe Vizzari. What Do We Mean by Asynchronous CA? A Reflection on Types and Effects of Asynchronicity

Olga Bandman. Parallel Composition of Asynchronous Cellular Automata Simulating Reaction Diffusion Processes

Konstantin Kalgin. Comparative Study of Parallel Algorithms for Asynchronous Cellular Automata Simulation on Different Computer Architectures

Matthew Macauley, Henning Mortveit. Coxeter Groups and Asynchronous Cellular Automata

Luca Manzoni. Some Formal Properties of Asynchronous Cellular Automata

Andrea Valsecchi, Leonardo Vanneschi, Giancarlo Mauri. A Study on the Automatic Generation of Asynchronous Cellular Automata Rules by means of Genetic Algorithms

**Crowds&CA2010 workshop – Tuesday, September 21<sup>st</sup> 2010 (09.00-18.00)**

Paola Lembo, Lorenza Manenti and Sara Manzoni. Towards Patterns of Comfort: a Multilayered Model based on Situated Multi-Agent Systems

Elvezia Maria Cepolina and Alessandro Farina. A pedestrian movement model that takes into account the capacity drop phenomenon in the motion of crowd.

Ioakeim Georgoudas, Georgios Koltsidas, Georgios Ch. Sirakoulis and Ioannis Andreadis. A Cellular Automaton Model for Crowd Evacuation and its Auto-Defined Obstacle Avoidance Attribute

Hideaki Ishii and Shin Morishita. A Learning Algorithm for the Simulation of Pedestrian Flow by Cellular Automata

Ekaterina Kirik, Tat'yana Yurgel'yan and Dmitriy Krouglov. On influencing of a space geometry on dynamics of some CA pedestrian movement model

Tobias Kretz. The Dynamic Distance Potential Field in a Situation with Asymmetric Bottleneck Capacities

Michael Schultz, Tobias Kretz and Hartmut Fricke. Solving the Direction Field for Discrete Agent Motion

Armin Seyfried, Andrea Portz and Andreas Schadschneider. Phase coexistence in congested states of pedestrian dynamics

Michael Schultz and Hartmut Fricke. Stochastic transition model for discrete agent movements

Kenichiro Shimura, Yuki Tanaka and Katsuhiro Nishinari. Analysis of Obstacle Density Effect on Pedestrian Congestion Based on a One-Dimensional Cellular Automata

Daichi Yanagisawa, Yuki Tanaka, Rui Jiang, Akiyasu Tomoeda, Kazumichi Ohtsuka, Yushi Suma and Katsuhiro Nishinari. Excluded Volume Effect in a Pedestrian Queue

**Traffic&CA2010 workshop – Tuesday, September 21<sup>st</sup> 2010 (09.00-18.00)**

Liyun Dong, Peng Zhang and Shi-qiang Dai. Simulation on Vehicle Emission by the Brake-Light Cellular Automata Model

Maximilian Ebbinghaus, Cecile Appert-Rolland and Ludger Santen. Bidirectional traffic on microtubules

Ding-wei Huang. Cellular Automata for a Traffic Roundabout

Takashi Imamura. Dynamics of a tagged particle in the asymmetric exclusion process with particlewise disorder

Atsushi Kamimura, Shigenori Matsumoto, Nobuyasu Ito and Toru Ohira. Chase and escape in groups

Masahiro Kanai. A Velocity-Clearance Relation in the Rule-184 Cellular Automaton as a Model of Traffic Flow

Takumi Minemura, Katsuhiro Nishinari and Andreas Schadschneider. Productivity enhancement through lot size optimization

Anna T. Lawniczak and Bruno N. Di Stefano. Multilane Single GCA-w based Expressway Traffic Model

Xin-Gang Li, Zi-You Gao and Bin Jia. Properties of Cellular Automaton Model for On-ramp System

Ryosuke Nishi, Hiroshi Miki, Akiyasu Tomoeda, Daichi Yanagisawa and Katsuhiro Nishinari. Inversion of Flux between Zipper and Non-Zipper Merging in Highway Traffic

Akiyasu Tomoeda, Ryosuke Nishi and Katsuhiro Nishinari. Clustering and Transport Efficiency in Public Conveyance System

Marko Woelki. Phase transitions in cellular automata for cargo transport and kinetically constrained traffic

**POSTER Wei-neng Huang and Ding-wei Huang. Cellular Automata for a Cyclic Bus**

**POSTER Tobias Kretz. CA and MAS -- with the NaSch as Example**

**POSTER Rosa M Velasco and Patricia Saavedra. Clusters in Helbing's improved model**

**Workshop on Natural Computing – September 21<sup>st</sup> 2010 (14.00-18.00)**

Yaroslav D. Sergeyev, "A New Computational Methodology Using Infinite and Infinitesimal Numbers"

Satyajit Sahu, Anirban Bandyopadhyaya et al. "Molecular Implementations of Cellular Automata"

Jean-Baptiste Yunes, "Achieving Universal Computations on One-dimensional Cellular Automata"

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