

# RESEARCH AND APPLICATION WORKSHOP

# AI for SE & SE for AI

OCTOBER  
20 & 21  
2021

OCTOBER 20, 2021 (All times listed in Eastern Time.)

9:00–9:20 a.m.	<b>Welcome from the Executive Sponsors</b> Dr. Jason Cook, US Army DEVCOM Armaments Center; Dr. Dinesh Verma, Executive Director, SERC	
9:20–10:05 a.m.	<b>KEYNOTE: New Challenges for Systems Engineering: AI Systems in a Human World</b> Dr. Mica Endsley, SA Technologies	
10:05–10:45 a.m.	<b>PRESENTATION – SERC AI Roadmap</b> Mr. Tom McDermott, SERC	
10:45–11:45 a.m.	<b>PANEL: The AI Disruption: The Challenges for Specialty Engineering Posed by AI</b> Led by Dr. Jason Cook, US Army DEVCOM Armaments Center	
11:45–12:45 p.m.	<b>BREAK</b>	
	<b>TRACK 1</b> <b>V&amp;V OF AI SYSTEMS</b>	<b>TRACK 2</b> <b>LIFECYCLE ADAPTATION &amp; RESILIENCE</b>
12:45–1:15 p.m.	<b>Test and Evaluation of Reinforcement Learning</b> Dr. Ali Raz, George Mason University	<b>Analyzing Cyber Attack Impacts and Defense Strategies Using Machine Learning</b> Mr. Daniel Colvett, University of Alabama in Huntsville
1:20–1:50 p.m.	<b>Bringing Reliability, Prognostics, and Testing to Machine Learning</b> Dr. Tyler Cody, Intelligent Systems Lab, Virginia Tech, Hume Center for National Security and Intelligence	<b>Using Natural Language Processing to Extract Science Traceability from Mission Concept Documentation</b> Mr. Benjamin Simpson, Department of Aerospace Engineering, Texas A&M University
1:55–2:25 p.m.	<b>Concept-of-Operations for Testing AI Systems: Fast-time Emergent Scenario Simulation (FTESS)</b> Dr. Lance Sherry, Center for Air Transportation Systems Research at George Mason University	<b>Cognitive Assistance for Problem Formulation in Tradespace Exploration</b> Mr. Gabriel Apaza, Texas A&M University
2:30–3:00 p.m.	<b>Discussion and Q&amp;A</b>	<b>Discussion and Q&amp;A</b>
3:00–3:15 p.m.	<b>BREAK</b>	
3:15–3:45 p.m.	<b>Systems Theoretic T&amp;E Framework for Learning Based Systems</b> Mr. Paul Wach, Virginia Tech	<b>SE4AI: Design of Neural Network Architectures to Support AI and Machine Learning Formalisms Working Side-by-Side as a Team</b> Dr. Mark Blackburn, Stevens Institute of Technology
3:50–4:20 p.m.	<b>Towards a Tool for Composing, Evaluating, and Tracking Systems Validation Arguments</b> Dr. Daniel Shapiro, Dr. Bryan Mesmer, The University of Alabama in Huntsville	<b>Creating a Digital Twin of an Insider Threat Detection Enterprise Using Model Based Systems Engineering</b> Mr. James Lee, George Mason University
4:25–5:05 p.m.	<b>Army Software Suitability Statement Criteria for AI</b> Mr. Adam Hilburn, US Army ACC-NJ, Picatinny Arsenal	<b>Identifying Factors of Data Science Expertise and Their Impacts on System Utility</b> Ms. Lydia Gleaves, The George Washington University
5:00–5:30 p.m.	<b>Discussion and Q&amp;A</b>	<b>Discussion and Q&amp;A</b>
5:30–5:40 p.m.	<b>Day 1 Closing</b> Dr. Peter Beling, Virginia Tech; Mr. Albert Stanbury, US Army DEVCOM Armaments Center	

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9:00–9:15 a.m.	<p>Welcome / Review Workshop Goals                  Dr. Peter Beling, Virginia Tech; Mr. Tom McDermott &amp; Ms. Kara Pepe, SERC</p>
9:15–9:45 a.m.	<p>KEYNOTE: Insights on AI and SE                  Ms. Stephanie Possehl, Acting Deputy Director for Engineering and Director for Engineering Policy and Systems, OUSD(R&amp;E)</p>
9:45–10:15 a.m.	<p>Systems Engineering, Artificial Intelligence, and Machine Learning at the Systems Engineering Directorate                  Mr. Roshan Patel, US Army DEVCOM Armaments Center</p>
10:15–11:15 a.m.	<p>PANEL: AI and the Engineering Workforce                  Led by Mr. Tom McDermott, SERC</p>
11:15–12:15 p.m.	BREAK
<p>TRACK 3                  AUGMENTED ENGINEERING</p>	
12:15–12:45 p.m.	<p>TEXT2MODEL: A Conceptual Model-Based Knowledge and Intelligence Management System                  Professor Dov Dori, Technion, Israel Institute of Technology</p>
12:50–1:20 p.m.	<p>Using Natural Language Processing (NLP) in Requirement Engineering: Extracting Models From Text                  Dr. Carlo Lipizzi, Stevens Institute of Technology</p>
1:20–1:30 p.m.	BREAK
1:30–2:00 p.m.	<p>Augmented Intelligence for Competitively Bid Proposal Evaluation                  Dr. Shane Esola, US Army DEVCOM Armaments Center</p>
2:05–2:35 p.m.	<p>Creating MBSE Model Content from Non-Standard Sources                  Mr. Matthew Cotter, The MITRE Corporation</p>
2:40–3:10 p.m.	Discussion and Q&A
3:15–3:55 p.m.	<p>Workshop Takeaways and Next Steps                  Led by Dr. Peter Beling, Virginia Tech</p>
4:10–4:15 p.m.	<p>Closing Remarks                  Dr. Jason Cook, US Army DEVCOM Armaments Center; Dr. Dinesh Verma, Executive Director, SERC</p>