AI4SE & SE4AI Agenda

RESEARCH AND APPLICATION WORKSHOP | SEPTEMBER 17-18, 2024 | Arlington, VA

Sponsors: Systems Engineering Research Center; U.S. Army; DEVCOM Armaments Center

Hosted By: George Mason University

DAY 1: September 17

*All main events including the SE4AI track will be in the **Van Metre Hall Auditorium**. Only the AI4SE track will be in **Room 126**.*

8:00 AM	Registration and Networking	
8:45 AM	**Welcome and Opening Remarks** *(Auditorium)* Dr. Andre Marshall, *Vice President for Research, Innovation, and Economic Impact, George Mason University*	
9:00 AM	**Keynote** *(Auditorium)* Mr. Matthew Rose, *Member, AIRC Innovation Panel and Global Public Sector Industry Principal, Snowflake*	
9:45 AM	**US Army DEVCOM Armaments Center Perspective** *(Auditorium)* Mr. Edward W. Bauer, *Director of the Systems Engineering Directorate, US Army DEVCOM Armaments Center (AC)*	
10:15 AM	Morning Break	
10:30 AM	**SE4AI: Safety Frameworks** *(Auditorium)* Moderator: Mr. Benjamin Schumeg, *US Army DEVCOM AC*	**AI4SE: AI for Design and Governance of Complex Systems** *(Room 126)* Moderator: Dr. Myron Hohil, *US Army DEVCOM AC*
	Accountability for AI Enabled Systems Used in Critical Decision-making Mr. Andrew Lacher, *NASA Langley Research Center*	**Accelerating Insertion of Warfighting Capability using GenAI Based Control Synthesis from Image** Dr. Dionisio de Niz, *Carnegie Mellon University Software Engineering Institute*
10:50 AM	**Navigating Uncertainty: Enhancing AI System Safety through the Integration of Systems Theory, Set Theory and R3+ Concepts** Mr. Reginald D. Holmes Sr., *The University of Alabama in Huntsville*	**Design of AI-Enabled Multi-Mode Logistics Planning System (M2ALPS) In Support of the Air Force Adaptive Basing Concept-of-Operations** Ms. Pavithra Murali, *George Mason University*
11:10 AM	**What Can Aviation and Pharmaceuticals Teach Us About How to Set Up a System of Assurance for Different Types of AI-Enabled Systems?** MAJ Christine Krueger, *The George Washington University*	**Use of STPA for Analyzing Information Flows in Distributed Autonomous Systems** Mr. Tom McDermott, *Systems Engineering Research Center*
11:30 AM	**Application of AI to Collision Risk Safety Analysis for the National Airspace System** Dr. John Shortle, *George Mason University*	**Guiding the Behavior of Complex Networked Systems using Multi-Agent Reinforcement Learning: Governance by Dynamic Balancing of Cooperation and Competition** Dr. Babak Heydari, *Northeastern University*

12:05 PM	Lunch *(Room 125)*	
1:05 PM	**Plenary Panel: The Need for Socio-technical System Testbeds for AI Enabled Systems** *(Auditorium)* Moderator: Dr. Laura Freeman, *Virginia Tech* Mr. David Jin, *Chief Digital and Artificial Intelligence Office* Dr. Jose Rodriguez, *US Army DEVCOM AC Tactical Behavior Research Lab* Dr. Zoe Szajnfarber, *The George Washington University and Systems Engineering Research Center* Mr. Miles Thompson, *MITRE AI Discovery Lab*	
2:10 PM	**SE4AI: AI "-ilities"** *(Auditorium)* Moderator: Dr. Val Sitterle, *Georgia Tech Research Institute*	**AI4SE: AI at the Enterprise Level** *(Room 126)* Moderator: Mr. Al Stanbury, *US Army DEVCOM AC*
	Interpretable ML for Requirements Development LTC Stephen E. Gillespie, *United States Military Academy*	**Responsible Use of AI to Improve Sustainability of Future Systems** Mr. Seth E. Farrington, *AFC DEVCOM AvMC RAM Division*
2:30 PM	**Using End-to-End Causal Inference to Assess AI-ML Classifier Health** Dr. Nicholas D. Testa, *Carnegie Mellon University Software Engineering Institute*	**Rapid Intelligent Systems Engineering** Mr. Thomas Lee, *Lockheed Martin Advanced Technology Laboratories*
2:50 PM	**Enhancing Trust in AI-Powered Situational Awareness Systems for US Army Ground Vehicles: A Holistic Approach to Explainability and Interpretability** Dr. William S. Monroe, *Strategic Ai Services*	**The Use of Generative GenAI to Unlock Value from Defense ERP Business Systems** Mr. Amith R. Nikam, *PEO-EIS-DIBS-LMP*
3:10 PM	**Integrating Responsible AI Principles into Systems Engineering Practices: A Holistic Approach for Safe and Reliable AI-Enabled Systems** Dr. Rosa R. Heckle, *MITRE*	**Large Language Models in Enhanced Electronic Warfare: Applications, Benefits, Limitations and Future Directions** Dr. Carlo Lipizzi, *Stevens Institute of Technology*
3:45 PM	Afternoon Break	
4:00 PM	**SE4AI: T&E of AI** *(Auditorium)* Moderator: Dr. Ali Raz, *George Mason University*	**AI4SE: AI4SE in Digital Engineering** *(Room 126)* Moderator: Mr. Tom McDermott, *Systems Engineering Research Center*
	Enhancing Testing & Evaluation of AI-Enabled DoD Systems Using MBSE Dr. James R. Morris-King, *MITRE* Ms. Carol Pomales, *MITRE*	**Reuse of Digital Engineering Models via Semantic Component Libraries** Dr. Thomas Hagedorn, *Systems Engineering Research Center*
4:20 PM	**Multi-Fidelity Test and Evaluation of AI-Enabled Systems** Dr. Jitesh Panchal, *Purdue University*	**MBSE AI Platform for Productivity (MAPPy): Combining AI and Digital Engineering** Ms. Melinda Ong, *Booz Allen Hamilton*
4:40 PM	**Use of Predictive AI/ML Embedded in Lifecycle Systems Engineering to Support Testing of AI/ML Based Weapons Systems** Dr. Awele Anyanhun, *Georgia Tech Research Institute*	**Accelerating Semantic Digital Thread User Queries Using LLMs** Ms. Nicole Manno, *ManTech*
5:05 PM	Adjourn	

DAY 2: September 18

*All main events including the SE4AI track will be in the **Van Metre Hall Auditorium**. Only the AI4SE track will be in **Room 126**.*

8:00 AM	Registration and Networking	
8:45 AM	**Keynote** *(Auditorium)* Mr. Daniel Mahanty, *Division Director for Learning, Civilian Protection Center of Excellence*	
9:35 AM	**Plenary Panel: Opportunities and Risks for Leveraging Generative AI to Support SE Processes** *(Auditorium)* Moderator: Dr. Peter Beling, *Virginia Tech* Ms. Alli (Allison) Banzon, *SAIC* Mr. Chris Schwalm, *CVP Corp.* Dr. Daniel Selva, *Texas A&M University*	
10:40 AM	Morning Break	
10:55 AM	**SE4AI: HAI & Trust** *(Auditorium)* Moderator: Dr. Val Sitterle, *Georgia Tech Research Institute*	**AI4SE: LLMs for SE Artifacts** *(Room 126)* Moderator: Dr. Ralph Tillinghast, *US Army DEVCOM AC*
	Towards A Human-AI Collaboration Maturity Model (HAIC-MM) for Small and Medium-Sized Enterprises Mr. Flavio Ortolano, *Colorado State University*	**Say What? Identifying the Impact of Prompt Technique on AI Generation of Systems Engineering Artifacts** Ms. Erin Crabb, *Leidos*
11:15 AM	**Understanding the Tradeoffs of Human-AI System Architecting** Mr. Aditya Singh, *The George Washington University*	**LLM Co-pilots for Domain Specific Modeling Languages** Mr. Matt Naveau, *Tangram Flex*
11:35 AM	**Addressing Challenges of Human-AI Teaming Experiments Using Naval AI Systems** Dr. Jason H. Wong, *Naval Information Warfare Center*	**Developing Concepts of Operations Using Multi-Step Tool Techniques with Large Language Models** Mr. Braxton R. VanGundy, *NASA Langley Research Center*
11:55 AM	**PRODEC: A Method and Platform for Human Systems Integration of Human-AI Teams** Dr. Guy A. Boy, *CentraleSupélec (Paris Saclay University & ESTIA)*	**Systems Engineering Language Modeling Assistant** Dr. Jyotirmay Gadewadikar, *MITRE*
12:30 PM	Lunch *(Room 125)*	
1:30 PM	**Keynote** *(Auditorium)* Dr. Missy Cummings, *Professor and Director of Mason Autonomy and Robotics Center, George Mason University*	
2:15 PM	**SERC Perspective** *(Auditorium)* Dr. Zoe Szajnfarber, *Professor, The George Washington University and Chief Scientist, Systems Engineering Research Center*	
2:45 PM	Afternoon Break	

	SE4AI: SE Methodologies for AI *(Auditorium)* Moderator: Dr. Peter Beling, *Virginia Tech*	AI4SE: AI-aided Systems Engineering and Design *(Room 126)* Moderator: Dr. Zoe Szajnfarber, *GWU and SERC*
3:00 PM	**A SE4AI Framework for the Systems Engineering of Autonomous Systems with a Focus on the Curation of Data across the Lifecycle** Mr. Jawahar Bhalla, *The University of Adelaide & Shoal Group*	**Challenges of Trustworthy Human/AI Teaming in Long-running Relationships** Dr. Peter Denno, *National Institute of Standards and Technology*
3:20 PM	**Model-Based Systems Engineering (MBSE) Approach to Develop an Artificial Intelligence Bill of Material (AIBOM) for AI System Compliance Verification** Dr. James Lee, *Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center*	**Towards a Work Systems View of Human AI Collaboration in Systems Engineering and Design: The Case of Conceptual Design with a ChatGPT Partner** Mr. Stephen Hilton, *The George Washington University*
3:40 PM	**System Architecture for Recombinant AI (SARAI)** Dr. Shou Matsumoto, *George Mason University C5I Center*	**Theoretical Feasibility of Graph Neural Networks for Augmented Intelligence in Systems Engineering** Mr. David Perner, *The University of Alabama in Huntsville*
4:00 PM	**Tradeoff Analysis Using an Integrated Data-Driven and Model-Based Approach for the Design of Autonomous Robots** Dr. John S. Baras, *University of Maryland*	**AI Aided Design and Development for Space Systems** Dr. Michael Orosz, *University of Southern California Information Sciences Institute*
4:20 PM	**A Systems Engineering Methodology for Integrating Autonomy with System of Systems and Conducting Data-Driven Trade Study Analyses** Mr. Mohammadreza Torkjazi, *George Mason University*	**Using Large Language Models to Accelerate Development of Complex Systems** Dr. Paul Wach, *Virginia Tech National Security Institute*
4:45 PM	**Trusted AI SE Challenge** Dr. Peter Beling, *Virginia Tech*	**INCOSE AI Working Group** Dr. Ali Raz, *George Mason University*
5:05 PM	Adjourn	

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1. On your device, select **MASON** as your wireless network
2. Go to your web browser and enter **itservices.gmu.edu**
3. The **self-registration portal** will appear
4. Click on **Create an Account** and enter your information to complete the self-registration

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