ICCS 2011: Draft Program of Contributed Presentations

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Sunday June 26th Morning

Pedagogical Session (1)

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Sunday June 26th Afternoon

Pedagogical Session (2)

Highlight Plenary Session

29 Mark Bedau, Noah Pepper, Devin Chalmers and Charles Francis. Statistical measures of the evolution of the drivers of technology as reflected in the patent record

146 Charlotte Hemelrijk and Ivan Puga-Gonzalez. The Self Organization of Primate Social Systems

NSF Funding Session

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Sunday June 26th Evening

Reception

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Monday June 27th Morning

Plenary Session (1): Complexity

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Monday June 27th Afternoon Parallel Session 1

Emergence, Complexity and Information

110 Hugues Bersini. Emergent phenomena only belong to biology

175 Guillaume Chérel, Jacques Gignoux and Jean Daniel Zucker. The multi-scale nature of emergent properties: a formalism.

180 Abd-El-Kader Sahraoui. On Emergent Properties When Complexity Is Dealt With Simplicity

147 Jon Machta. Physical complexity and computational complexity

296 Kawandeep Virdee, Yavni Bar-Yam, Dion Harmon, Yaneer Bar-Yam, Giovanni Fusina and Gerard Pieris. Quantifying Multi-Scale Structure and Capabilities in Complex Systems

55 Georgi Georgiev. Least action as a quantitative measure for organization of a system

39 Jeff Levin. The Importance of Organization at Reducing Complexity

208 Ben Allen, Blake Stacey and Yaneer Bar-Yam. A Formalism for Multiscale Variety in Complex Systems

69 Georgi Georgiev. The principle of least action and the second law of thermodynamics

149 William Sulis. Causal Tapestries

243 Shawn Pethel and Daniel Hahs. Distinguishing Anticipation from Causality: Anticipatory Bias in the Estimation of Information Flow

125 Hector Sabelli. Causal creation: methods, mathematical model, and quantum, cosmic, biological and socioeconomic processes.

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Monday June 27th Afternoon Parallel Session 2

Ecology and Organism Behavior

261 Marcus Frean and Richard Mansfield. Emergence of “Rock-Paper-Scissors” ecologies from intra-specific competition.

187 Amanda Galante, Susanne Wisen, Devaki Bhaya and Doron Levy. Stochastic Models and Simulations of Phototaxis

253 Ranjit Kumar Upadhyay. Complex dynamics of the spatial plankton system: Travelling wave & Turing patterns

81 Elske Van Der Vaart, Rineke Verbrugge and Charlotte K. Hemelrijk. Corvid Cache Protection: Alternative Explanations from a Computational Model

158 Andrew Hein and Scott Mckinley. Navigating spatial environments: a probabilistic approach to understanding biological search

274 Monique De Jager, Franjo Weissing, Bart Nolet, Peter Herman and Johan Van De Koppel. Lévy walks evolve through interaction between movement and environmental complexity

Environment and Sustainability

201 Kejiang Zhang, Baoshan Cui and Guozhen Zhang. A Multi-Agent Based Model for Water Quality Management in the Yellow River Basin, China

214 Clément Chion, Lael Parrott, Samuel Turgeon, Philippe Lamontagne, Cristiane Martins, Jacques-André Landry, Danielle Marceau, Robert Michaud, Nadia Ménard, Guy Cantin and Suzan Dionne. An agent-based model to support the sustainable management of a complex social-ecological system

23 Anthony Halog, Yosef Manik, Binod Neupane and Najet Bichraoui. Advancing Integrated Methodological Framework for Developing Sustainable and Resilient Systems

159 Fred M. Discenzo and Kenneth A. Loparo. PROCESS DESIGN AND OPTIMIZATION FOR ALGAE-OIL SYSTEMS

156 David Keith, John Sterman and Jeroen Struben. Understanding Spreading Patterns of Hybrid-Electric Vehicle Adoption

71 Dimitris Papanikolaou. The Market Economy of Trips

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Monday June 27th Afternoon Parallel Session 3

Networks

242 David Arney and Elisha Peterson. Embracing the Complexity of Networks

84 Scott Pauls. A new notion of centrality for dense graphs

183 Joon-Young Moon, Dong-Myung Lee, Jacobus Koolen and Seunghwan Kim. Core-periphery disparity in fractal behavior of complex networks

140 Takeshi Ozeki, Hideyuki Koto, Hajime Nakamura and Teruhiko Kudo. Unique mode structure of BA network dominates Network Dynamics

63 Bing Wang, Lang Cao, Hideyuki Suzuki and Kazuyuki Aihara. Bond percolation on clique random networks and their applications to arbitrary interacting epidemics

215 Gergely Palla, Peter Pollner and Tamas Vicsek. Rotated multifractal network generator

78 Leonardo Morsut, Lorenzo Barasti, Domenico Salvagnin, Jonathan So and Arrigo Zanette. Spontaneous emergence of robustness motifs in networks under intrinsic noise evolution

290 Greg Ver Steeg, Armen Allahverdyan and Aram Galstyan. Semi-supervised Clustering in Sparse Networks

52 Eric Minch. Semantics of Network Display and Navigation

291 Robert Slattery. The Rational Agent in Scale-Free Network Emergence
280 Huiqi Zhang and Ram Dantu. Human Relationship and Behavior Analysis in Mobile Social Networks

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Monday June 27th Afternoon Parallel Session 4

Social Systems (1): Human Behavior, Opinion and Cultural Dynamics

229 Megan Olsen, Kyle Harrington and Hava Siegelmann. Computational Emotions in a Population Dynamics Cellular Automata Encourage Collective Behavior
346 Lilianne Mujica-Parodi, Anca Radulescu, Denis Rubin, Tomer Fekete and Helmut Strey. Diagnosing Emotional Stress Resilience from Limbic Regulation: fractals, pheromones, and fear.
172 Christian Alis and May Lim. Utterance length distributions of conversations with coding limits
268 Amer Ghanem and Ali Minai. Patterns of Interaction Behavior in Online Social Networks
22 Andreas Ligtvoet. Cooperation as a complex, layered phenomenon
127 Burton Voorhees. Trade-offs Between Accuracy and Quickness in Risk/Reward Situations
58 Ihor Lubashevsky and Shigeru Kanemoto. Complex dynamics of systems with motivation caused by scale-free memory
24 Usha Sridhar and Sridhar Mandyam. Lifting Beliefs over DeGroot Learning in Social Networks
244 Alexander Outkin and Robert Glass. Applications of Self-calibrating Hybrid Causal-Learning Systems to Opinion Dynamics Modeling
100 Anthony Woolcock, Colm Connaughton and Yasmin Merali. Linked and Weighted Features: Extensions to Axelrod's Cultural Model
313 Sarjoun Doumit and Ali Minai. Online News Media Bias Analysis using an LDA-NLP Approach
269 Katalin Martinas. Greatest Happiness Principle in a Complex System Approach

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Monday June 27th Afternoon Parallel Session 5

Complex Systems and Health

165 Masayuki Kakehashi. A fundamental mathematical model of the health care system
3 Stefan Topolski. Understanding Health from a Complex Systems Perspective
6 stefan topolski. The Nature of Virtue in Health Care Reform.
226 Thomas Moore, Patrick Finley, John Linebarger, Alexander Outkin, Stephen Verzi, Nancy Brodsky, Daniel Cannon and Robert Glass. Extending Opinion Dynamics to Model Public Health Problems and the Evaluation of Policy Interventions
224 Thomas Moore, Patrick Finley, John Linebarger, Walter Beyeler, Victoria Davey and Robert Glass. Analyzing Public Health Care as a Complex Adaptive System of Systems
248 Michael Widener, Sara Metcalf and Yaneer Bar-Yam. Modeling Food Preference within Urban Environments

Complex Systems and Medicine

4 stefan topolski. Improving the Medical Home through an Understanding of Complex Systems
5 stefan topolski. Pre-existing complex systems concepts among complexity naive physician peers.
8 stefan topolski. An ethnographic landscape of clinicians' understanding of Complex Systems Principles.
249 Bo Sun, Alex Klinke, Francisco Garcia and Paul Halpern. Tumor Vascular Permeability Measurement Using the MRF Model and a Genetic Algorithm
186 Anisoara Paraschiv-Ionescu, Christophe Perruchoud, Eric Buchser and Kamiar Aminian. Complexity of human activity patterns in chronic pain: from models to clinical assessment tools
228 Albaraa Salama, Robert Mart, Steven Nowicki and Stefanie Lopatkin. An Improved Algorithm That Strategically Determines When to Test ICD Lead Integrity

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Monday June 27th Evening Parallel Session 1

[MASCC] Workshop: Mathematical Aspects of Social and Cognitive Complexity

33 Dwight Read. Cultural Kinship as a Computational System: From Bottom-Up to Topdown Forms of Social Organization

131 Jürgen Klüver. [MASCC] Meaning, Information, and the Understanding of Ambiguity

169 Robert Reynolds and Yousof Gawasmeh. Evolving Heterogeneous Social Fabrics for the Solution of Real valued Optimization Problems Using Cultural Algorithms

198 Brian Castellani and Rajeev Rajaram. MASCC Social Complexity Theory: A Mathematical Outline

130 Christina Stoica-Kluever. [MASCC] Solving problems of project management with a Self Enforcing Network (SEN)

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Monday June 27th Evening Parallel Session 2

[CIF] Workshop: Complex Information Flow

50 Ashley Beattie. Modeling the Complex Information Network at Naval Reserve Headquarters

66 Karthika Raghavan and Heather Ruskin. [CIF]:Computational Epigenetic Micromodel - Framework for Parallel Implementation and Information Flow.

109 Dimitri Perrin and Hiroyuki Ohsaki. [CIF] Applications of Epidemic Diffusion to Complex Systems: from Communication Networks to Autonomous Exploratory Robots

113 Martin Rosvall. [CIF] Hierarchical organization of large integrated systems

144 Hideaki Suzuki, Mikio Yoshida and Hidefumi Sawai. Knowledge Transitive Network: A data-flow network for backward deduction

168 Yusuke Sakumoto, Takeaki Nishioka, Hiroyuki Ohsaki and Makoto Imase. [CIF]On the Effectiveness of Stable Numerical Solution for Flow-Level Network Simulation

176 Yosuke Yamada, Dimitri Perrin, Hiroyuki Ohsaki and Makoto Imase. Impact of Mobility Constraints on Epidemic Broadcast in DTNs

221 Lilian Weng, Alessandro Flammini and Filippo Menczer. An Information Propagation Model Based on User Interests

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Monday June 27th Evening Parallel Session 3

[ACS] Workshop: Aesthetics in Complex Systems

103 Suzan Woodruff and Bruce Bauman. Psychopomp

202 Stanislas Renard and Philip Fellman. What is Romani Music? An emerging definition learned from social network analysis.

239 Raoul Rickenberg. Generating insight by design

265 Leslie Alfin. COMPLEXITY & EVOLVED AESTHETICS THE ENLIGHTENED “HOPEFUL MONSTER”: THE NEXT GREAT LEAP

295 Daniel Kohn. Embracing Complexity: A Context for Meaning in Art and Science

314 Daniel Jones and Mark D'Inverno. Amplifying scientific creativity with agent-based simulation

321 Vaidehi Venkatesan and Ali Minai. Cuisines as Complex Networks

329 Luigi Fortuna, Mattia Frasca and Angelo Lamia. Foggy painting complexity

330 Paola Belluomo, Luigi Fortuna and Mattia Frasca. Aesthetics and emergent behaviour

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Monday June 27th Evening Parallel Session 4

[STCAN] Workshop: State-Topology Coevolution in Adaptive Networks

1 Hiroki Sayama. Adaptive networks: An emerging research theme on state-topology coevolution in complex networks
275 David M.S. Rodrigues, Manuel Tânger and Jorge Louçã. Synchronization in adaptive networks with co-evolutionary rewiring
203 Rob Mills, Richard A. Watson and C. L. Buckley. Emergent associative memory as a local organising principle for global adaptation in adaptive networks
211 Blake Stacey, Andreas Gros and Yaneer Bar-Yam. Beyond the Mean Field in Host--Consumer Spatial Ecology
182 Yasmin Merali. Information Dynamics and the Resilience of Social Systems
195 Bing Wu. Effects of Incentive Mechanism to Knowledge Transfer Network in Enterprise
256 Hiroki Sayama and Junichi Yamanoi. An Adaptive Network Model of Cultural Integration in Corporate Merger
178 Benjamin J. Bush, Jeffrey Schmidt and Hiroki Sayama. Behavior and Centrality in Idea Exchanging Adaptive Social Networks
89 Jeffrey Schmidt, Benjamin Bush and Hiroki Sayama. A Python Implementation of Generative Network Automata

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Tuesday June 28th Morning

Plenary Session (2): Systems Biology

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Tuesday June 28th Afternoon Parallel Session 1

Nonlinear Dynamics, Chaos, Fractals and Stochastic Systems

25 Kevin Hernandez-Pardo and Roozbeh Daneshvar. Dynamics of a Self-Adjusting Random Fibonacci System
128 Burton Voorhees. The Value of Non-Attachment in Complex Adaptive System Behavior
122 Philippe Binder. Mutual information and chaotic systems
72 Takashi Iba and Kazeto Shimonishi. The Origin of Diversity: Thinking with Chaotic Walk
48 Andrew Seely. Fractal structures optimize entropy production in complex dissipative systems
164 Irina Trofimova. Functional differentiation (FD) and the phenomena of fractal functionality (FF)
157 Rui A. Da Costa, Sergey N. Dorogovtsev, Alexander V. Goltsev and José F. F. Mendes. Solution of the explosive percolation quest
185 Alexander V. Goltsev, Kyoungeun Lee, Detlef Holstein, Marinho Lopes, Fernao V. De Abreu, Sergey N. Dorogovtsev and Jose F. F. Mendes. Stochastic model of neural networks with complex network architecture and dynamical synapses: from synchronization and global neural oscillations to chaos
153 Florentin Paladi. Stochastic versus agent-based models in theory and applications
92 Paul Smaldino and Jeffrey Schank. How We Move Around, Not Just That We Do: Random Walks, Agent-Based Models, and the Evolution of Cooperation
199 Benjamin Aas. Body-Gödel-Mind: The unsolvability of the hard problem of consciousness.

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Tuesday June 28th Afternoon Parallel Session 2

Systems Biology

323 Mario Pavone. P system Reverse Engineering for Gene Regulatory Networks in S-system Model
298 Michelle Girvan, Andrew Pomerance and Edward Ott. The Effects of Network Structure on the Stability of Genetic Control: From Models to Data
237 Micah Brodsky and Gerald Sussman. White Lies About Biology: Programming Deformable Surfaces

Systems Pathology

281 Len Troncale. Could A Unified Natural Systems Science Produce a Top-Down, Systems-Level Systems Pathology?

250 Andreas Gros, Marcus A.M. De Aguiar, Tilo Winkler, Irving R. Epstein and Yaneer Bar-Yam. Asthma: Pattern formation in bronchial networks

315 Daniel Jones and Mark D'Inverno. Agent-based Modelling of the Haematopoetic Cellular System

283 Len Troncale. Case Studies in Systems Pathology: Recognizing Domain-, Discipline-, Tool- & Scale-Independent Diseases

Epidemiology

7 stefan topolski and Joachim Sturmberg. Epidemiologic Validation of a Complex Systems Health Model

17 Alhaji Cherif and Marcel Hurtado. Homo-psychologicus: The effects of Reactionary Behavioral Changes on the Dynamics of Infectious Diseases

181 David Hiebeler and Isaac Michaud. Targeted Treatment of Outbreaks In a Community-Structured Model

225 Gavin Fay, Megan Olsen, Joseph Gran, Oana Carja, Julie Granka, Anne Johnson and Vanessa Weinberger. Agent-based model of Tasmanian Devils examines spread of Devil Facial Tumor Disease due to road construction

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Tuesday June 28th Afternoon Parallel Session 3

Collective Behavior

277 Francisco J. Sevilla and Alexandro Heiblum. Collective Motion in a System of Brownian Agents

152 Charlotte Hemelrijk and Hanno Hildenbrandt. Causes of the variable shape of flocks of birds

204 Victor Dossetti and Francisco Javier Sevilla. Intermittency and ergodicity breaking in a system of interacting self-propelled particles

264 Zoltan Neda, Erna Kaptalan and Artur Tunyagi. Emerging synchronization as a result of optimization

288 Ashish Umre and Ian Wakeman. Social Foraging Dynamics in Distributed Systems

284 Abbas Sarraf Shirazi, Sebastian Von Mammen and Christian Jacob. Self-Organized Learning of Collective Behaviours in Agent-Based Simulations

348 Philippe Collard and Salma Mesmoudi. How intolerant agents avoid segregation in Complex Spatial Systems ?

145 Erbo Zhao and Zhangang Han. An agent-based model for studying on flocking behaviors with competition and cooperation

335 Héctor Guzmán. A realistic cellular automata model for heterogeneous traffic flow

102 Ferenc Járai-Szabó, Bulcsú Sándor and Zoltán Néda. Spring-block modeling of highway traffic

167 Nguyen Thi Ngoc Anh, Zucker Jean Daniel, Nguyen Huu Du, Drogoul Alexis and Vo Duc An. Hybrid Equation-based and Agent-based Modeling of Crowd Evacuation on Road Network

207 Pedram Hovareshti, Hua Chen and John Baras. Motif-based Topology Design for Effective Performance by Networks of Mobile Autonomous Vehicles

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Tuesday June 28th Afternoon Parallel Session 4

Social Systems (2): Market, Innovation, Land Use and Public Policies

173 Pragya T. Gupta. Behavior, Social identity and Labour Market Processes as a Complex System

292 Nancy Brodsky, Arlo Ames, Robert Glass, Theresa Brown, Patrick Finley, John Linebarger, Aldo Zagonel and Louise Maffitt. Application of a Complex Adaptive Systems of Systems Analysis Approach to Tobacco Products

75 Pierpaolo Andriani and Renata Kaminska. Tiny initiating condition triggers emergence of new market: the case of the appearance of the quality coffee sector in the Brazilian market

67 Manuela Korber and Manfred Paier. Exploring the Effects of Public Research Funding on Biotech Innovation: An Agent-Based Simulation Approach
65 Jose Lobo and Deborah Strumsky. The Topology of Metropolitan Inventive Spaces: Can You Get There from here?
129 Laetitia Gauvin, Annick Vignes and Jean-Pierre Nadal. Modeling urban housing market dynamics: can the socio-spatial segregation preserve some social diversity?
54 Daniel Vasata, Pavel Exner and Petr Seba. Built-up structure criticality
216 Ferdinando Semboloni. Planning without plan. Evolution and emergent strategies in the Florence metropolitan area
306 Roberto Murcio and Suemi Rodriguez-Romo. MODELING MEXICAN URBAN METROPOLITAN AREA BY A SELF-ORGANIZED APPROACH
117 Alireza Yazdani and Paul Jeffrey. Exploring water distribution infrastructure resilience using directed and weighted network models
205 C. Schilling, C. Bryant and L. Parrott. Exploring constraints to environmentally supportive behaviors in a muncipal setting: How 'entrained' are we?
223 Patrick Finley, Robert Glass, Victoria Davey and Thomas Moore. Integrating Uncertainty Analysis into Complex-System Modeling to Design Effective Public Policies

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Tuesday June 28th Afternoon Parallel Session 5

Complexity and Management

174 Pierpaolo Andriani, Bill Mckelvey and Renata Kaminska. MANAGING IN A PARETO WORLD CALLS FOR NEW THINKING
76 Renata Kaminska, Bill Mckelvey and Catherine Thomas. BUILDING DYNAMIC CAPABILITIES IN TIMES OF DRASTIC CHANGE: LESSONS FROM COMPLEXITY SCIENCE
137 Denise Easton and Lawrence Solow. The Adaptive Change Framework: Managing in the Context of Complexity
18 Sharon Ackerman and Jennifer Jenkins. Conceptualizing Distributed Workplace Environments Through the Lens of Complex Adaptive Systems Theory
53 Ian Wilkinson, Louise Young, Robert Marks and Terry Bossomaier. A Business Network Agent-Based Modeling System for domain specialists
91 Lorraine Dodd. A theory of choices: melding black swans, butterflies and swallowtails
27 Kevin Mcdermott. Engaging Expectant Stakeholders: A complexity theory approach to engaging stakeholders in complex organizational stakeholder environments.
104 Ankita Singh. Application of Evolutionary Algorithm for Project Schedulinghe

Decision Making

177 Anne-Marie Grisogono and Vanja Radenovic. The Adaptive Stance - steps towards teaching more effective complex decision-making
233 Simona Doboli and Vincent Brown. A Neural-Network Model of Conceptual Combinations
163 Hadassah J. Head, Benjamin James Bush, A. Gupta, Hiroki Sayama and Shelley D. Dionne. Network-Informed Idea Selection Strategies for Electronic Brainstorming

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Tuesday June 28th Evening

Poster Session (1)

11 Hugh Trenchard. Energy savings in bicycle pelotons, a general evolutionary mechanism and a framework for group formation in eusocial evolution
32 Igor Yevin and Svetlana Apenova. The theory of complex networks in painting studying
45 Mary Keeler. Crowd-Sourced Knowledge: Peril and Promise for Conceptual Structures Research

46 Marco A. Montes De Oca, Eliseo Ferrante and Marco Dorigo. A Simple Social Influence Model of Collective Decision-Making
56 Georgi Georgiev. Quality as a function of quantity
70 Takashi Iba. Hidden Order in Chaos: The Network-Analysis Approach to Dynamical Systems
73 Boming Yu. A study of the stability of deterministic complex networks
74 Mark Levin. On Combinatorial World
86 V Anne Smith. Tailoring Bayesian networks for recovering structure of different types of biological networks
94 Weibo Gong. Internet complexity evolution and time/space scale separation for rescue
107 Ming-Chang Huang. Charactrizing the process of reaching the state of consensus in a social system
108 Yu-Pin Luo. The effect of the cliques of networks on the ocurrence probabilities and the robustness of the equilibrium states of local majority-rule
116 Sarah Symons and Derek Raine. Agent Based Modelling of State Formation in Ancient Egypt
154 Czeslaw Mesjasz. Can Physics Help Social Sciences in Prediction of Complex Collective Phenomena?
155 Yoritaka Iwata. Percolation approach to the surface structure of neutron star
162 Luís Vilar, Duarte Araújo, Keith Davids, Pedro Esteves and Vanda Correia. Spatial-temporal constraints on successful performance in team sports
184 Martine Barons. A mathematical approach to medical complexity
194 Uday Kulkarni. Dynamics of Exchange
206 Santosh Manicka. Complexity Un-unfolded
212 Maurice Passman, Philip Fellman and Jonathan Post. Ontological Determinism, non-locality and the system problem in quantum mechanics
254 Andreas Krause and Simone Giansante. Interbank Lending and the Spread of Bank Failures: A Network Model of Systemic Risk
255 Adam Hackett, Sergey Melnik and James P. Gleeson. Cascades on a class of clustered random networks
257 Robert Leve, William Neace, Denise Laframboise and Danielle Letourneau. Time as a variable in complex multi-interactive problems
271 Chandrajit Lahiri, Ashraf Md. Izhar and Radhakrishnan Sabarinathan. Delineating signaling network from cancer related pathways
272 Lech Schulz. PRACTICAL APPLIED THEORY OF ABSTRACT COMPLEX SYSTEMS - AN INTRODUCTION VIA FUZZY SET BASED COMPARISONS AND OPTIMIZATION
297 Kawandeep Virdee, Alex Rutherford and Yaneer Bar-Yam. Characterizing Complex Terrains: Mathematical Foundations and Applications
299 Yavni Bar-Yam, Dion Harmon and Yaneer Bar-Yam. Calculating the Complexity Profile
301 Vitorino Ramos, David M.S. Rodrigues and Jorge Louçã. Spatiotemporal Dynamics on Co-Evolved Second Order Swarm Intelligence
303 Vedant Misra, Dion Harmon and Yaneer Bar-Yam. Vulnerability Analysis of High Dimensional Complex Systems
307 Karla Bertrand, Alexander Gard-Murray and Yaneer Bar-Yam. A systems approach to improving healthcare
357 Jose Padilla, Saikou Diallo and Andreas Tolk. Complexity as a Function of Understanding

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Wednesday June 29th Morning

Plenary Session (3): Engineering Systems

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Wednesday June 29th Afternoon Parallel Session 1

Engineering Systems

294 Kyle Harrington, Emma Tosch, Lee Spector and Jordan Pollack. Compositional Autoconstructive Dynamics
143 Xiaocong Gan and Zhangang Han. Control The Game Ms. Pac-Man Automatically -- Using The Real Time Search Method
123 Robert Glass, John Linebarger, Arlo Ames, Walt Beyeler and Patrick Finley. Complex Adaptive Systems of Systems (CASoS) Engineering: Mapping Aspirations to Problem Solutions
10 Anthony Masys. PRE: Safety Culture- Revealing the complexity
328 Daniel Sturtevant and Alan Maccormack. Network Structure and Bugs in Complex Software Systems
218 Touria El Mezyani, Ralph Wilson, Michael Sattler, Sanjeev Srivastava, David Cartes and Chris Edrington. Complexity Quantification to Enhance the Power Systems Design and Modeling
236 Shashank Tamaskar, Tatsuya Kotegawa, Kartavya Neema and Daniel Delaurentis. Measuring Complexity of Aerospace Systems
209 Justin W. Gillespie and David J. Singer. Gaining insight into the structure of an early-stage ship design
112 Carlos Eduardo Maldonado and Nelson Gómez-Cruz. Biological Computation: A Road to Complex Engineered Systems
170 Rui Teng, Bing Zhang and Nori-Shirazi Mehdad. Dynamic and Adaptive Organization of Data-Collection Infrastructures in Sustainable Wireless Sensor Networks
246 Sarah Sheard and Ali Mostashari. Use of Complexity Types in the Realms of Systems Engineering
316 Anindya Deb and Amardeep Singh. A Semi-integrated CAE Approach for Analyzing a Complex IC Engine System

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Wednesday June 29th Afternoon Parallel Session 2

Physical and Chemical Systems

14 Pragya Shukla. Eigenfunction Statistics of Complex Systems: A Common Mathematical Formulation
310 Emmanuel Landa Hernandez, Irving O. Morales Agiss, Rubén Fossion, Pavel Stransky, Juan C. López Vieyra, Víctor M. Velázquez and Alejandro Frank Hoeflich. Scale Invariance and Criticality in Classical and Quantum Examples
21 Nadeem Bashir and G M Peerzada. Effect of counter-ions in different salts on the Resorcinol-BrO3 - Mn2+-H2SO4 Oscillatory Chemical Reaction
13 Pragya Shukla. Thermodynamics of protein folding: a random matrix formulation
327 Jesus S. Dehesa, Pablo Sanchez-Moreno and Sheila Lopez-Rosa. Entropy and complexity analysis of D-dimensional hydrogenic systems
139 Fabrice Debbasch and Jean-Pierre Rivet. New models of thermodiffusion
279 Santiago Nunez-Corrales and Eric Jakobsson. On the Relation of Multi-Level Complex Systems to Nested Coupled Fokker-Plank Equations
119 Gaetano Campi, Alessandro Ricci, Michela Fratini, Nicola Poccia, Gabriele Ciasca, Alessandra Mari, Lorenza Suber, Mario Altamura, Augusto Pifferi and Antonio Bianconi. New experimental approaches for evolution and control of complexity in out-of equilibrium systems
99 Anjan Kundu. Modellig of magnetic pattern formation of topological origin

Cosmology

138 Claire Chevalier, Yann Ollivier and Fabrice Debbasch. Large-scale emergent matter in cosmology
85 Christoph Raeth. Probing non-Gaussianities in the cosmic microwave background by means of nonlinear data analysis techniques
93 Philip Fellman, Maurice Passman and Jonathan Post. Time, Uncertainty and Non-Locality in Quantum Cosmology

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Wednesday June 29th Afternoon Parallel Session 3

Origin of Life

38 A. Karim Ahmed. Complexity, Affinity-Bias and Systems Biology: An Ecosystem Model of the Origin and Evolution of Life

115 Derek Raine and Sarah Symons. An agent-based model of coding and inheritance in a prebiotic ecology

9 Walter Riofrio. "Cellular Dynamics at the Beginning of Prebiotic World"

Evolution

304 Stephen Serene, Longzhi Tan, Hui Xiao Chao and Jeff Gore. Hidden randomness between fitness landscapes limits reverse evolution

121 Marcus Aguiar, Elizabeth Baptestini, Ayana Martins and Yaneer Bar-Yam. A neutral speciation theory for one-dimensional and ring geometries

260 Marcus Frean, Gareth Baxter and Paul Rainey. Ongoing evolution on networks

120 Chris Phoenix. Cellular differentiation as a candidate “new technology” for the Cambrian Explosion

276 Andrea Velenich, Mingjie Dai and Jeff Gore. Genetic interactions in yeast are described by heavy-tailed distributions

240 Kirill Korolev, Joao Xavier, David Nelson and Kevin Foster. Genetic demixing in a Petri dish

217 Walt Beyeler, Robert Glass, Patrick Finley and Theresa Brown. Modeling Systems of Interacting Specialists

343 Alexis Morris, William Ross, Mihaela Ulieru and James Whitacre. The Evolution of Cultural Resilience and Complexity

37 Eric Beinhocker. Evolution as Computation: Integrating Self-Organization with Generalized Darwinism

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Wednesday June 29th Afternoon Parallel Session 4

Economic and Financial Systems

60 Jacky Mallett. Analysing the behaviour of the textbook fractional reserve banking system as a complex dynamic system.

118 J. J. Farias Neto. The Financial Market as a Complex System

287 Dion Harmon, Marcus De Aguiar, David Chinellato, Dan Braha, Irving Epstein, Marco Lagi and Yaneer Bar-Yam. Predicting economic market crises using measures of collective panic

270 Gyuchang Lim, Kyungsik Kim, Soo Yong Kim and Jin Min Kim. Regular pattern in the collective behavior of investors

150 Victor Yakovenko. Entropy maximization and distributions of money, income, and energy consumption in a market economy

114 Walid Nasrallah. The dynamics of micro-economically relevant institutions

263 Sehyun Kim, Min Jae Kim, Soo Yong Kim and Kyungsik Kim. Intra- and inter-sector dependence structure in stock markets

282 Daniele Signori. Economic Links and Counterparty Risk

305 Vedant Misra and Yaneer Bar-Yam. Why the stock market crashed: market instability and financial regulations

35 Eric Beinhocker. Complexity Economics and Public Policy: A Realistic Economics for Real World Challenges

135 Jean-Pierre Nadal, Mirta B. Gordon, Denis Phan and Viktoriya Semeshenko. Pricing of Goods with Bandwagon Properties: Entanglement between Demand and Supply

90 Hugues Bersini. Why should the economy be competitive ?

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Wednesday June 29th Afternoon Parallel Session 5

[EE] Workshop: Engaging Emergence: Working with Changing Social Systems in Complex, Volatile Times

105 Peggy Holman. Engaging Emergence: Turning Upheaval into Opportunity
51 Curt Lindberg. Complex Processes for Complex Problems: Saving Lives by Preventing Infections in Hospitals
245 Denise Easton and Larry Solow. Learning in Complex Times: Complex Adaptive Learning
142 Ed Addison. Understanding Organizational Design, Culture and Change Management from a Complex Systems Perspective

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Wednesday June 29th Evening

Banquet

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Thursday June 30th Morning

Plenary Session (4): Mind and Brain

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Thursday June 30th Afternoon Parallel Session 1

Biomolecular and Cellular Systems
2 F. Matthew Mihelic. Understanding Biological Complex Adaptive Systems as Quantum Adaptive Systems
36 Val Bykovsky. Molecular Experimentation and Evolutionary Biology
193 Chi-Han Chang, Rayomond Dinshaw and Gregory D. Scholes. Refining the Electronic Hamiltonian of the Photosynthetic Protein, Phycocyanin 645, by Quantitative Fit of Linear Spectra
124 Mauricio Garcia-Vergara and Guillermo Ramirez-Santiago. Positional and Temporal Information Transmitted by a Cell Signal Cascade with n-Modules
19 Weijiu Liu and Yuee Chen. Modeling store-operated calcium entry with membrane potential regulation
289 Megan Brady, Paul Frisch, Kenneth Mcleod and Craig Laramee. Emergent Responses of Cellular Systems to Static Magnetic Field Exposure.

Neural and Psychological Systems
47 Ursula Drager. Postnatal Changes in Retinoic Acid Signaling Delineate Domains with Anti-Correlated Gene Expression in the Medial Cerebral Cortex of Adult Mice
220 Jeongkyu Shin, Uncheol Lee, George Mashour, Seungwoo Ku and Seunghwan Kim. Dynamic functional backbones of brain networks during anesthetic state transitions
338 Daniel Remondini, Sebastiano Stramaglia, W. Liao, G. Castellani and D. Marinazzo. Exploring brain dynamics complexity by fNMRi
266 Michael Norman, Larry Liebovitch, Paul Peluso, Jessica Su and John Gottman. Mathematical Model of the Dynamics of Psychotherapy
44 Steven Hassan. Complex systems approach to dealing with destructive cult groups

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Thursday June 30th Afternoon Parallel Session 2

Complex Systems Design
317 Zann Gill. COLLABORATIVE INTELLIGENCE: How Nature innovates toward complexity
342 James Whitacre and Mihaela Ulieru. Comparing Principles of Robustness in Biological and Socio-Technical Systems
227 Anne-Marie Grisogono. Design as a strategy for dealing with complexity
40 Alex Ryan. Applications of Complex Systems to Operational Design

Modeling Methodology

337 Prashant Sethia and Kamalakar Karlapalem. Towards High Performance Simulation of Complex Multi-agent Systems

273 Juan Fernandez-Gracia, Víctor M. Eguíluz and Maxi San Miguel. Update rules and interevent time distributions: Slow ordering vs. no ordering in the Voter Model

222 Wei An, Dalei Wu and Song Ci. A Theoretical Framework for Modeling Dynamical Complex System with Partial Observations

312 Artemy Kolchinsky and Luis M. Rocha. Learning, Prediction, and Modularity in Complex Dynamical Systems

12 Pragya Shukla. Towards a common thread in Complexity: An accuracy based approach

324 Sarjoun Doumit and Ali Minai. Bayesian Analysis and Prediction of News using an LDA-Based Approach

30 Mathias Beck Beck and Andrea Schenker-Wicki. "How to manage complex systems: new qualitative methods"

26 Rajeev Rajaram. The use of a density based approach in study of complex non-equilibrium dynamics

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Thursday June 30th Afternoon Parallel Session 3

Social Games and Evolution

213 Benjamin Allen. Population structure and the evolution of social behavior

326 David Rand. Noise, heterogeneity and the evolution of human cooperation

160 Luís Vilar, Duarte Araújo, Keith Davids, Bruno Travassos and Ricardo Duarte. Emergence of patterns of coordination in attacker-defender dyadic systems in team sports

88 Walid Nasrallah. Whence Complexity: On the evolutionary advantage of complexity in tribal artificial life

278 Bin Xu and Zhijian Wang. Evolutionary Dynamical Pattern of “Coyness and Philandering”: Evidence from Experimental Economics (an extended abstract with main result figures and references)

259 Marcus Frean and Joseph Bulbulia. Neutral evolution as a route to large-scale cooperative equilibriums in the Stag Hunt game.

262 Sanghyun Ahn, Kyungsik Kim, Dong-In Lee and Soo Yong Kim. Mechanism on nonmyopic agents changing the endogenous decision rules

219 Christoforos Somarakis and John Baras. On the complexity of a social behavior model.

Complex Systems Education

141 Ronald Degray and Shyamala Raman. Introducing the Study of Complex Systems into K-16 Curricula

148 Federica Raia and Neel Patel. Questions and Explanations –Students’ Understanding of Complex Systems

251 Paul Seguin. Complex Systems Science: Moving from Theory to Application in the World’s Largest Public Engineering Agency

210 Odette Labato and Yoguez Amalia. Exploring the characteristics of the Mexican Higher Education System in the context of Complex System Approach

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Thursday June 30th Afternoon Parallel Session 4

Safety and Security

77 Arthur Tomasino. Complex Adaptive Systems and Public Safety

59 Irene Pestov. Dynamical Networks with Embedded Heterogeneous Agents

190 Jérôme Levesque, Kate Kaminska and Sean Norton. Information sharing network in a community of senior security planners for the Vancouver 2010 Olympics

57 Ali Bas, Volkan Karaca and Hüseyin Uysal. A SIMULATION ON ORGANIZATIONAL COMMUNICATION NETWORKS DURING A TERRORIST ATTACK
95 Philip Fellman, Kathleen Carley and Gregory Parnell. Biowar and Bioterrorism Threat Risk Assessment
98 Philip Fellman, Dinorah Frutos, Nathan Thanakijsombat and Pard Teekasap. The Complex Landscape of Maritime Piracy

International Issues and Globalization

318 Walter Clemens. TOWARD A NEW PARADIGM FOR INTERNATIONAL STUDIES: THE COMPLEXITY OF INTERDEPENDENCE
192 Michael Hülsmann, Richard Colmorn and Viktoryia Bakhrutdzinava. Understanding International Supply Networks as Complex Adaptive Logistics Systems - A Complexity-based Approach for Formal Representation
97 Jorge Riveras and Philip Fellman. Dynamic Modeling of International Distributor Agent Networks
286 Alex Rutherford, Dion Harmon, Justin Werfel, Alexander Gard-Murray, Shlomiya Bar-Yam and Yaneer Bar-Yam. Predicting Locations of Ethnic Violence
96 Philip Fellman. The Complexity of Intelligence Estimates
285 Alexander Gard-Murray, Karla Bertrand and Yaneer Bar-Yam. Applying complexity theory to real-time geopolitical crises

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Thursday June 30th Afternoon Parallel Session 5

[SB] Workshop: Syntax in the Brain

340 Jim Houk. Introduction to the workshop Syntax in the Brain
134 Jim Houk. Can DPM agents write stories and sing songs?
322 Howard Eichenbaum. Towards a model of recollection
325 Neil Berthier. The Syntax of Human Infant Reaching
331 Paul Reber. Computational models of sequential processing
332 David Fraser and Jim Houk. Schizophrenia and serial order in the basal ganglia
333 Whitney Tabor. Recursion and Recursion-Like Structure in Ensembles of Neural Elements
334 Barry Peterson. Pursuit of moving visual targets as a syntactic behavior
341 Hiroyuki Ohta, Yasuhiro Nishida and Jim Houk. Presynaptic inhibition and incremental learning in the striatum of the basal ganglia
345 James L. Mcclelland. Temporal structure: Its nature and how it is learned
347 Uri Wilensky. Emergence in evolution

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Thursday June 30th Evening

Poster Session (2)

16 F. Matthew Mihelic. Defining Adaptation as Geometric Reconfiguration of System Source Code
28 Hiroki Sayama. PyCX Project: Complex systems simulation made simple in Python
31 Reut Tarandach. PRE: re-emergence of organizational change initiatives
49 Robert Edson. Governance Models for Public Extended Enterprises: A Network Analysis
61 Maxim Mozgovoy and Iskander Umarov. Believable Team Behavior: Towards Behavior Capture-Based AI for the Game of Soccer
62 Galina Korotkikh and Victor Korotkikh. From Space and Time to a Deeper Reality as a Possible Way to Solve Global Problems
64 James Murphy and Ray Walshe. Analysing Emergent Complexity in Microbial Populations
68 Xuguang Leng. Survival of the Fittest – Over the Long Run
79 Liz Johnson and Klaus J. Diepold. "World Cup Soccer ABM Simulation: Demonstrating a Hybrid Multi-Scale CAS for Real-World Dynamics"

87 William Lawless. The Mathematics of Aggregation, Interdependence, Organizations and Systems of Nash equilibria (NE): A replacement for Game Theory
101 Tatyana Unkovskaya and Andrey Grytsenko. Systemic risks of financial crises as the effects of emergence in complex economic systems
111 Genki Ichinose and Mio Kobayashi. Frequent propagation of cooperators by random intensity of selection on a network
132 Ankita Singh and Ankita Singh. Spatial Face Recognition
151 Philip Fellman. Understanding the Complexity of IIED Terrorist Networks
161 Luís Vilar, Duarte Araújo, Keith Davids, Bruno Travassos and Ricardo Duarte. Interdependence between perceptual and motor sub-systems in pattern-forming dynamics in team sports
166 Akshay Patil and Alpana Dongre. Insight to Urban Complexity
196 Zoheir Mottaki. Collective housing as an emergent phenomenon in design knowledge : A case study of hillside Terrace project (Tokyo) as a complex collective form
200 Fred M Discenzo, Kenneth A Loparo, Dukki Chung and Matthew Kirsch. ENHANCED TEST STAND INTEGRATES INFORMATION FROM DESIGN, MANUFACTURING, AND IN-FIELD OPERATIONS
230 Jorge Barros Pires, Alexandre Evsukoff, Lauro Silveira and Fernando Miranda. Fuzzy treatment of hypothetical judgments
231 Tamás Kalmár-Nagy and Kevin Hernandez-Pardo. Revisiting the Physicist's Approach to the Toroidal Traveling Salesman Problem
234 Martin Tensuan and May Lim. Semi-empirical modeling of a microcredit market
235 Zhangang Han. The contribution of the power-law distribution in a trust and reputation evolution in P2P consulting systems
302 Thomas Raway, Craig Laramee, Hiroki Sayama, Shelley Dionne and David Sloan Wilson. Teaching Social Complexity and Multidisciplinary Team Building: An Experimental Engineering Approach
309 Jeff Schank, Paul Smaldino and Matt Miller. Is sharing irrational?: An agent-based modeling analysis of the ultimatum game with spatially explicitly mobile agents
311 Vitorino Ramos. Co-Cognition, Neural Ensembles and Self-Organization
339 Mithilesh Salunke and Ali Minai. Building Modular Animals: A Computational Framework
344 Alexander M. Duda and Stephen E. Levinson. Complex Networks of Spiking Neurons: Collective Behavior Characterization
350 Jonathan Post. Quantum Coincidence with Amino Acid Molecular Weight
353 Ali Minai, Laxmi Iyer, Kiran Byadarhaly and Chandrika Sagar. An Integrated Neurodynamical Framework for Thought and Action
354 Willow Hallgren, Adam Schlosser and Erwan Monier. "Global change and the interaction of Human and natural systems: The Impact of Land Use and Biofuel Policies on Future Climate "

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Thursday June 30th Evening

Late-Breaking News Session

356 Seung Kee Han. Estimating the Network Link Weights from the Inverse Phase Synchronization Matrix
358 Francesco Sorrentino. Synchronization of hypernetworks of coupled dynamical systems
359 Robert Scheidt, Nicole Salowitz, Janice Zimbelman, Aaron Suminski, Lucia Simo, James Houk and Kristine Mosier. Learning visualized in cerebral cortex, basal ganglia and cerebellum
360 Woon Seon Jung, Dong-In Lee and Kyungsik Kim. Characteristics of the sea surface distribution using the rescaled range analysis in three seas
361 Jae Won Jung, Gyuchang Lim and Kyungsik Kim. Aanlysis of multifractal structures in two-dimensional Lattices
362 Michel Ducharme, Daniel Lafond and Bradley Rathbun. A Gaming Approach to Train Systems Thinking in the Military
364 Igor Yevin and Nokolay Shuvalov. The Theory of Complex Networks in Painting Studying

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Friday July 1st Morning

Plenary Session (5): Socioeconomic Systems

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Friday July 1st Afternoon

Plenary Session (6): Theme TBD

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