



# NERCCS 2024 - Program

March 20 - Wednesday

9:00 - 9:45 (Location: Barben rooms - “upstairs”)

**TBA**

Brian Hunt, University of Maryland

10:15 - 12:15 - Contributed talks sessions

**Dynamic Network - (Location: Barben rooms - “upstairs”)**

10:15 - 10:45

**Deriving Dynamical Model Equations from Temporal Network Data Using a Graph Rewriting Framework**

Hiroki Sayama, Binghamton University

10:45 - 11:15

**Uncovering the universal nature of citation networks: From science of science to law of law and patterns of patents**

Sadamori Kojaku, Binghamton University

11:15 - 11:45

**Q-Learning Dynamics in Vaccination: A Double-Edged Sword for Addressing Vaccine Hesitancy**

Atticus McWhorter, Dartmouth College

11:45 - 12:15

**Effects of nonlinear membrane capacitance in the Hodgkin- Huxley model of action potential on the spike train patterns of a single neuron**

Jitender Kumar, University of Delhi

**Network applications - (Location: Cheel Commons - “downstairs”)**

10:15 - 10:45

**Revealing the Transition of Exploration Modes in Human Mobility Networks**

Lu Zhong, Rensselaer Polytechnic Institute

10:45 - 11:15

**Tangent functional connectomes uncover more unique phenotypic traits**

Mintao Liu, Purdue University



11:15 - 11:45

**Evaluating trajectories derived from dynamic functional connectivity across fMRI conditions**

Si Thu Aung, State University of New York at Buffalo

11:45 - 12:15

**Redefining Complexity Science Using Functional State Spaces**

Andy E. Williams, Nobeah Foundation

14:00 - 14:45 (Location: Barben rooms - “upstairs”)

**Modeling Biological Networks using Omics Data**

Kimberly Glass, Harvard Medical School

15:15 - 17:15

**Data-driven Methods for Complex Systems - (Location: Barben rooms - “upstairs”)**

15:15 - 15:45

**Spatio-Temporal Multivariate Correlation Analysis of the Global Human Rights Dataset**

Amanda Goodrick, State University of New York at Binghamton

15:45 - 16:15

**Enhancing Electrical Network Vulnerability Assessment with Ensemble and Deep Learning Techniques**

Harun Pirim, North Dakota State University

16:15 - 16:45

**Data-driven time-dependent three-dimensional magnetohydrodynamics (MHD) simulation for the solar corona**

Keiji Hayashi, New Jersey Institute of Technology

16:45 - 17:15

**Non-Spatial Hash Chemistry as a Minimalistic Open-Ended Evolutionary System**

Hiroki Sayama, Binghamton University

**Social Networks - (Location: Cheel Commons - “downstairs”)**

15:15 - 15:45

**Why can't we agree? The Consensus Problem in Politics of Heterogeneous Agents**

Damian Sowinski, University of Rochester



15:45 - 16:15

**Game Theory and Nuclear Strategy: An Abstract Model for Evaluating Risk of Thermonuclear War**

Matthew Christ, Binghamton University

16:15 - 16:45

**Exploring Social Networks: An Analysis of Intra-organizational Networks**

Ximeng Chen, Sacred Heart University

16:45 - 17:15

**Effect of recommending users and opinions on the network connectivity and idea generation process**

Sriniwas Pandey, Binghamton University

## March 21 - Thursday

9:00 - 9:45 (Location: Barben rooms - “upstairs”)

**TBA**

George Ilhwan Park, University of Pennsylvania

10:15 - 12:15

### Dynamic Network - (Location: Barben rooms - “upstairs”)

10:15 - 10:45

**Group-structured evolutionary game dynamics with environmental feedback**

Katherine Betz, State University of New York at Buffalo

10:45 - 11:15

**An Application of Tensors in the Stochastic Reaction Diffusion Master Equation**

Md Mustafijur Rahman, The University of Alabama

11:15 - 11:45

**Dunbar’s Number in Motion: Agent-Based Simulations of Friendship Formation**

Christopher Cooke, Binghamton University

11:45 - 12:15

**A Measure of Interactive Complexity in Network Models**

Will Deter, Binghamton University

## **Network applications - (Location: Cheel Commons - “downstairs”)**

10:15 - 10:45

### **Urban Circuitry: Unveiling Accessibility in Complex Networks**

Bibandhan Poudyal, University of Rochester

10:45 - 11:15

### **Network-based analysis of the effect of blast-induced concussions on animal brains**

Zeynep Ertem, Binghamton University

11:15 - 11:45

### **A S3XY Analysis of Tesla’s North America Supercharger Network**

Luke Netto, Binghamton University

11:45 - 12:15

### **Exploring the Impacts of the Complex Interplay Between Waning Immunity and Disease Fatality on the Topology of Scale Free Networks**

ThankGod Ifreke Sylvanus Ikpe, Tohoku University, Japan

14:00 - 14:45 **(Location: Barben rooms - “upstairs”)**

### **Environment-adaptive machine learning potentials for atomistic simulations of materials under extreme conditions**

Ngoc Cuong Nguyen, MIT

15:15 - 17:15

## **Data-driven Methods for Complex Systems - (Location: Barben rooms - “upstairs”)**

15:15 - 15:45

### **DYNAMICS AND DRIVERS OF GENDER REPRESENTATION IN MATHEMATICS**

Phil Chodrow, Middlebury College

15:45 - 16:15

### **Network Classification Based on Network Structural Properties**

Saiful Islam, State University of New York at Buffalo

16:15 - 16:45

### **Analyzing the Feature Space of Physiological Signals in Relation to Mental Workload**

Martin Duffy, Clarkson University

## **Fluid Dynamics - (Location: Cheel Commons - “downstairs”)**

15:15 - 15:45

### **The role and impact of converging flows toward Bipolar Magnetic Regions**

Kinfe Gebreegzabihar, Aksum University

15:45 - 16:15

### **Large-Eddy Simulation of Turbulent Flows Around Two Canoe Paddles**



Peter Parrish, Clarkson University

16:15 - 16:45

**Generalising Convective Instability Analysis for Spatially Varying Non-constant Problems with a Finite Domain**

Tony Abrantes, Clarkson University

## March 22 - Friday

9:00 - 9:45 (Location: Barben rooms - “upstairs”)

**Multiscale Energy Transfer within Turbulence**

James Chen, University at Buffalo

10:15 - 13:45

**Fluid Dynamics - (Location: Barben rooms - “upstairs”)**

10:15 - 10:45

**Rolling Detachment Mechanism in Turbulent Flows for Charged Rough Bumpy Particles**

Abbas Khanmohammadi, Clarkson University

10:45 - 11:15

**Numerical Investigation of Indoor Particle Transport Using Lagrangian Method**

Amirmasoud Anvari, Clarkson University

11:15 - 11:45

**CHORUS++ Simulation Jupiter’s Convection Zone**

Maxwell Stephan, Clarkson University

11:45 - 12:15

**Explicit Large Eddy Simulations of Two Naval Propulsion Units**

Stephen Monroe, Clarkson University

10:15 - 13:45

**Data-driven Methods for Complex Systems - (Location: Cheel Commons - “downstairs”)**

10:15 - 10:45

**Spatial and Temporal Variability of Dissolved Organic Carbon in Adirondack Lakes**

Manas Bhole, Syracuse University

10:45 - 11:15



**Enhancing Prenatal Care through Machine Learning: A Comprehensive Analysis of Maternal Factors for Predicting Neonatal Birth Weight**

Zahra Mahdavi, Clarkson University

11:15 - 11:45

**The Preservation of Input/Output Directed Graph Informativeness under Crossover**

Andreas Pape, Binghamton University

11:45 - 12:15

**A Qualitative Approach for Detection of Emergent Behaviors in Dynamical Systems**

Shweta Singh, Northeastern University

## Poster session

March 21, Thursday 17:45 - 19:15

**Location: Cheel Commons - "downstairs"**

**Graph Neural Network Model Reveals Transcriptomic Differentiation in Bronchopulmonary Dysplasia**

Matthew Jehrio, University of Rochester

**Analyzing Patient Reviews on Google Map Hospital Profiles through Neural Embedding and Network Modeling**

Xin Wang, Binghamton University

**Bio-Inspired Drone Swarm Movement via Boid and Evolutionary Algorithms**

Michael Magid, Binghamton University

**Exploring Urban Traffic Dynamics: A Simulation-Based Study of Autonomous and Traditional Vehicles**

Miriam Flores Castillo, Binghamton University

**Adaptability reveals the healthcare system resilience to pandemics**

Dimitri Lopez, Rensselaer Polytechnic Institute

**Toward understanding genomic segmental duplications by network analysis across multiple species**

Saiful Islam, State University of New York at Buffalo