Understanding Complex Systems

Schedule

Monday, May 17, 2004

8:30am Continental Breakfast and Poster Setup, Loomis Lobby

Opening Session M1 in 141 Loomis chaired by Alfred Hubler
8:55am Opening Remarks by David E. Daniel, Dean of Engineering
9:00am Stephen Wolfram, Mathematica (keynote)
10:00am Coffee Break, Loomis Lobby
10:15am Leon Chua, UC Berkeley, Cellular Neural Nets with Local Activity (talk and video show)

12:00 Lunch in the Ballroom of the Illini Union

Session M2 in 141 Loomis chaired by Jay Mittenthal
1:00pm Kurt Kwast, UIUC
1:40pm Andreas Wagner, Santa Fe Institute
2:20pm Gene Robinson, UIUC

3:00pm Coffee Break, Loomis Lobby

Session M3 in 141 Loomis chaired by Noshir Contractor
3:20pm Stan Wasserman, UIUC
4:00pm Richard Rogers, U Amsterdam

4:40pm Coffee & Ice Cream Break, Loomis Lobby

Session M4 in 141 Loomis chaired by Bob Clegg
5:00pm Daniel P. Lathrop, U Maryland, Nonlinear instabilities and turbulence in 15, 110 or 15000 kg of liquid sodium
5:40pm Thomas J. Anastasio, UIUC, Multiple time scale control of eye movement by neural networks.
6:00pm Kimberley Hill, UIUC, Instabilities in the radial segregation patterns of granular mixtures

6:20pm Poster Session P1 with Pizza and Refreshments, Loomis Lobby
Glenn Foster, UIUC Nonlinear Resonant Forcing of Dynamical Systems
Ioan Sturzu, Ball State U Quantum calculation of the Thermal Effect in Quantum-dot Cellular Automata
John Benjamin Cassel, UIUC, PAC-Learnability of Temporal Relations between Partially Observable Chaotic Events within Geographic Networks
Jason Ralph Hickok, UIUC, Transcriptional Profiles of GnRH Neurons: Implications of Circadian Input into the HPG
Alex Barr, Physics, UIUC, Adaptation to the Edge of Chaos in a Non-Isothermal Autocatalator
Bin He, UIUC, MetaQuerier: Exploring and Integrating the Deep Web
Tim Wotherspoon, UIUC, Smooth-Rough Phase Transitions in Deposition Processes with a Heat Flow and an Electrical Current
Daniel B. Stouffer, Northwestern U, Two mechanisms to explain trophic food web structure
Jian Liu, UIUC, Monte Carlo Bohmian Dynamics from Trajectory Stability Properties
Vasil Antonov, Nanoparticle Diffusion on Desorbing Solids: The Role of Elementary Excitations in Buffer-Layer-assisted Growth

Evening Session M5 in 141 Loomis chaired by Samuel N. Beshers
7:00pm Eric Jakobsson, Nat. Inst. Health, DIRECTIONS IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY AT THE NATIONAL INSTITUTES OF HEALTH
7:40pm Caroline Haythornthwaite, UIUC
8:20pm Susan W. Kieffer, UIUC
9:00pm Paul Melby, Georgetown U

Tuesday, May 18, 2004

8:00am Continental Breakfast, Loomis Lobby

Session T1 in 141 Loomis chaired by Tom Anastasio
8:30am Jim Houk, Northwestern U, Agents of the Mind
8:50am Michael Blinov, LANL, Modeling and analysis of combinatorial complexity in signal transduction
9:10am Erik Luijten, UIUC, Collapsing polyelectrolytes: Self-assembly driven by counterions
9:50am Eric Jakobsson, Nat. Inst. Health

10:30am Coffee Break, Loomis Lobby

Session T2 in 141 Loomis chaired by Jay Mittenthal
10:40am Noshir Contractor, UIUC, Coevolution of knowledge networks in 21st century o 11:20am Katy Borner, Indiana U, Mapping and Modeling Scientific Network Ecologies
12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial I in 151 Loomis

Session T3A in 141 Loomis chaired by Glenn Foster
1:00pm Mike Paulin, U Otago, Co-evolution of Morphology and Agility in Early Vertebrates
1:40pm Zan Luthey-Schulten, UIUC, The Evolution of Protein Structure

Session T3B in 144 Loomis chaired by Peter Fleck
1:00pm Allen Hunt, Wright State U
1:40pm E. Atlee Jackson, UIUC, The Successions of Creative Networks in the Universe

2:20pm Coffee Break, Loomis Lobby

Session T4 in 141 Loomis chaired by Bob Clegg
2:40pm Hermann Riecke, Northwestern U
3:20pm Leonard Sander, U Michigan, lsander@umich.edu, Scale-Free Networks with Geography

4:00pm Coffee & Ice Cream Break, Loomis Lobby

Session T5 in 141 Loomis chaired by Alex Scheeline
4:20pm John J. Tyson, Virginia Tech, Kinetic analysis of cell cycle regulation
5:00pm Howard Petty, U Michigan, Chemical Oscillations and Propagating Chemical Waves in Cells and Tissues
5:40pm Duane D. Johnson, UIUC, Genetic-Programming for Multiscale Modeling

6:20pm End of Session T5

6:30pm Invited Speaker Appreciation Dinner, Levis Faculty Center
8:00pm After Dinner Talk by
UIUC Provost and Interim Chancellor Richard H. Herman, Levis Faculty Center

Wednesday, May 19, 2004

7:30am Continental Breakfast, Loomis Lobby

Session W1 in 141 Loomis chaired by Samuel N. Beshers
8:10pm Greg Worrell, Mayo Clinic, Long-range temporal correlations in the human intracranial electroencephalogram
8:30am Nigel Goldenfeld, UIUC, Physics, universality, computational algorithms and complexity
9:00am Gul Agha, UIUC
9:40am Janice Bahr, UIUC, Physiological Adaptions of the Black Bear to a Changing
10:20am Coffee Break, Loomis Lobby

Session W2 in 141 Loomis chaired by Jay E. Mittenthal
10:30am James A. Glazier, Indiana U
11:10am Eshel Ben-Jacob, Tel Aviv U, Let the complex be simple – functional holography of recorded brain activity

12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial II in 151 Loomis

Session W3A in 141 Loomis chaired by Ziggy Majumdar
1:00pm Sua Myong, UIUC, Helicase-DNA interactions studied by FRET (Fluorescent Resonance Energy Transfer)
1:20pm Clare Yu, UC Irvine, How does Intracellular Molecular Motor Driven Transport Work?
1:40pm Horacio Castillo, Ohio U, Fluctuations in Glassy Dynamics

Session W3B in 144 Loomis chaired by Sahraoui Chaieb
1:00pm Lucas Illing, Duke U, Controlling Fast Chaos in Delay Dynamical Systems
1:20pm Jian Liu, UIUC, Monte Carlo Bohmian Dynamics from Trajectory Stability Properties
1:40pm Sergei Kopeikin*, U Missouri, Measuring the (ultimate) speed of gravity by VLBI

Session W3C in 158 Loomis chaired by Samuel N. Beshers
1:00pm Chien-Feng Huang, LANL, A Coevolutionary Agent Based Model of Genotype Encoding
1:20pm Yuri Dabaghian, UC San Francisco, Complexity of Quantum Spectra
1:40pm Cristian Huepe, Northwestern U, Spin Dynamics on a Network: Phase Transition and Applications

Session W3D in 136 Loomis chaired by Benny Brown
1:00pm Erwin B. Montgomery Jr., Wisconsin U, The basal ganglia-thalamic-cortical system
1:20pm Robert Kozma, Memphis, Neuropercolations: Dynamical Percolation Models of Phase Properties
2:00pm Marko Puljic

Session W3E in 147 Loomis chaired by Davit Sivil
1:00pm Peter Fleck, UIUC, An Adaptive-Learning-Rate Algorithm for Physical Hardware
1:20pm Lidi Chen, Southern Illinois U, Periodic motions in a periodically forced, pin
1:40pm Davit Sivil, UIUC, Emergent Structures in Wave-Particle Systems

Session W3F in 143 Loomis chaired by Joseph Jun
1:00pm Albert Luo, Southern Illinois U, A theory for nonsmooth dynamical systems on
1:20pm Marc Mansfield, Stevens Institute of Technology NJ, Spin glass that strongly
1:40pm Eric Preston, Indiana State U, Simulated Weakening in Driven Threshold Model
2:00pm Tim Schoenharl, U Notre Dame, Agent Based Exploration of Self-organizing Neu

Session W3G in 234 Loomis chaired by Tim Wotherspoon
1:00pm Predrag Tosic, UIUC, Characterizing Configuration Space Properties of Symmetr
1:20pm Murat R. Demirer, U Memphis, Identification of cortical dynamics based on Hil...
1:40pm Prabhakar Pradhan, Northwestern U, Statistics of eigenfunctions and eigenvalues of chaotic and disordered systems: Experimental and theoretical results

Session W3H in 236 Loomis chaired by Jian Xu
1:00pm Ke Dong, UIUC, Optimizing terahertz emission from quantum double wells
1:20pm Daniel B. Stouffer, Northwestern U,
1:40pm Bin He, UIUC, Holistic Integration across Large Scale Web Sources
2:00pm Scott Christley, Notre Dame, Dissemination of Culture using a Quantum Model

2:20pm Coffee Break, Loomis Lobby

Session W4 in 141 Loomis chaired by Noshir Contractor
2:40pm Fabio Fonti, Boston College, Complexity theory and the evolution of communication networks
3:20pm Jay Kesan
4:00pm Bernie Trujillo, U Wisconsin-Madison, Self-organization in bankruptcy legal systems

4:20pm Coffee Break, Loomis Lobby

Session W5 in 141 Loomis chaired by Robert M. Clegg
4:40pm David Campbell, Boston U, Intrinsic Localized Modes: Localizing Energy through Discreteness
5:00pm Sahraoui Chaieb, UIUC, Random Polymer Networks and the crumpling-induced roughening of lipid bilayers
5:40pm Walter Goldburg, U Pittsburgh, Turbulence at an air-water interface

6:20pm Poster Session P2 with Sandwiches and Refreshments, Loomis Lobby

Evening Session W6 in 141 Loomis chaired by Alfred Hubler
6:40pm Peter Schuster, The Role of Neutral Networks in Evolutionary Optimization, RNA Structures as an Example.
7:20pm Joshua E. S. Socolar, Duke U, Dynamics of random Boolean networks

8:00pm Refreshment Break, Loomis Lobby

8:10pm Paul Goldbart, Physics, UIUC, Fluctuating Random Network Media and their Universal Properties
8:50pm Glenn Hoetker
9:30pm Bruce Miller, TX Christian U, Influence of Expansion on Hierarchical Structure Formation

Thursday, May 20, 2004

8:00am Continental Breakfast, Loomis Lobby

Session TH1 in 141 Loomis chaired by Jay E. Mittenthal
8:30am Paul Selvin, UIUC
9:10am Radek Erban, U Minnesota, From Signal Transduction to Spatial Pattern Formation
9:50am Jay E. Mittenthal, UIUC, Principles of Design for Molecular Modules with Applications

10:20am Coffee Break, Loomis Lobby
Session TH2 in 141 Loomis chaired by Tom Anastasio
10:30am Sue Becker, McMaster University, Computational Models of Neural Coding in the Hippocampus.
11:10am Clare Yu, Equilibration and Frequency Dependence of the Specific Heat of Glass Forming Liquids.
11:30am Kevin E. Bassler, U Houston, "Gradient Flow Networks I".
11:50am Eshel Ben-Jacob, Tel Aviv U, Life Complex Systems Experiment.

12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial III in 151 Loomis

Session TH3A in 141 Loomis chaired by Tim Wotherspoon
1:00pm Waltraud Kriven
1:20pm Tian-Li Yu, UIUC, Dependency structure matrices, organizational clustering and classification.
1:40pm Glenn Foster, UIUC, Nonlinear Resonant Forcing of Dynamical Systems.
2:00pm Lihua Zou, UIUC, An Evolutionary Computation Model of Intracellular Signaling.

Session TH3C in 158 Loomis chaired by Peter Fleck
1:00pm Richard D. Braatz, UIUC, Design and Control of Multiscale Systems.
1:20pm Marko K. Berkenbusch, U Chicago, Discrete charges on two-dimensional conductors.
1:40pm Martin Butz, UIUC, Machine Learning in Hierarchical Classification Problems D.
2:00pm Nicola Scafetta, Duke U, Detecting Levy and fractal Gaussian Intermittencies.

Session TH3D in 136 Loomis chaired by Samuel N. Beshers
1:00pm D.C., Bill, Lin, Ryerson U, Discrete Scale Invariance in Long-Term Heart Rate Variability of Healthy Humans, derlin@ryerson.ca.
1:20pm Indranil Gupta, UIUC, Fighting Fire with fire: using probabilistic techniques to build stress-resistant networked computer systems.
1:40pm Diego Batallas, UIUC, Information Leaders in Product Development.
2:00pm Brandon Gegg, Southern Illinois U, Analytical Modeling of Periodic Motions in a Friction-induced Oscillator.

Session TH3E in 147 Loomis chaired by Joseph Jun
1:00pm Charlie Williams, UIUC, Managing Interdependence: An Agent-Based Model of Adaptation in Centralized & Decentralized Systems.
1:20pm Matthias Moebius, U Chicago, Air effects in granular size separation.
1:40pm Xiangjun Xing, UIUC, Rise of Entropic Shear Rigidity.

Session TH3F in 143 Loomis chaired by Austin Gerig
1:00pm Ahmet Yildiz, UIUC, Nature's processive motors walk hand over hand.
1:20pm Alex Barr, Physics, UIUC, Adaptation to the Edge of Chaos in a Non-Isotermic System.
1:40pm Peter Bajcsy, UIUC, Understanding Multi-Instrument Measurement Systems.
2:00pm Austin Gerig, UIUC, Irregular Dynamics of an Open One-Dimensional Mechanical System.

Session TH3G in 234 Loomis chaired by Benny Brown
1:00pm Ashvin Lakshmikantha, UIUC.
1:20pm Hemanshu Kaul, UIUC, Global Optima Results for the Kauffman NK Model.
1:40pm Jian Xu, UIUC, Enhanced Diffraction Pattern from a Fibonacci Chain.
2:00pm Gabriel Villalobos Camargo, U Bogotá, Colombia, The role of the resonances in a Driven Triangular Well: Numerical and analytical results.

2:20pm Coffee Break, Loomis Lobby
Session TH4 in 141 Loomis chaired by Sahraoui Chaieb

2:40pm Denis Boyer, National U. of Mexico, Complex Patterns in Animal Foraging: The
3:20pm Rhanor Gillette, UIUC, "Evolving biological neural networks for social cooper
4:00pm Alex Scheeline, UIUC, Chemical Sensing and Biological Networks

4:20pm Coffee Break, Loomis Lobby

Session TH5 in 141 Loomis chaired by Samuel N. Beshers
4:40pm Feniosky Peña-Mora, UIUC, Collaborative First Response to Disasters Involving
Critical Physical Infrastructure: Drawing from Robust Natural Systems
5:20pm Wayne J. Davis, UIUC, Bridging the Temporal Threshold between Reality and
Virtuality
6:00pm Bob Clegg, UIUC

7:00pm End of Conference

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