



NERCCS2026

Northeast Regional Conference on Complex Systems (NERCCS 2026)

Program Booklet

Location: *University of Rochester, Rochester, NY, Venue TBD* · Dates: *March 11–13, 2026*

DRAFT 2-21-26

Day 1 (March 11, 2026)

Registration 12:00 - 4:00

Opening Remarks 1:00 - 1:30

Keynote 1:30-2:30

The Physics and Chemistry of Synthesizing Abiotic Life in a Test Tube

Juan Perez-Mercader (Harvard University)

Break 2:30 - 2:45

Parallel Sessions 1 2:45 - 3:45

Room A: Network Control, Measurement, and Bias

Session Chair: TBD

2:45 **Distributed Self-Control of Dynamical Networks by Adaptive Link Weight Adjustments**
Hiroki Sayama (Binghamton University, SUNY)

3:05 **Estimating Uncertainty in Network Measures and Structures Arising from Noisy Data**
James Hartz (University at Buffalo, SUNY)

3:25 **A Diagnostic Framework for Sampling-Induced Distortion in Network Metrics**
Sriniwas Pandey (Binghamton University, SUNY)

Room B: Adaptive Social Networks and Belief Dynamics

Session Chair: TBD

- 2:45 Bridging Simple and Complex Contagions in Belief Dynamics: A Voter Model Extension**
 João Franco (Vermont Complex Systems Institute, University of Vermont)

- 3:05 Identifying brain network features that drive opinion formation and changes in humans**
 Brian L. Clary (Penn State University)

- 3:25 Why We Experience Society Differently: Intrinsic Dispositions as Drivers of Ideological Complexity in Adaptive Social Networks**
 Akshay Gangadhar (Binghamton University)

Break

3:45 - 4:00

Parallel Sessions 2**4:00 - 5:00****Room A: Information, Entropy, and Behavioral Signals**

- 4:00 On the Uniqueness of the Coupled Entropy and its Applications**
 Kenric P Nelson (Photrek, Inc)

- 4:20 A Network Perspective of the Stock Market Using Mutual Information and Transfer Entropy**
 Shangyi Bi (Binghamton University, SUNY)

- 4:40 Detecting Dynamic “Fingerprints” in Human Random Keystrokes**
 Jacqueline Blake (Binghamton University, SUNY)

Room B: Media, Platforms, and Field Mapping

- 4:00 How News Connects: Mapping the Semantic Topology of a Digital Newspaper**
 Sofia Sciangula (Carlo Cattaneo University LIUC)

- 4:20 Tempo-Dependent Emergence in Platform-Mediated Collective Behavior**
 Shaunette T. Ferguson (Barnard College, Columbia University)

- 4:40 Interactive Visualization of the Updated Complex Systems Keyword Diagram**
 Hiroki Sayama (Binghamton University, SUNY)

Day 2 (March 12)**Keynote****9:15-10:15****Title TBA**

Filippo Radicchi (Indiana University)

Break

10:15 - 10:30

Parallel Sessions 3**10:30 - 11:30**

Room A: Social / Institutional Simulation and Innovation Dynamics

Session Chair: TBD

10:30 A Simulation Model for Historical Evolution of Geopolitical Entities

Andrea Agosta (Carlo Cattaneo University LIUC)

10:50 Using Agent Based Modeling to explore long-term economic impacts of nurse turnover in health-care

Kate J. O'Neill (Binghamton University, SUNY)

11:10 Uncovering simultaneous breakthroughs with a robust measure of disruptiveness

Sadamori Kojaku (Binghamton University, SUNY)

Room B: Infrastructure, Risk, and Public/Health Networks

Session Chair: TBD

10:30 Graph-Based Analysis of Hurricane Stakeholder and Warning Networks: Structural Roles, Information Flow, and Optimization Diagnostics

Hayford Adjavor (Binghamton University, SUNY & CenterPoint Energy)

10:50 Inaccessibility in Public Transit Networks

Katherine Betz (University at Buffalo, SUNY)

11:10 Network-Driven Cohort Selection and Adverse Drug Reaction Detection in Epilepsy Social Media

Ziqi Guo (Binghamton University, SUNY)

Lunch Break**11:30 - 1:30**

*Lunch on your own, see website for closeby options***Parallel Sessions 4****1:30 - 2:30**

Room A: Graph Methods and Applied Dynamics**1:30 distanceclosure: A Python Package for Network Sparsification Based on Its Topology**

Robert Palermo (Binghamton University, SUNY)

1:50 The Effective Graph improves prediction of network dynamics in biochemical models

Xuan Wang (Binghamton University, SUNY & Indiana University)

2:10 Robust Video Anomaly Detection under Partial Observation via Patch-Motion Graph Smoothing

Neda Amirirad (Binghamton University, SUNY)

Room B: Computational Models and Algorithm Diagnostics

- 1:30 Diagnostic Evaluation of Conditional Generative Algorithms on Curated Single Cell Reference Data**

Matthew Jehrio (University of Rochester)

- 1:50 Spark: Modular Spiking Neural Networks**

Mario Franco (Binghamton University, SUNY)

- 2:10 Scalability of Structure-Preserving Simulations in Plasma Physics**

Sarthak Sharma (University at Buffalo, SUNY)

Break

2:30 - 2:45

Keynote

2:45 - 3:45

Title TBA

Adilson Motter (Northwestern University)

Break

3:45 - 4:00

Parallel Sessions 5

4:00 - 5:00

Room A: Self-Organization, Robustness, and Epidemic Coupling

Session Chair: TBD

- 4:00 A Feedback-Driven Lyapunov Principle for Self-Organization in Open Stochastic Systems**

Georgi Yordanov Georgiev (Assumption University & Worcester Polytechnic Institute)

- 4:20 Canalization drives Robustness in the Evolution of Collective Intelligence under Noise**

Srikanth Iyer (Binghamton University, SUNY)

- 4:40 A symbiotic SIR process**

Gerardo Palafax-Castillo (Universidad Autonoma de Nuevo Leon)

Room B: Collapse, Inequality, and Sustainability Dynamics

Session Chair: TBD

- 4:00 A Meta-Model of Endogenous Overcrowding-Driven Demographic Collapse**

Federico Carucci (Carlo Cattaneo University LIUC)

- 4:20 Parasites become rich and drive inequality in approach to collapse in a model of evolving networks**

Atiyab Zafar (University of Delhi)

- 4:40 Artificial Agents and Ecological Collapse: an LLM-enhanced Agent-Based Model of a Sustainability Game**

Francesco Bertolotti (Carlo Cattaneo University LIUC)

Day 3 (March 13)

Keynote **9:15 - 10:15**

Title TBA

Krishnan Padmanabhan (University of Rochester)

Parallel Sessions 6 **10:30 - 11:30**

Room A: LLM Learning, Optimization, and Alignment

Session Chair: TBD

10:30 Prospect Learning in Large Language Models: Quantifying Risk Preferences and Adaptation Dynamics

Nency Dhameja (Binghamton University, SUNY)

10:50 Evolutionary System-Prompt Optimization for LLM Agents in Competitive Market Simulations

Ossama Zaroual (Carlo Cattaneo University LIUC)

11:10 Cooperation or Defection? The Decay of Alignment Instructions in Complex LLM Systems

Andrea Monoli (Carlo Cattaneo University LIUC)

Room B: LLM Agents in Social Systems

Session Chair: TBD

10:30 Large Language Model Agents Partially Reproduce Real-World Segregation Patterns in the Schelling Model

Adreas Duus Pape (Binghamton University, SUNY)

10:50 Going for the Third: Cooperation between LLM Agents in a Three-Option Setting

Leonardo Mascagni (Carlo Cattaneo University LIUC)

11:10 An Extension of the Sugarscape Model with LLM-based Agents

Luca Moroni (Carlo Cattaneo University LIUC)

Closing Remarks **11:50 - 12:00**
