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EIGHTH INTERNATIONAL ENGINEERING SYSTEMS SYMPOSIUM -- CESUN 2021

Technical Program

October 7, 2021

Charlottesville, VA

Live sessions with Zoom links available to registered remote participants

Sunday October 10 2021

Sunday October 10 2021	
19:00 – 21:00	Welcome Reception -- Location: Dairy Market (946 Grady Ave, Charlottesville, VA 22903)

Monday October 11 2021

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8:30 – 9:00	Opening Remarks -- Location: Rice Hall (Rice 130) Dean Jennifer West (UVA), Dean Pamela Norris (UVA), Dean Dawit Haile (VSU), Mark Manasco (CCALS), Brian L. Smith (ESE Department Chair, UVA), James H. Lambert (UVA), Babak Heydari (CESUN Director, Northeastern University), Majid Shafiee-Jood (UVA), Joi Williams (VSU)
9:00 – 9:45	Keynote 1: Dr. Tina Comes (TU Delft) – (25-30 min talk, 10-15 min Q/A) -- Location: Rice Hall (Rice 130)
9:45 – 10:00	<i>Break</i>
10:00 – 11:30	Technical Session 1 – (each 15 minutes including Q/A) -- Location: Rice Hall (Rice 130)
	Talk 1.1: Supporting Management Scenario Evaluation for Small-scale Grazing Systems by Modeling the Adaptive Behavior of Cattle. Authors: Yunying Shi (Keio Univ.), Akira Kodaka (Keio Univ.) and Naohiko Kohtake (Keio Univ.)
	Talk 1.2: Independent Adaptation Measures Enhancing Strategic Robustness in Cooperatively Maintained Irrigation Systems Authors: Jordan Stern (Stevens), Afreen Siddiqi (MIT) and Paul Grogan (Stevens)
	Talk 1.3: Development of Data-driven Evacuation Simulation Models for Efficient Disaster Mitigation Efforts. Authors: Seunghan Lee (SUNY Buffalo) and Akshaya Ramesh (SUNY Buffalo)
	Talk 1.4: A Systems Approach to Reducing GHG Emissions in Energy Intensive Industries in the UAE. Authors: Ali Bouabid (Khalifa University), Andrei Sleptchenko (Khalifa University)
	Talk 1.5: System of Systems Concept for Effective Oceans to Near Space Observation. Authors: Maha Haji (Cornell), Joseph Merkel (MIT), Parker Mayhew (MIT), Angel Gomez Cruz (MIT) and Daniel Hastings (MIT)
	Talk 1.6: Dynamic Resource Allocation in Systems of Systems Using Deep Reinforcement Learning. Authors: Qiliang Chen (Northeastern) and Babak Heydari (Northeastern)
11:30 – 12:15	Lunch -- Location: Rice Hall (Davis Commons)

12:15 – 13:00	Keynote 2: Dr. Julie Ivy (North Carolina State University) -- Location: Rice Hall (Rice 130)
13:00 – 14:00	CESUN Panel on Engineering Systems Education -- Location: Rice Hall (Rice 130) Panelists: Babak Heydari (Northeastern University), Zoe Szajnfarder (GWU), Robert Riggs (UVA) Moderator: Paul Grogan (Stevens)
<i>14:00 – 14:15</i>	<i>Break</i>
14:15 – 15:45	Technical Session 2 – (each 15 minutes including Q/A) -- Location: Rice Hall (Rice 130)
	Talk 2.1: Cybersecurity and Risks Challenges in Healthcare. Author: George Grant (Department of Defense)
	Talk 2.2: Developing a Dynamic Simulation Model to Support the Nationwide Implementation of Whole Genome Sequencing in Lung Cancer. Authors: Michiel van de Ven (Univ. of Twente), Maarten Ijzerman (Univ. of Twente), Valesca Retèl (Univ. of Twente), Wim van Harten (Univ. of Twente) and Hendrik Koffijberg (Univ. of Twente) ---- <i>This talk has been withdrawn</i>
	Talk 2.3: Exploring Decentralized Decision-Making in Command and Control Systems. Authors: Lewis Boss (GWU) and Erica Gralla (GWU)
	Talk 2.4: Learning Platforms: Adaptive Competition Using Deep Reinforcement Learning Authors: Qingtao Cao (Northeastern), Qiliang Che (Northeastern) and Babak Heydari (Northeastern)
	Talk 2.5: Agent-Based Modeling of Consumer and Producer Behavior in Sustainable Energy Markets Authors: Gina Dello Russo (Stevens), Steven Hoffenson (Stevens), Ashley Lytle (Stevens) and Lei Wu (Stevens)
	Talk 2.6: Addressing Societal Challenges of the Anthropocene Using an Evolutionary System-of-Systems Framework. Authors: John Little (V Tech), Roope Kaaronen (Univ. of Helsinki), Janne Hukkinen (Univ. of Helsinki) and Michael Barton (Arizona State Univ.)
<i>15:45 – 16:30</i>	<i>Extended Break – Poster Session (in-person only)</i>
16:30 – 18:00	Technical Session 3 – (each 15 minutes including Q/A) -- Location: Rice Hall (Rice 130)
	Talk 3.1: Does Open Innovation Enable STEM Agencies to Achieve Their Diversity Policy Objectives? Authors: Taylan G. Topcu (GWU), Lihui Zhang (MIT) and Zoe Szajnfarder (GWU)
	Talk 3.2: Influences of Interactive Dashboards on Design Decision Making. Authors: Steven Hoffenson (Stevens), Cory Philippe (Stevens), Zuting Chen (Stevens), Christian Barrientos (Stevens), Zhongyuan Yu (Stevens), Brian Chell (Stevens) and Mark Blackburn (Stevens)
	Talk 3.3: When Structure Breaks in Humanitarian Operations: A Systems Architecture Analysis. Authors: Lauren Bateman (GWU), Zoe Szajnfarder (GWU) and Erica Gralla (GWU)
	Talk 3.4: Value Function Measurement Scale Manipulation for Evaluating Decision-Based Design Methodology. Authors: Christopher White (Univ. Alabama Huntsville) and Bryan Mesmer (Univ. Alabama Huntsville)
	Talk 3.5: An Agent Based Model to Simulate the Impact of Supply Chain Architecture on Supply Chain Resilience in a Developing Market. Authors: Megan Peters (GWU) and Erica Gralla (GWU)
	Talk 3.6: Graph Theoretical Machine Learning for Enterprise Cyber-Risk Assessment. Authors: Goksel Kucukkaya (EPAM Inc.) and Ariel Pinto (Old Dominion Univ.)
<i>18:00 – 18:30</i>	<i>Break</i>
<i>18:30 – 19:30</i>	<i>Dinner</i> -- Location: Rice Hall (Davis Commons)
19:30 – 20:30	Keynote 3: Dr Masaru Nakano (Keio University) -- Location: Rice Hall (Rice 130)

Tuesday October 12 2021

8:00 – 8:45	Keynote 4: Dr. Ana Mijic (Imperial College London) -- Location: Rice Hall (Rice 130)
<i>8:45 – 9:00</i>	<i>Break</i>
9:00 – 10:30	<p>Technical Session 4 – (each 15 minutes including Q/A) -- Location: Rice Hall (Rice 130)</p> <p>Talk 4.1: Method for Describing Aging Superiority[®] Using Value-Function-Structure Models and System Dynamics - Sun City[®] as a Case Study. Authors: Hinako Sato (Univ. of Tokyo), Yui Komano (Univ. of Tokyo), Shuho Yamada (Univ. of Tokyo), Tomoki Kitazaki (Univ. of Tokyo), Kouichi Ota (Univ. of Tokyo), Hideo Suda (Univ. of Tokyo) and Kazuhiro Aoyama (Univ. of Tokyo)</p> <p>Talk 4.2: Hybrid Last Mile Delivery Planning with Fixed and Dynamic Delivery Area Partition. Authors: Yuki Matsuda (Univ. of Tokyo), Zhaowei Li (Univ. of Tokyo), Kosuke Nagahata (Univ. of Tokyo) and Kenji Tanaka (Univ. of Tokyo)</p> <p>Talk 4.3: Measuring and Modeling Multi-Modal Trip Choices with Uncertain Arrival Times. Authors: Lujin Zhao (GWU) and John Helveston (GWU)</p> <p>Talk 4.4: Engineering Systems Analysis of Mobility in Odawara City: New Transportation Services Impacts on Community Engagement. Authors: Keiji Kimura (MIT) and Bryan Moser (MIT)</p> <p>Talk 4.5: Environmental Opportunity Costs of Imperfect Demand Forecasts: A Case Study of Regional Urban Park and Ride Lots. Authors: Yiqing Xu (UVA), Lance Dougald (VTRC) and John Miller (VTRC)</p> <p>Talk 4.6: Emergent Conditions and Adaptive Selection of Routes for Commodities in Engineering Systems. Authors: Timothy L. Eddy (UVA), Davis C. Loose (UVA), Thomas L. Polmateer (UVA), Mark C. Manasco (CCALS) and James H. Lambert (UVA)</p>
<i>10:30 – 11:00</i>	<i>Extended Break – Poster Session (in-person only)</i>
11:00 – 12:30	<p>Technical Session 5 – (each 15 minutes including Q/A) -- Location: Rice Hall (Rice 130)</p> <p>Talk 5.1: Every Bolt Matters: How the Process of Architecture Representation Influences System Property Measurement. Authors: Anthony Hennig (GWU) and Zoe Szajnarber (GWU)</p> <p>Talk 5.2: Comparison of Model World Representativeness: Two Cases in Systems Engineering and Design. Authors: Erica Gralla (GWU), Ashish Chaudhari (Texas A&M), Ambrosio Valencia-Romero (Stevens), Paul Grogan (Stevens), Jitesh Panchal (Purdue) and Zoe Szajnarber (GWU)</p> <p>Talk 5.3: Impact of Delegation Framing on Task Performance in Systems Engineering. Authors: Richard Malak (Texas A&M), Rachel Smallman (Texas A&M), Heather Lench (Texas A&M) and Nathan Hung (Texas A&M)</p> <p>Talk 5.4: Risk Attitudes in Collective Systems Design. Authors: Alkim Avsar (Stevens) and Paul Grogan (Stevens)</p> <p>Talk 5.5: Innovation Flow in Engineering System Design Teams: Core and Periphery and the Role of Complexity Authors: Soumyakant Padhee (Northeastern) and Babak Heydari (Northeastern)</p> <p>Talk 5.6: A Mathematical Framework for Tracking Resilience of Sociotechnical Systems to Pandemics and Other Disruptions. Authors: Davis C. Loose (UVA), Timothy L. Eddy (UVA), Thomas L. Polmateer (UVA), Mark C. Manasco (CCALS), Negin Moghadasi (UVA) and James H. Lambert (UVA)</p>
<i>12:30 – 13:00</i>	<i>Lunch</i> -- Location: Rice Hall (Davis Commons)
13:00 – 13:45	Keynote 5: Dr. Igor Linkov (USACE)
13:45 – 14:00	<p>Closing Remarks</p> <p>Babak Heydari (CESUN Director, Northeastern University), James H. Lambert (UVA), Majid Shafiee-Jood (UVA), Joi Williams (VSU)</p>