SYSTEMS ENGINEERING RESEARCH CENTER

Welcome to the SERC Sponsor Research Review (SSRR)

November 17, 2016

20 F Street NW Conference Center
20 F Street, NW,
Washington, DC 20009

*The **Systems Engineering Research Center (SERC),** a University-Affiliated Research Center of the US Department of Defense, leverages the research and expertise of faculty, staff, and student researchers from more than 20 collaborating universities throughout the United States. SERC is unprecedented in the depth and breadth of its reach, leadership, and citizenship in Systems Engineering. Led by Stevens Institute of Technology and principal collaborator, University of Southern California (USC), the SERC has engaged more than 400 researchers since its founding in 2008 – a community of broad experience, deep knowledge and diverse interests. SERC researchers have worked across many domains and industries, including finance, telecommunications, computing, and transportation, in addition to defense, enabling them to bring broad perspectives to their research.*

The Vision

The SERC will become the networked national resource to further systems research and its impact on issues of national and global significance.

The Mission

The SERC will be the primary engine for the US government in SE research. In doing so, the SERC will:

- ***Catalyze** community growth among SE researchers and end users by enabling collaboration among many SE research organizations,*
- ***Accelerate** SE competency development through rapid transfer of its research to educators and practitioners,*
- ***Transform** SE practice throughout the government by creating innovative methods, processes, and tools that address critical challenges to meet mission outcomes.*

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8th Annual SERC Sponsor Research Review

20 F Street, NW Conference Center
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Washington, DC 20001

Thursday, November 17, 2016

Agenda

Registration, Breakfast and Welcome				
8:00a–9:00a	**Registration and Continental Breakfast**			
9:00a–9:05a	**Welcome** *Dr. Barry Boehm, Chief Scientist and Chair, Research Council, SERC*			
Sponsor Perspective and Challenges				
9:05a–9:10a	**Keynote Address** *Ms. Kristen Baldwin, Principal Deputy, Office of the Deputy Assistant Secretary of Defense for Systems Engineering*			
State of the SERC				
9:10a–9:35a	**SERC Progress and Strategic Direction, SERC Doctoral Fellows Program Update, Research Transition Partners, and Best Student Paper Award Presentation** *Dr. Dinesh Verma, Executive Director, SERC*			
9:35a–10:00a	**Morning Keynote Address** *Dr. Stephen Cross, Executive Vice President for Research, Georgia Institute of Technology*			
10:00a-10:15a	Transition Break			
Research Reviews: Four parallel tracks with 40-minute sessions providing in-depth discussions on SERC research projects				
	Track 1: SE and Management Transformation ***(Conference Room B)***	**Track 2: Enterprise and Systems of Systems** ***(Boardroom)***	**Track 3: Trusted; Critical & Resilient Systems** ***(Videoconference Room)***	**Track 4: Human Capital Development** ***(Conference Room A)***
10:15a–11:00a	**Transforming Systems Engineering through Model-Centric Engineering** *Mark Blackburn, Stevens*	**System of Systems Analytic Workbench** *Karen Marais, Purdue*	**Systemic Assurance** *Bill Scherlis, CMU*	**Workforce Evolution (Helix)** *Nicole Hutchison, Stevens*
11:00a–11:45a	**Interactive Model-Centric Systems Engineering (IMCSE)** *Donna Rhodes, MIT*	**Enterprise Analysis** *Michael Pennock, Stevens*	**Security Engineering - FY16 Systems Aware Cybersecurity** *Peter Beling, UVa*	**Leadership Development Framework for the Technical Acquisition Workforce** *Wilson Felder and Kathie Duliba, Stevens*
11:45a–12:30p	**Formal Methods in Resilient Systems Design using a Flexible Contract Approach** *Azad Madni, USC*	**Investigating Approaches to Achieve Modularity Benefits in the Acquisition Ecosystem** *Dan DeLaurentis and Navin Davendralingam, Purdue*	**Cybersecurity for System of Systems Architectures** *David Umphress, Auburn*	**SE Capstone Marketplace** *Megan Clifford, Stevens*
12:30p–1:00p	Lunch (Catered) and Opportunity to View SERC Project Posters			
1:00p–1:30p	**Lunchtime Keynote Address** *Dr. Andrew Russell, Professor and Dean of Arts & Sciences, SUNY Polytechnic Institute*			
1:30p–1:45p	Transition Break			
1:45p–2:30p	**System Qualities (SQs) Tradespace and Affordability** *Barry Boehm, USC*	**Application of Portfolio Management Techniques to Software-Heavy Systems of Systems** *Daniel Browne, GA Tech*	**Electronic Product Data Management (ePDM) Methods, Processes, and Tools** *Jeff McDonald, Stevens*	**Systems Engineering Experience Accelerator (SEEA)** *Jon Wade & Alex Zhang, Stevens*
2:30p–3:15p	**Engineered Resilient Systems** *Tommer Ender, GA Tech*	**Manufacturing Cost Prediction in the Presence of Categorical and Numeric Design Attributes** *Eren Sakinc, Auburn*	***Model-Driven UAV ISR Tradespace Analysis*** *David Jacques, AFIT and Ray Madachy, NPS*	**Design and Development Tools for the Systems Engineering Experience Accelerator** *Doug Bodner, GA Tech & Alex Zhang, Stevens*
3:15p–4:00p	**Agile Systems Engineering Management** *Richard Turner, Stevens*	**SERC Workshop Outbriefs** *Blackburn, Hutchison, Sullivan, DeLaurentis*	**SERC Poster Session**	**Demo: SERC Mobile Immersion Lab and SERC Network Analysis and Visualization Project** *Roger Blake, Stevens*
4:00p–5:00p	Poster and Networking Session		Executive Advisory Board Meeting (invitation only)	
5:00p-–5:15p	**Closing Remarks –** *Dr. Jon Wade, Chief Technology Officer and Research Council, SERC*			