

Complex Adaptive Systems Conference

November 2-4, 2016 | Los Angeles, CA

Schedule of Events

Wednesday, November 2, 2016

8:00 AM	5:00 PM	Registration	Coral Foyer
8:00 AM	8:40 AM	Breakfast	Seascape Ballroom
8:40 AM	9:00 AM	Welcoming Remarks Moving Applied Complexity Science Forward <i>Speaker: Huy Tran</i>	Redondo 1 & 2
9:00 a.m.	10:00 a.m.	Opening Session and Plenary Name David Broniatowski Title: Assistant Professor of Engineering Management and Systems Engineering George Washington University, USA Title: Two Synergistic Strategies for Coping with Complexity in Engineered Systems	Redondo 1 & 2
10:00 AM	10:30 AM	Morning Break	Seascape Ballroom
10:30 AM	12:00 PM	Concurrent Technical Session I Room: Redondo 1 & 2 Cyber Physical Systems: Cyber Security Session Chair: Huy Tran The MITRE Corporation 18 - Affective Computing as Complex Systems Science Dr. William Lee (The MITRE Corporation, USA); Dr. Michael D. Norman (The MITRE Corporation, USA) 10 - Cyber Collateral Damage Sasha Romanosky (RAND Corporation, USA); Zachary Goldman (New York University, USA) 24 - A Method for Revealing and Addressing Security Vulnerabilities in Cyber-Physical Systems by Modeling Malicious Agent Interactions with Formal Verification Dean C. Wardell, Robert F. Mills, Gilbert L. Peterson and Mark E. Oxley (Air Force Institute of Technology, USA) 32 - Topology-Based Safety Analysis for Safety Critical CPS Jean-Yves Choley and Faïda Mhenni (Supméca, France); Nga Nguyen (EISTI, France); Anis Baklouti (Supméca, France)	Concurrent Technical Session II Room: Redondo 3 Intelligent & Adaptive Systems: Deep Learning Session Chair: Fred Highland University of Maryland 159 - Implementing Multilayer Neural Network Behavior Using Polychronous Wavefront Computation Fred Highland (University of Maryland Baltimore County, USA); Corey Hart (nNetworx, LLC, USA) 153 - Entity Resolution Using Convolutional Neural Network Ram Deepak Gottapu (Missouri University of Science and Technology, USA); Cihan Dagli (Missouri University of Science and Technology, USA); Bharami Ali (Missouri University of Science and Technology, USA) 135 - Modeling of Computational Systemic Deep Mind Under Uncertainty Ben Khayut (Intelligence Decisions Technologies Systems; IDTS, Israel); Lina Fabri and Maya Avikhana (Intelligence Decisions Technologies Systems, Israel) 145 - Image Data Compression and Noisy Channel Error Correction Using Deep Neural Network Yijing Z. Watkins (Southern Illinois University Carbondale, USA); Mohammad R. Sayeh (Southern Illinois University Carbondale, USA)
12:00 PM	1:30 PM	Luncheon & Afternoon Plenary Name Joshua Baron Title Information Scientist RAND Corporation, USA Title: National Security Implications of Virtual Currencies: The Case of Non-State Actor Deployment	Seascape Ballroom
1:30 PM	3:00 PM	Concurrent Technical Session II	

Room: Redondo 1 & 2

Cyber Physical Systems:

System of Systems

Session Chair: Bonnie Johnson

Naval Postgraduate School

48 - Executable Behavioral Modeling of System and Software Architecture Specifications to Inform Resourcing Decisions | Monica Farah-Stapleton (PEO DHMS OSD, USA); Mikhail Auguston (Naval Postgraduate School, USA); Kristin Giammarco (NPS, USA)

58 - Exploring Engineered Complex Adaptive Systems of Systems | Bonnie Johnson and Alejandro Hernandez (Naval Postgraduate School, USA)

40 - Applied Graph Theory to Real Smart City Logistic Problems | Jose M. Gutierrez (Aalborg University, Denmark); Michael Jensen (NetPlan A/S, Denmark); Tahir Riaz (Radio Analyzer, Denmark)

66 - Confidence Investigation of Discovering Organizational Network Structures Using Transfer Entropy | Joshua Rodewald, John Colombi, Kyle Oyama and Alan Johnson (Air Force Institute of Technology, USA)

Room: Redondo 3

Intelligent & Adaptive Systems:

Applications I

Session Chair: Walker Land

Binghamton University

168 - A Machine Intelligence Designed Bayesian Network Applied to Alzheimer's Detection Using Demographics and Speech Data | Walker H. Land and J. David Schaffer (Binghamton University, USA)

175 - Unsupervised Learning of Patterns Using Multilayer Reverberating Configurations of Polychronous Wavefront Computation | Fred Highland (University of Maryland Baltimore County), USA); Corey Hart (nNetworx, LLC, USA)

185 - Identifying High Velocity Objects in Complex Natural Environments Using Neural Networks | Kyle Buller (Missouri University of Science and Technology, USA)

193 - Detection of Fault Data Injection Attack on UAV Using Adaptive Neural Network | Alireza Abbaspour and Kang K. Yen (Florida International University, USA); Shirin Noei (University of Florida, USA); Arman Sargolzaei (Florida Polytechnic University, Lakeland, Florida, USA)

3:00 PM 3:30 PM **Afternoon Break**

3:30 PM 5:00 PM Concurrent Technical Session III

Room: Redondo 1 & 2

Cyber Physical Systems:

Complex System Behavior

Session Chair: Andrew Renault

Missouri University of Science & Technology

73 - Complex Adaptive Behavior: Pragmatic Idealism | Mustafa Canan and Andres Sousa-Poza (Old Dominion University, USA)

80 - Development of an Instrument to Assess Capacity for Systems Thinking | Kaitlynn M. Castelle (Old Dominion University, USA); Raed M. Jaradat (Mississippi State University, USA)

87 - SoS Meta-Architecture Assessment by Dual Application of Rule Based Fuzzy Inference Systems | Andrew Renault (Missouri University of Science and Technology, USA)

95 - Genetic Algorithm Optimization of SoS Meta-Architecture Attributes for Fuzzy Rule Based Assessments | Andrew Renault and Cihan Dagli (Missouri University of Science and Technology, USA)

Room: Redondo 3

Intelligent & Adaptive Systems:

Applications II

Session Chair: Zeyi Sun

Missouri University of Science & Technology

201 - MMO Smart Servers Using Neural Networks for Intelligent, Client-Handling Decisions and Interactions | Ben Smith (Missouri University of Science & Technology & Jack Henry and Associates, USA)

209 - Application of Neural Network in Shop Floor Quality Control in a Make to Order Business | Rajkamal Kesharwani, Cihan Dagli and Zeyi Sun (Missouri University of Science and Technology, USA)

217 - Determining the Economical Wind Power Sites for the Needed Power Loads Accounting for Geographical Terrains | Wen-Li Wang (Penn State Erie, The Behrend College, USA); Mei-Huei Tang (Gannon University, USA)

223 - Importance of Model Resolution on Discriminating Rapidly and Non-Rapidly Intensifying Atlantic Basin Tropical Cyclones | Andrew Mercer; Alexandria Grimes (Mississippi State University; Northern Gulf Institute, USA)

507 - Permanent Magnet Synchronous Generator Stability Analysis and Control | Marwa A. Abd El Hamied (Arab Academy, Egypt) Noha H.El.Amary (Sapienza University ,Italy)

TBD

Thursday, November 3, 2016

8:00 AM	5:00 PM	Registration	Coral Foyer
7:30 AM	8:30 AM	Breakfast	Seascape Ballroom
8:30 AM	9:30 AM	Opening Announcements and Plenary Name Fei-Yue Wang Title Research Scientist and Director Chinese Academy of Sciences, China Title: ACP-Based Parallel Systems: Knowledge Automation and Smart Adaptability for Complex Adaptive Systems	Room: Redondo 1 & 2
9:30 AM	10:00 AM	Morning Break	Seascape Ballroom
10:00 AM	11:30 AM	Concurrent Technical Session I Room: Redondo 1 & 2 Cyber Physical Systems: Architectures Session Chair: Huy T. Tran The MITRE Corporation	Room: Redondo 3 Intelligent & Adaptive Systems: Applications III Session Chair: Michael B. Richman School of Meteorology, University of Oklahoma
		126 - A Network-Based Cost Comparison of Resilient and Robust System-of-Systems Huy T. Tran (Georgia Institute of Technology, USA); Jean Charles Domerçant (Georgia Institute of Technology, USA); Dimitri N. Mavris(Georgia Institute of Technology, USA)	237 - A New Multilevel Input Layer Artificial Neural Network for Predicting Flight Delays at JFK Airport Sina Khanmohammadi (Binghamton University, USA), Salih Tutun (Binghamton University, USA), and Yunus Kucuk (Turkish Military Academy, Turkey)
		103 - Combining Max-Min and Max-Max Approaches for Robust SoS Architecting Hadi Farhangi, Dincer Konur and Cihan H Dagli (Missouri University of Science and Technology, USA)	229 - Classifying Drought in Ethiopia Using Machine Learning Michael B. Richman (School of Meteorology, University of Oklahoma, USA); Lance M. Leslie (School of Meteorology, University of Oklahoma USA); Zewdu T. Segele (School of Meteorology, University of Oklahoma, USA)
		111 - Modeling Resilience in System of Systems Architecture Paulette Acheson and Cihan H Dagli (Missouri University of Science and Technology, USA)	392 - Automatic Classification of Breast Tumors Using Features Extracted from Magnetic Resonance Images Ahmed M. Sayed (Helwan University, Egypt); Eman Zaghloul (Applied Medical Sciences, Egypt); Tamer M. Nassef (Misr University for Science and Technology, Egypt and El-Gazeera Higher Institute for Engineering and Technology, Egypt)
		119 - Multiobjective System of Systems Architecting with Performance Improvement Funds Hadi Farhangi, Dincer Konur and Cihan H. Dagli (Missouri University of Science and Technology, USA)	245 - Voice Identity Finder Using the Back Propagation Algorithm of an Artificial Neural Network Roger Achkar; Mustafa El-Halabi; Elie Bassil; Rayan Fakhro; Marny Khalil (American University of Science and Technology, Lebanon)
11:30 AM	1:00 PM	Lunch on Your Own Afternoon Plenary Speaker <i>Charlie Dagli</i> <i>MIT Lincoln Library</i>	NA
1:00 PM	2:30 PM	Concurrent Technical Session II Room: Redondo 1 & 2 Data Science & Analytics: Cluster Analytics Session Chair: Mika Sato-Ilic University of Tsukuba 254 - Individual Compositional Cluster Analysis Mika Sato-Ilic (University of Tsukuba, Japan)	Room: Redondo 3 Complex Systems Modeling I Session Chair: Davinia Rizzo Sandia National Laboratories 408 - Use of Bayesian Networks for Qualification Planning: Early Results of Factor Analysis Davinia B. Rizzo (Sandia National Laboratories, USA); Mark R. Blackburn (Stevens Institute of Technology, USA)

264 - Evaluating Forecasting Methods by Considering Different Accuracy Measures | Nijat Mehdiyev (Institute for Information Systems, Germany); David Enke (Missouri University of Science and Technology, USA); Peter Fettke (Institute for Information Systems, Germany); Peter Loos (Institute for Information Systems, Germany)

400 - Modeling Social, Economic, Technical & Environmental Components in an Energy System | Angel-Lionel Toba and Mamadou Seck (Old Dominion University, USA)

272 - Comparative Analyses of Stock Returns Properties and Predictability | Anthony Joseph (Pace University, USA); Claude Turner (Norfolk State University, USA); Rolston Jeremiah (Independent Consultant, USA)

418 - Exploration of Simulated Creatures Learning to Cross a Highway Using Frequency Histograms | Leslie Ly, Anna T. Lawniczak and Fei Yu (University of Guelph, Canada)

281 - Using Neural Networks to Forecast Volatility for an Asset Allocation Strategy Based on the Target Volatility | Youngmin Kim and David Enke (Missouri University of Science and Technology, USA)

428 - Epidemiology-Based Task Assignment Algorithm for Distributed Systems | Parth Brahmabhatt and Sergio G. Camorlinga (University of Winnipeg, Canada)

2:30 PM 3:00 PM Afternoon Break

Seascope Ballroom

3:00 PM 4:30 PM Concurrent Technical Session III

Room: Redondo 1 & 2
Data Science & Analytics:
Prediction

Room: Redondo 3
Complex Systems Modeling II
Session Chair: Gene Lesinski
United States Military Academy

Session Chair: David Enke

Missouri University of Science & Technology

287 - An Efficient Hybrid Intelligent Method for Electricity Price Forecasting | Hiroyuki Mori and Kaoru Nakano (Meiji University, Japan)

436 - Integrating External Simulations Within the Model-Based Systems Engineering Approach Using Statistical Metamodels | Alex MacCalman (United States Military Academy, USA); Gene Lesinski (United States Military Academy, USA); Simon Goerger (Engineer Research and Development Center, USA)

297 - Time-Frequency Spatial Wavelet Phase Coherence Analysis of EEG in EC and EO During Resting State | Lal Hussain (University of Azad Jammu and Kashmir, Pakistan); Wajid Aziz (University of Jeddah, Saudi Arabia)

375 - Application of an Artificial Neural Network to Predict Graduation Success at the United States Military Academy | Gene Lesinski (United States Military Academy, USA); Steven Corns and Cihan Dagli (Missouri University of Science and Technology, USA)

311 - Integration of System Modeling and Design Processes, Data and Technology for Streamlining Enterprise Integration | Craig Estridge (The George Washington University, USA); Timothy Eveleigh (The George Washington University, USA); Berek Tanju (The George Washington University, USA)

442 - Analysis of CT-Measured Pore Characteristics of Porous Media Relative to Physical Properties | P. Adhikari (Texas A&M AgriLife Research Center, USA); S. H. Anderson and R. P. Udawatta (University of Missouri, Columbia, USA); S. Kumar (South Dakota State University, USA)

303 - Governing Asset Management Data Infrastructures | Paul Brous (Delft University of Technology, The Netherlands); Paulien Herder (Delft University of Technology, The Netherlands); Marijn Janssen (Delft University of Technology, The Netherlands)

450 - Sparse Causal Temporal Modeling to Inform Power System Defense | Michail Misyrlis, Rajgopal Kannan, Charalampos Chelmiss and Viktor K. Prasanna (University of Southern California, USA)

4:30 PM 6:00 PM Concurrent Technical Session IV

Room: Redondo 1 & 2
Data Science & Analytics:
Data Analytics Frameworks
Session Chair: Joseph Kroclicik
Winifred Associates

319 - A Knowledge and Analytics-Based Framework and Model for Forecasting Program Schedule Performance | Kevin T. Knudsen (Stevens Institute of Technology, USA); Mark Blackburn (Stevens Institute of Technology, USA)

327 - Vector Representation for Sub-graph Encoding to Resolve Entities | Jinhong K. Guo, David Van Brackle, Nicholas Lofaso and Martin O. Hofmann (Lockheed Martin Advanced Technology Laboratories, USA)

335 - We Are What We Generate - Understanding Ourselves Through Our Data | Muhammad Fahim Uddin and Jeongkyu Lee (University of Bridgeport, USA)

345 - Towards Assuring Correct Coordination of Multilayer Recovery Using Integrated Ontologies | Joseph Kroclicik (Winifred Associates, USA)

6:30 PM

Hosted Bar

7:00 PM

9:30 PM Banquet, Awards & Banquet Speaker
Name Anna McGowan
Title Agency Senior Engineer for Complex Systems Design
NASA, USA
Title: Large-Scale Complex Svstems

Room: Redondo 3
Complex Systems Modeling III

Session Chair: Ahmet Murat Ozbayoglu
Missouri University of Science and Technology

457 - Shape Analysis of Traffic Flow Curves Using a Hybrid Computational Analysis | W. Kayani, S.P. Acharya, I.G. Guardiola; D.C. Wunsch, B. Schumacher, and Isaac Wagner-Muns (Missouri University of Science & Technology, USA)

467 - Design of a Customer's Type Based Algorithm for Partner Selection Problem of Virtual Enterprise | Shahrzad Nikghadam (Middle East Technical University, Turkey); Ahmet Murat Ozbayoglu and Hakki Ozgur Unver (TOBB University of Economics and Technology, Turkey); Sadik Engin Kilic (Atilim University, Turkey)

475 - An Efficient Solution to the Mixed Shop Scheduling Problem Using a Modified Genetic Algorithm | V. Nguyen (Old Dominion University, USA); H. P. Bao (Old Dominion University, USA)

483 - Optimal Policy for Sequential Stochastic Resource Allocation | K. Krishnamoorthy (InfoSciTex Corporation, USA); M. Pachter (Air Force Institute of Technology, USA); D. Casbeer (Air Force Research Laboratory, USA)

Seascape Ballroom

Seascape Ballroom

Friday, November 4, 2016

8:00 AM 12:00 PM **Registration**

Coral Foyer

8:00 AM 9:00 AM **Continental Breakfast**

Seascape Ballroom

9:00 a.m. 10:00 a.m. **Opening Announcements and Plenary**

Redondo 1 & 2

Name Marija Jankovic
Title Associate Professor
CentraleSupélec, France
Title: Decision making in Complex System Architecture Design: Issues and Challenges

10:00 AM 10:15 AM **Morning Break**

Seascape Ballroom

10:15 AM 11:45 AM **General Assembly Technical Sessions**

Room: Redondo 1 & 2
Data Science & Analytics:
Intrusion Detection
Session Chair: Anthony Joseph
Affiliation: Pace University

361 - A Rule Status Monitoring Algorithm for Rule-Based Intrusion Detection and Prevention Systems | Claude Turner (Norfolk State University, USA); Rolston Jeremiah (Independent Consultant, USA); Dwight Richards (College of Staten Island, USA); Anthony Joseph (Pace University, USA);

369 - Advocating for Hybrid Intrusion Detection Prevention System and Framework Improvement | Syed Rizvi, Gabriel Labrador, Matt Guyan and Jeremy Savan (Pennsylvania State University, USA)

383 - Utilizing Relevant Academic and Personality Features from Big Unstructured Data to Identify Good and Bad Fit Students | Muhammad Fahim Uddin and Jeongkyu Lee (University of Bridgeport, USA)

353 - Comparing Drools and Ontology Reasoning Approaches for Automated Monitoring of Telecommunication Processes | Armando Ordóñez (University Foundation of Popayán, Colombia); Luis Eraso (University Foundation of Popayán, Colombia); Hugo Ordóñez (University of San Buenaventura, Colombia); Luis Merchan (University of San Buenaventura, Colombia)

11:45 PM 1:15 PM **Luncheon & Afternoon Plenary** Seascape Ballroom
Name
Title
Affiliation, Country
Title:

1:15 PM 2:30 PM General Assembly Technical Sessions
Room: Redondo 1 & 2
Complex Systems Modeling IV
Session Chair: Daniel Bouskela
EDF, France
516 - Multi-mode Physical Modelling of a Drum Boiler | Daniel Bouskela (EDF, France)
489 - A Decision Support System for Improving Resiliency of Cooperative Adaptive Cruise Control Systems | Shirin Noei (University of Florida, USA); Arman Sargolzaei (Florida Polytechnic University, Florida, USA); Alireza Abbaspour and Kang Yen (Florida International University, USA)
497 - Robust Adaptive Control of a Weakly Minimum Phase General Aviation Aircraft | Alfonso Noriega, Mark J. Balas and Richard P. Anderson (Embry-Riddle Aeronautical University, USA)