





NOVEMBER 17, 2020

9:00 9:55 AM	CHECK-IN	POSTER EXPO	NETWORKING
10:00 10:10 AM	WELCOME & OPENING REMARKS: Mr. Tom McDermott, Deputy Director, Chief Technology Officer, SERC		
10:15 10:40 AM	Strategy Dynamics and System-of-Systems Tradespace Exploration Jordan Stern, Stevens Institute of Technology		
10:45 11:10 AM	Unmanned Aerial Systems (UAS) Sensor Data Networking Russell Shirey, Maj USAF, SERC Doctoral Fellow, Purdue University		
11:10 11:20 AM	10 MIN BREAK		
11:20 11:45 AM	Quantitative Methods for Set-Based Design (SBD) Shawn Dullen, U.S. Army Combat Capabilities Development Command (CCDC), SERC Doctoral Fellow, Stevens Institute of Technology		
11:50 12:15 PM	Game Balance and Game Breaking: A Game Theory Approach Prajwal Balasubramani, Purdue University		
12:20 12:45 PM	Compositionality in Cyber-Physical Systems Theory Georgios Bakirtzis, University of Virginia		
12:45 1:15 PM	LUNCH	POSTER EXPO	NETWORKING
1:15 1:40 PM	Applying Search Optimization Techniques in the Incorporation of New Technologies and Innovations in Modular System Upgrades Romulo Broas, Raytheon, SERC Doctoral Fellow, Stevens Institute of Technology		
1:45 2:10 PM	<b>The Implementor's Dilemma for Digital Engineering</b> <b>Stephanie Sharo Chiesi</b> , Formerly Raytheon, SERC Doctoral Fellow, Stevens Institute of Technology		
2:152:40 PM	MBSE Benefits: Evidence from the Literature and Insights from Practitioners Kaitlin Henderson, Virginia Tech		
2:402:50 PM	10 MIN BREAK		
2:50 3:15 PM	Rapid Aerostructural Design of UAV Wings for Direct Toolpath Generation Justin Valenti, Penn State		
3:15 3:40 PM	Identifying Security Patterns for Modular Open Systems Giselle Bonilla-Ortiz, Raytheon, SERC Doctoral Fellow, Stevens Institute of Technology		
3:40 4:00 PM	CLOSING REMARKS: Mr. Tom McDermott, Deputy Director, Chief Technology Officer, SERC		
4:00 5:00 PM	VIRTUAL RECEPTION	PI / SPEAKER CHECK IN	POSTER EXPO
	Join us in a casual meet and greet, to reconnect with colleagues and make some new connections.	All PI's & Speakers will be invited to this meeting space, to check-in and review any questions about their sessions. (OPTIONAL)	All SDSF presenters research work is showcased within the Poster Expo.



8:30 -- 9:00 AM

9:00 -- 9:15 AM

9.12 -- 10.00 AM

10:05 -- 11:05 AM

11:05 -- 11:30 AM

11:30 -- 12:10 PM

12:15 -- 12:55 PM

1:00 -- 1:40 PM

1:40 -- 2:05 PM

2:05 -- 2:35 PM

2:40 -- 3:20 PM

3.22 -- 4.05 PM

4:10 -- 4:50 PM

4:55 -- 5:35 PM

5:40 -- 6:00 PM

SERC SPONSOR 12TH RESEARCH REVIEW NOVEMBER 18, 2020 CHECK-IN NETWORKING POSTER EXPO WELCOME & OPENING REMARKS / AWARDS: Dr. Dinesh Verma - Executive Director, SERC MORNING KEYNOTE Dr. Magnus; Deputy Director for Engineering, Office of the Under Secretary of Defense for Research and Engineering PANEL: Mission Engineering Research Challenges PANELISTS: Elmer L. Roman, OUSD, (R&E) AC / Engineering; Donna Rhodes, MIT; Alejandro Salado, Virginia Tech; Dorothy McKinney, SE Consultant; Ryan Noguchi, Aerospace Corporation | MODERATORS: Judith Dahmann, MITRE and Dan DeLaurentis, Purdue; Chief Scientist, SERC **BEST STUDENT PRESENTATION** NETWORKING POSTER EXPO AI & AUTONOMY **DIGITAL ENGINEERING** SECURITY **MISSION ENGINEERING** WRT-1010 WRT-1002 WRT-1008 & ART 002 WRT-1013 Meshing Capability and Transforming Systems Engineering Approaches to Achieve Benefits Reducing Total Ownership Cost **Threat-based Science and** of Modularity in Defense through Model-Centric (TOC) and Schedule Technology (S&T) Resource Engineering / MBSE Acquisition - Part 2 Allocation Dr. Peter Beling, UVA Dr. Mark Blackburn, Stevens Dr. Cesare Guariniello, Purdue Dr. Carlo Lipizzi, Stevens ART-004 & WRT-1033 WRT-1017 ART-005 Methods to Evaluate Cost/Technical Risk **ART-015** Keyphrase Extraction Using Methods for Integrating New Observing Strategies Testbed and Opportunity Decisions for Language Embeddings -**Dynamic Requirements & Emerging** Security Assurance in Design (NOS-T) Design and Development Phase I & Phase II Technologies Mr. Tom McDermott, Stevens Dr. Paul Grogan, Stevens Dr. K. P. Subbalakshmi, Stevens Dr. William Rouse, Georgetown Dr. Peter Beling, UVA WRT-1022 **ART-010** WRT.1009 WRT-1019 **Developmental Test and Evaluation** Managing System-of-Systems Adaptive Cyber-Physical-Human Model Curation Innovation and (DT&E) and Cyberattack Resilient Systems **Complexity for Distributed** Implementation Systems Testbed Command and Control (C2) Dr. Barry Horowitz, UVA Dr. Donna Rhodes, MIT Dr. Azad Madni, USC Dr. Cody Fleming, Iowa State Dr. Dan DeLaurentis, Purdue NETWORKING 25-MIN BREAK POSTER EXPO AFTERNOON KEYNOTE - The Acquisition Innovation Research Center HUMAN CAPITAL DEVELOPMENT WRT-1023 **ART-014** WRT-1001 Analyzing and Assessing WRT - 1004 Quantum Photonics Tasks for Research **Digital Engineering Measures** Contracts for Embedded Risk Helix - Organizational Systems Mr. Tom McDermott, Stevens Dr. Yuping Huang, Stevens Engineering Effectiveness 2019 Dr. Carlo Lipizzi, Stevens Dr. Nicole Hutchison, Stevens WRT-1006 ART-016 **ART-001 ART-007** Integrated Mission Equipment (IME)

Preparing the Acquisition Workforce for Digital Engineering - Developing a Digital Engineering Competency Framework

Dr. Nicole Hutchison, Stevens

WRT-1007 Capstone Marketplace

CAPT Bill Shepherd, Stevens

WRT-1018 **DAU Credential Development** Mr. Ralph Giffin, Stevens

Dr. Mark Austin, University of Maryland

**Cognitive Bias in Intelligent** 

Systems

Dr. Laura Freeman, Virginia Tech

ART-009

Intelligent Defense Systems

Dr. Victor Lawrence, Stevens

WRT-1025

Using AI/ML Design Patterns for

**Digital Twins and** 

Model-Centric Engineering

**CLOSING REMARKS** 

Architecture Process for Vertical Lift

Systems

Dr. Paul Collopy / Dr. Bryan Mesmer, UAH

VELOCITY

WRT-1012

Global Positioning Systems -

Mission Engineering and Integration of

**Emerging Technologies** 

Dr. Michael Orosz, USC

WRT-1016

**Reducing Total Ownership Cost** 

(TOC) and Schedule

Dr. Barry Boehm, USC

ENTERPRISE SYSTEMS & SYSTEM OF SYSTEMS

Dr. Dinesh Verma - Executive Director, SERC; Mr. Tom McDermott, Deputy Director, Chief Technology Officer, SERC

Characterization of Emerging

**Technologies in Military** 

Dr. Pradeep Lall, Auburn

**ART .006** 

**Risk Based Approach to Cybert** 

Vulnerability Assessment

Dr. Peter Beling, UVA

**COVID-19 SURVEY** 

On comparing the effects of

"Work at Home" during COVID-19

between Systems Engineers and

**General Population** 

Dr. Jose Ramirez-Marquez, Stevens

TRUSTED SYSTEMS

(7) SYSTEMS ENGINEERING & MANAGEMENT TRANSFORMATION

