



# NERCCS2026



## Northeast Regional Conference on Complex Systems (NERCCS 2026)

Program Booklet

Location: *Goergen Hall, University of Rochester, 275 Hutchison Rd, Rochester, NY 14620*

Dates: *March 11–13, 2026*

### Day 1 (March 11, 2026)

**Registration**

12:00 - 4:00

Coffee | Munnerlyn Atrium

12:00

**Opening Remarks**

**1:00 - 1:30**

*Sloan Auditorium (Goergen 101)*

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**Keynote**

**1:30-2:30**

*Sloan Auditorium*

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**Life Exists Beyond Biochemistry: Making Abiotic (Biochemistry-free) Life in the Computer and the Test-tube**

Juan Perez-Mercader (Harvard University)

**Break**

2:30 - 2:45

**Parallel Sessions 1**

**2:45 - 3:45**

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**Sloan Auditorium (Goergen 101): Network Control, Measurement, and Bias**

Session Chair: Sadamori Kojaku (Binghamton University)

**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**

Srinivas Pandey ( Binghamton University, SUNY )

**Fantone Lecture Hall (Goergen 109): Adaptive Social Networks and Belief Dynamics**

Session Chair: Damian Sowinski (University of Rochester)

**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**

Shweta Hatote ( University at Buffalo, SUNY )

**3:25 Why We Experience Society Differently: Intrinsic Dispositions as Drivers of Ideological Complexity in Adaptive Social Networks**

Akshay Gangadhar ( Binghamton University, SUNY )

**Break**

3:45 - 4:00

**Parallel Sessions 2****4:00 - 5:00****Sloan Auditorium (Goergen 101): Information, Entropy, and Behavioral Signals**

Session Chair: Georgi Yordanov Georgiev (Assumption University &amp; Worcester Polytechnic Institute)

**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 )

**Fantone Lecture Hall (Goergen 109): Media, Platforms, and Field Mapping**

Session Chair: Damian Sowinski (University of Rochester)

**4:00 How News Connects: Mapping the Semantic Topology of a Digital Newspaper**

Sofia Sciangula ( Carlo Cattaneo University LIUC )

*Remote***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)

Continental Breakfast | Munnerlyn Atrium

8:00

### Keynote

9:15-10:15

*Sloan Auditorium*

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**Optimal Networks in Urban Transport Systems**  
Filippo Radicchi ( Indiana University )

Break

10:15 - 10:30

### Parallel Sessions 3

10:30 - 11:30

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**Sloan Auditorium (Goergen 101): Social / Institutional Simulation and Innovation Dynamics**

Session Chair: Hiroki Sayama (Binghamton University)

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

Andrea Agosta ( Carlo Cattaneo University LIUC )

*Remote*

**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 )

*Remote*

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

Sadamori Kojaku ( Binghamton University, SUNY )

**Fantone Lecture Hall (Goergen 109): Infrastructure, Risk, and Public/Health Networks**

Session Chair: Damian Sowinski (University of Rochester)

**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 )

*Remote*

**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 )

*Remote*

**Buffet Lunch****11:30 - 1:30***Munnerlyn Atrium*

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**Parallel Sessions 4****1:30 - 2:30**

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**Sloan Auditorium (Goergen 101): Graph Methods and Applied Dynamics**

Session Chair: Georgi Yordanov Georgiev (Assumption University &amp; Worcester Polytechnic Institute)

**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 &amp; Indiana University )

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

Neda Amirad ( Binghamton University, SUNY )

**Fantone Lecture Hall (Goergen 109): Computational Models and Algorithm Diagnostics**

Session Chair: Hiroki Sayama (Binghamton University)

**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 )

**Coffee Break | Munnerlyn Atrium****2:30 - 2:45****Keynote****2:45 - 3:45***Sloan Auditorium*

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**Title TBD**

Adilson Motter ( Northwestern University )

**Break****3:45 - 4:00****Parallel Sessions 5****4:00 - 5:00**

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## Sloan Auditorium (Goergen 101): Self-Organization, Robustness, and Epidemic Coupling

Session Chair: Sadamori Kojaku (Binghamton University)

### 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 Palafox-Castillo ( Universidad Autonoma de Nuevo Leon )

*Remote*

## Fantone Lecture Hall (Goergen 109): Collapse, Inequality, and Sustainability Dynamics

Session Chair: Sean Maley (Finger Lakes CC & Binghamton University)

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

Federico Carucci ( Carlo Cattaneo University LIUC )

*Remote*

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

Atiyab Zafar ( University of Delhi )

*Remote*

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

Francesco Bertolotti ( Carlo Cattaneo University LIUC )

*Remote*

## Day 3 (March 13)

Continental Breakfast | Munnerlyn Atrium

8:00

## Keynote

9:15 - 10:15

*Sloan Auditorium*

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### Complexity Across Scales of Space and time in the Brain

Krishnan Padmanabhan ( University of Rochester )

## Parallel Sessions 6

10:30 - 11:30

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## Sloan Auditorium (Goergen 101): LLM Learning, Optimization, and Alignment

Session Chair: Georgi Yordanov Georgiev (Assumption University & Worcester Polytechnic Institute)

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

Nancy Dhameja ( Binghamton University, SUNY )

*Remote*

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

Ossama Zaroual ( Carlo Cattaneo University LIUC )

*Remote*

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

Andrea Monoli ( Carlo Cattaneo University LIUC )

*Remote*

**Fantone Lecture Hall (Goergen 109): LLM Agents in Social Systems**

Session Chair: Andreas Duus Pape (Binghamton University)

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

Andreas 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 )

*Remote*

**Closing Remarks**

**11:50 - 12:00**

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**Thank you to our Official Sponsors:**



## At-a-Glance Schedule

### Day 1 — Wednesday, March 11

Time	Sloan Auditorium (Goergen 101)	Fantone Lecture Hall (Goergen 109)
12:00	<i>Registration (12:00–4:00) &amp; Coffee (Munnerlyn Atrium)</i>	
1:00–1:30	<i>Opening Remarks</i>	
1:30–2:30	<i>Keynote: Juan Perez-Mercader (Harvard University)</i>	
2:30–2:45	<i>Break</i>	
2:45–3:45	Network Control, Measurement, and Bias	Adaptive Social Networks and Belief Dynamics
3:45–4:00	<i>Break</i>	
4:00–5:00	Information, Entropy, and Behavioral Signals	Media, Platforms, and Field Mapping

### Day 2 — Thursday, March 12

Time	Sloan Auditorium (Goergen 101)	Fantone Lecture Hall (Goergen 109)
8:00	<i>Continental Breakfast (Munnerlyn Atrium)</i>	
9:15–10:15	<i>Keynote: Filippo Radicchi (Indiana University)</i>	
10:15–10:30	<i>Break</i>	
10:30–11:30	Social / Institutional Simulation and Innovation Dynamics	Infrastructure, Risk, and Public/Health Networks
11:30–1:30	<i>Buffet Lunch (Munnerlyn Atrium)</i>	
1:30–2:30	Graph Methods and Applied Dynamics	Computational Models and Algorithm Diagnostics
2:30–2:45	<i>Coffee Break (Munnerlyn Atrium)</i>	
2:45–3:45	<i>Keynote: Adilson Motter (Northwestern University)</i>	
3:45–4:00	<i>Break</i>	
4:00–5:00	Self-Organization, Robustness, and Epidemic Coupling	Collapse, Inequality, and Sustainability Dynamics

### Day 3 — Friday, March 13

Time	Sloan Auditorium (Goergen 101)	Fantone Lecture Hall (Goergen 109)
8:00	<i>Continental Breakfast (Munnerlyn Atrium)</i>	
9:15–10:15	<i>Keynote: Krishnan Padmanabhan (University of Rochester)</i>	
10:30–11:30	LLM Learning, Optimization, and Alignment	LLM Agents in Social Systems
11:50–12:00	<i>Closing Remarks</i>	