



SYSTEMS ENGINEERING
Research Center

Welcome to the SERC Sponsor Research Review (SSRR)

December 3, 2015

FHI 360 Conference Center
1825 Connecticut Ave 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.



**Preliminary
Agenda**

Thursday, December 3, 2015

Registration, Breakfast and Welcome				
8:00a-8:45a	Registration Continental Breakfast			
8:45a-9:00a	Welcome (Academy Hall)			
Sponsor Perspective and Challenges				
9:00a-9:30a	Keynote Address (Academy Hall) <i>Ms. Kristen Baldwin, Principal Deputy Office of the Deputy Assistant Secretary of Defense for Systems Engineering</i>			
State of the SERC				
9:30a-9:50a	SERC Progress and Strategic Direction (Academy Hall) <i>Dr. Dinesh Verma, SERC Executive Director and Dean of the School of Systems and Enterprises, Stevens Institute of Technology</i>			
9:50a-10:00a	Best Student Paper Award (Academy Hall) <i>Presented by Dr. Dinesh Verma, SERC Executive Director and Dean of the School of Systems and Enterprises, Stevens Institute of Technology</i>			
10:00a-10:15a	Transition Break			
Research Reviews: Four parallel tracks with 40-minute sessions providing in-depth discussions on SERC research projects			Human Capital Development	SE and Management Transformation
			Enterprise and Systems of Systems	Trusted Systems
	Human Capital Development (Academy Hall)	Modeling (Vista Room)	Analysis & Optimization (Balcony Room D)	Trusted & Resilient Systems (Balcony Room E)
10:15a-11:00a	Workforce Evolution (Helix) - What makes Systems Engineers Effective <i>Art Pyster, Stevens</i>	Model-Centric UAV ISR Analysis <i>David Jacques, AFIT Ray Madachy, NPS</i>	Foundations of System Qualities Tradespace Analysis <i>Barry Boehm, USC Kevin Sullivan, UVA Adam Ross, MIT</i>	Engineered Resilient Systems: Tradespace Tools <i>Valerie Sitterle, Georgia Tech</i>
11:00a-11:45a	Developing SE Technical Leadership <i>Michael Pennotti, Stevens</i>	Transforming Systems Engineering through Model-Centric Engineering <i>Mark Blackburn, Stevens</i>	Development and Application of FACT Portfolio Management Capability <i>Daniel Browne, Georgia Tech</i>	Assessing the Impact of Development Disruptions and Dependencies in System of Systems (SoS) <i>Dan DeLaurentis, Purdue</i>
11:45a-12:30p	Developing and Applying the Systems Engineering Experience Accelerator (SEEA) <i>Jon Wade, Stevens</i>	Interactive Model-Centric Systems Engineering <i>Donna Rhodes, MIT Adam Ross, MIT</i>	Quantitative Risk Analysis and Set-Based Design <i>Gary Witus, Wayne State, Design as a Sequential Decision Process</i> <i>Mike Yukish, Penn State</i>	Systemic Assurance <i>Travis Breaux, CMU</i>
12:30p-1:00p	Lunch (Catered) and Opportunity to View SERC Project Posters			
1:00p- 1:30p	Lunchtime Keynote Address (Academy Hall) <i>Professor Alexandros Washburn, Industry Professor for Design, Stevens Institute of Technology</i>			
1:30p- 1:45p	Transition Break			
	(Academy Hall)	(Vista Room)	(Balcony Room D)	(Balcony Room E)
1:45p-2:30p	Agile SE - Enablers, Quantification, and Kanban Scheduling <i>Richard Turner, Stevens</i>	Enterprise Systems Analysis: Multi-level Socio-technical Modeling <i>Doug Bodner, Georgia Tech</i>	Capstone Marketplace <i>Megan Clifford, Stevens</i>	Software Reliability Modeling <i>Lance Fiondella, UMass</i>
2:30p-3:15p	Systems Engineering Expert Knowledge (SEEK) <i>Jon Wade, Stevens</i>	SoS Analysis and Architecting using Agent-based Behavioral Modeling - FILA-SoS <i>Cihan Dagli, MST</i>	A Systems Design Exploration Approach That Illuminates Tradespaces Using Simulation Metamodeling <i>Paul Beery, NPS</i>	Security Engineering - Design Patterns and Operational Concepts <i>Barry Horowitz, UVA</i>
3:15p-3:30p	Transition Break			
Poster Session and Demonstration & Executive Advisory Board				
3:30p-4:30p	SERC Mobile Immersion Laboratory (SIDL) Demo <i>Roger Blake, David Curry, Navindran Davendralingam, Deepak Gottapu, Mitchell Kerman</i>		Executive Advisory Board (by invitation only in separate meeting room) (Vista Room) <i>Chair: Ms. Kristen Baldwin, Principal Deputy, Office of the Deputy Assistant Secretary of Defense for Systems Engineering</i>	
4:30-5:00p	SERC Project Poster Session			