

Complex Systems



UVM Transdisciplinary Research Initiative
“Spires of Excellence”
The University of Vermont

Researchers in the complex systems spire attempt to understand systems that cannot be explained by looking at each component of the system in isolation. The workings of the human brain cannot be understood by looking at a single neuron, nor can societies be understood by looking at any one individual's behavior. Instead we try to understand systems by looking at large amounts of data generated by networks of many interacting elements.



Student	Title	Advisor	Presentation Location
Nicholas Allgaier	Reverse Engineering the Human Brain	Christopher Danforth	Oral: Frank Livak, 11:00
Alexandra Arntsen	Internal Ice layer Mapping and Geophysical Analysis of Jakobshavn Glacier, Greenland	William Bowden	Poster: 46, Afternoon
Joshua Auerbach	On the Relationship Between Environmental and Morphological Complexity in Evolved Robots	Joshua Bongard	Poster: 30, Afternoon
Francis Ayombil	Prethrombin-I, the gla-domainless prothrombin intermediate, is activated efficiently to thrombin by Prothrombinase assembled	Paula Tracy	Poster: 8, Morning
Paul Beliveau	Interactive Robot Simulation Environment	Joshua Bongard	Poster: 36, Morning
David Bernstein	Decision Support Tool for Mechanical Ventilation Based on Fuzzy Logic	Jason Bates	Poster: 71, Afternoon
Catherine Bliss	Twitter reciprocal reply networks exhibit assortativity with respect to happiness	Christopher Danforth	Oral: Frank Livak, 12:45
Evan Border	Quantum Monte Carlo Measurements of the Superfluid Density of Helium-4	Adrian Del Maestro	Poster: 87, Afternoon
Rebecca Bourgault	Catchment-scale analysis of interactions between soils and water at Hubbard Brook, NH	Donald Ross	Oral: Chittenden, 2:00
Sam Brown	Attribute Prediction from Messages by Analysis of Nonverbal Characteristics	Robert Snapp	Poster: 35, Afternoon
David Buckingham	Evolving Adaptive Sampling Algorithms	Joshua Bongard	Poster: 31, Afternoon
Ana Camposeco Jacobs	Role of noise in gene expression in the multiple antibiotic resistance (mar) network of Escherichia coli	Mary Dunlop	Poster: 21, Morning
Matt Carralero	Characterizing the Potential Angiogenic Effects of Threonyl-tRNA Synthetase	Karen Lounsbury	Poster: 6, Afternoon
Shane Celis	Measuring Transferability in Simulated Robotics	Joshua Bongard	Poster: 32, Afternoon
Somdeb Chatterjee	Crowdsourcing Predictors For Modeling Behavioral Outcomes	Joshua Bongard	Poster: 33, Afternoon
Nick Cheney	Automating Lifetime Body Change in Simulated Robots	Joshua Bongard	Poster: 67, Afternoon
Eric Clark	Prosocial Behavior on Twitter	Christopher Danforth	Poster: 4, Afternoon
Tiyasha De Pinto	Integrating Sustainability with Transport Asset Management Processes: Governance of Intergovernmental Decision Making	Asim Zia	Poster: 60, Afternoon
Suma Desu	The Happiness of Language	Christopher Danforth	Oral: Frank Livak, 11:15
Midori Eckenstein	Borrelidin 194 Effects on VHL Deficient Cancer Cells	Karen Lounsbury	Poster: 65, Morning
Tyler Feralio	Development of an Exhaust Dilution System for Real-World Particle Number Emissions Quantification between Petroleum-based	Britt Holmen	Poster: 21, Afternoon
Morgan Frank	Movement and Happiness in the Twittersphere	Christopher Danforth	Poster: 65, Afternoon
Danika Frisbie	An Evolutionary Analysis of the “Organics Recycling” Industry in the U.S.	Rocki-Lee DeWitt	Oral: Mildred Livak, 11:45
Nikolaos Fytilis	A Bayesian approach to genetic data (PCR) to better understand fish disease dynamics	Donna Rizzo	Oral: Mildred Livak, 12:30
Eliza Gardner-Morse	Reproductive Division of Labor in Forced Associations of Pogonomyrmex barbatus Queen Ants	Sara Cahan	Oral: Williams, 11:00
Dan Hagan	Conjugate heat transfer and wall reaction in computational fluid dynamics	Yves Dubief	Poster: 62, Morning
Kameron Harris	Chaotic social contagion: From zombies to hipsters	Peter Dodds	Oral: Frank Livak, 11:45
Kristi Herzer	The Stress and Antibiotic Response of Clinical Isolate Pseudomonas aeruginosa PA 14 to Altered Gravity Conditions	Jane Hill	Poster: 19, Afternoon
Alexander Hilshey	An Activity-Based Travel-Demand Modeling Approach to Estimating Electric Vehicle Charging Load	Paul Hines	Oral: Chittenden, 2:45
Ilknur Icke	Active Learning Based fMRI Study Design	Joshua Bongard	Poster: 34, Afternoon
Victor Izzo	Plant-mediated diapuse initiation in Leptinotarsa decemlineata, the Colorado potato beetle.	Yolanda Fanslow	Oral: Mildred Livak, 8:30
Ashley Jones	Does insecticidal spraying impact parasite prevalence in Chagas disease vectors?	Lori Stevens	Oral: Jost, 4:15
John Kasumba	Chemical characterization of primary and secondary biodiesel exhaust particulate matter	Britt Holmen	Poster: 41, Afternoon
Brian Kelly	Governance Network Design: A Case Study Analysis of Vermont	Joshua Farley	Oral: Chittenden, 4:00
Rachel Koh	Modeling Demonstrates that Gene Circuit Architecture Controls Phenotypic Variability in a Bacterial Persistence Network	Mary Dunlop	Oral: Chittenden, 3:00
Joseph Krupa	Consumer Survey Data Analysis for Market Adoption of Plug-in Hybrid Vehicles	Donna Rizzo	Oral: Mildred Livak, 12:45
David Kuhn	Agroforestry in the Atlantic forest region of Brazil: Providing framework for implementation through stakeholder participation	Cecilia Danks	Oral: Jost, 2:45
Joseph Labrum	Phylogeography of Colorado Potato Beetle (Leptinotarsa decemlineata): inferring the history of an agricultural pest	Yolanda Fanslow	Poster: 20, Morning
Brad Lanute	Assessing Urban Sprawl Metrics and their Applicability to Chittenden County, VT	Austin Troy	Oral: Jost, 2:30
Crystal Latham	Study of Modal Patterns and Dynamic Emission Characteristics in Pulsar B1822-09	Joanna Rankin	Poster: 82, Morning
Paul Lessard	Topological Model for Cultural Variation in Economic Behaviour	Peter Dodds	Poster: 68, Afternoon
Narine Manukyan	Automated Discovery of Multivariate Associations in Large Time-Varying data sets: a Healthcare Network Application	Margaret Eppstein	Oral: Williams, 3:00
Lewis Mitchell	Finding novel applications for big data from social media	Christopher Danforth	Oral: Frank Livak, 1:00
Allison Neal	How might transmission affect the sex ratio of malaria parasites?	Joseph Schall	Oral: Williams, 11:15
Iwan Nyotowidjojo	Tachycardia-induced Incomplete Relaxation And Left Ventricular Volume Loss In Concentric Hypertrophy	Markus Meyer	Poster: 73, Afternoon
Elizabeth Olliver	Impacts of large storms on Vermont Lakes: A case study from Lake Rescue, Ludlow, VT	Andrea Lini	Poster: 52, Morning
Eitan Pechenick	Joining Words into Meaningful Phrases through Virtual Text Compression	Peter Dodds	Oral: Frank Livak, 11:30
Joshua Pothén	An Agent-Based Model Of Allergic Airway Inflammation	Jason Bates	Poster: 9, Afternoon
Matthew Putnam	Leverage Points for a Healthier Future: Using Structural Equation Modeling to Understand Obesity	Jane Kolodinsky	Oral: Chittenden, 8:30
Michael Reardon	Interaction of Unstable Modes in a Solid Propellant Combustion Model	Jun Yu	Oral: Williams, 2:45
Emily Smith	Dynamic Analysis of Radio Pulsar B1237+25’s Emission and Polarization Modes	Joanna Rankin	Poster: 88, Afternoon
Chan Stevens	Resistance Modeling in Bolivian Triatomine Bugs: An Evaluation of Methods	Lori Stevens	Poster: 44, Afternoon
Christopher Tardie	Determining Water Content in Snow-packs through Gamma Radiation Measurements	Jeff Frolik	Poster: 39, Afternoon
Genesis Tejada	Biodiversity and Infectious Disease Risk: Genetic Variability of Myxobolus cerebralis	Lori Stevens	Poster: 15, Afternoon
Alexander Temple	Hypoxia Effects on MKP-1 Production	Karen Lounsbury	Poster: 7, Afternoon
Jeffrey Tonn	Characterizing an Impact: Event Monitoring with a Wireless Sensor Network	Jeff Frolik	Oral: Chittenden, 2:30
Leslie Turner	The State of Food Systems Planning and Implementation Network Governance in the United States	Christopher Koliba	Poster: 58, Morning
Josh Tyler	Advanced and Integrative Model of Phosphorus loading from High Runoff Events to Identify Critical Source Areas	Jane Hill	Oral: Frank Livak, 8:15
Abigail Wager	Systems Biology of Coagulation and Trauma-Induced Coagulopathy	Kalev Freeman	Poster: 57, Morning
Genna Waldvogel	Riparian plant senescence and the effects on stream nutrients and benthic biology in Alaskan Arctic streams	William Bowden	Poster: 47, Afternoon
Jake Williams	Eliciting the shape of human reasoning from its echo in text-frequency data	Christopher Danforth	Oral: Frank Livak, 12:30
Aaron Witham	Organizational Characteristics that Relate to a Central Presence in Hyperlink Networks in the Context of Sustainable Transportation	Richard Watts	Oral: Chittenden, 11:30
Yanting Zhang	Orthogonality Catastrophe in Quantum Sticking	Dennis Clougherty	Oral: Jost, 10:00
Yunfei Zhao	Spontaneous Evolution of Modularity in Robot Neural Networks for Object Manipulation	Joshua Bongard	Poster: 38, Morning