EDUCATION & TRAINING

23267

Growing an Organic Systems Engineering/Systems Thinking Culture within a Legacy Program

Patrick McMillan

Systems Integration Manager, Lockheed Martin Corporation

Not only changing the wheels of the bus while its moving, but aligning the steering at the same time.

23370

A Scalable Agile Mechanism for Developing Model-Based Engineering Practitioners and Expertise

Dr. Carla Sayan

Radar Systems of Systems Architect, Raytheon Technologies

We introduce our agile-based approach to address existing MBE/Digital Engineering challenges and accelerating MBE practitioners' expertise.

23314

The Future of Defense Training Starts with an Immersive Toolset

Hamza Ayaz

Business Development Executive, Modest Tree

Immersive technologies are transforming the training landscape. This presentation will cover both the innovations that are currently being incorporated to modernize defense training and the potential changes that these innovations are bringing to the shape of the industry at large.

23349

Resiliency Across Spectrums

Claudia Rose

President, BBII Enterprises

How to train workforce resiliency so that individuals and teams can create more flexible designs in systems engineering. This presentation introduces these new systems engineering possibilities, discusses the problems, and suggests the new paradigms that can help further these goals.

23217

With a Little Help From Our Friends: The Family of Systems Disciplines and What We Can Learn from One Another

Zane Scott

Vice President, Professional Services, Vitech

There are a variety of systems disciplines, all of which employ the same fundamental concept of systems. These disciplines offer each other their unique perspectives and approaches. This presentation explores ways in which the disciplines can open new solutions and new market spaces for each other.

ENGINEERED RESILIENT SYSTEMS (ERS)

23407

Design Engineering Advancements through Lockheed Martin's EXPEDITE Program

Juan Montoro

Conceptual Design Manager and ADP Program Manager, Lockheed Martin Corporation

Lockheed Martin is achieving significant advances in Design Engineering capabilities by employing a Multi-disciplinary Design Optimization (MDO) framework to enable Effectiveness Based Design (EBD).

23403

Python Technologies for the Rapid, Agile Development of Novel Simulation & Analysis Workflows

Dr. James A. Bednar

Senior Manager, Technical Services, Anaconda, Inc.

New tools developed in the HoloViz.org project make it feasible to specify, configure, visualize, and share results from high-performance-computing simulations and analyses as needed for emerging requirements, using Python in a web browser with very little code or training.

HUMAN SYSTEMS INTEGRATION

23423

Joint Human Systems Integration Capabilities-Based Assessment Initiative Updates

Dr. Larry Shattuck

Human Systems Integration Program Director and Institutional Review Board Chair, Information Technology Laboratory,
Engineer Research and Development Center, U.S. Army

This presentation will provide an overview and update of Joint HSI activities and initiatives with a focus on the recent updates to Defense System Acquisition policy for HSI

23304

Maturation of a Human Readiness Levels Scale

Dr. Judi See

Systems Analyst, Sandia National Laboratories

Maturation of a human readiness levels (HRL) scale to complement and supplement the existing technology readiness levels (TRL) scale is described. The HRL scale has demonstrated utility for a range of scenarios and missions.

LIFE CYCLE SUPPORT

23329

NanoFlowX Electronic Waterproofing Solutions

Dr. Evan Vickers

Lead Chemist, NanoFlowX

NanoFlowX Nano Coating solution is the world's fastest IP68-rated electronic waterproofing solution that protects against liquids, humidity, dust, corrosion, and bacteria in just two minutes without special equipment or training. This is a Commercial Off-the-Shelf Technology Readiness Level-9 product.

MODEL–BASED SYSTEMS ENGINEERING

23318

Think Globally, Act Locally: Adapting MBSE for the Enterprise Context

Ryan Noguchi

Director, Space Architecture Department, The Aerospace Corporation

MTSI proposes the Model of Models methodology in order to enable traceability while facilitating reusability and modularity. The key to this process is a library system where reusable elements are placed within libraries dedicated to reusable elements with the goal of elimination of rework.

23117

The Future of Performance Design with MBSE: Electric Powertrain Example

Dr. Sulius Pavalkis

Industry Business Senior Consultant and Model-Based Systems Engineering Transformation Leader, Dassault Systems, Catia, No Magic

Using an electric vehicle powertrain example, we will illustrate how to achieve performance design in the context of a system architecture utilizing a MBSE methodology called Cyber MagicGrid©. Through this framework, we will cover all phases of systems engineering life.

23180

Inconceivable: Those Requirements Don't Mean What You Think They Mean

Michael Vinarcik

Chief Systems Engineer, SAIC

Using modeling to identify inconsistencies and gaps in text-based requirements.

SYSTEMS ENGINEERING EFFECTIVENESS

23253

Using Graph Analysis to Support the Digital Thread for Mission Engineering

Dr. Dirk Zwemer

President, Intercax, LLC

An extensible graph analysis framework encompassing mission models (UAF), systems models (SysML), and other domain models provides an approach for formulating executable tests to verify and validate the Digital Thread. Application to a sample mission/system is illustrated.

23324

Model-Based Automated Design Exploration for Wargaming

Jonathan Kidner

Marine Corps Warfighting Laboratory Liaison,
Naval Surface Warfare Center (NSWC) Crane

A system model-driven approach to mission engineering. Using SysML to inform modeling and simulation in order to enable quantitative wargaming outputs.

23415

HPCMP CREATE: A Vision for Physics-Informed Digital Engineering

Dr. Robert Meakin

Associate Director, Computational Research and Engineering Acquisition Tools and Environments (CREATE), High Performing Computing Modernization Program, U.S. Department of Defense

A vision for physics-informed digital engineering is presented. The approach is to synthesize digital surrogates using physics-based and data-driven analytics, providing decision-makers actionable information, intuitively understood, at the speed of relevance.

23993

Empowering Program Offices to Incorporate Computational Engineering Development and Insertion (CEDI) with Acquisition Projects to Significantly Reduce Processing Time and Technical Risk

Dr. Robert Wallace

Technical Director, Information Technology Laboratory, Engineer Research and Development Center, U.S. Army

ERS-Industry Partnerships, under Program Office sponsorships, have proven highly successful in significantly reducing processing time and risk in platform development, and have introduced a radically new dynamic in Government-Industry collaboration. This talk introduces the structure and value of the CEDI Fail-Fast/Fix-Fast approach.