

# PROGRAM

(Eastern Time)



**8:00 - 8:15am**

OVERVIEW

Michael Vinarcik, Emcee

**8:15 - 9:00am**

KEYNOTE ADDRESS

Answering the Call for  
Technical Leaders

(Michael Pennotti)

**9:00 - 10:00am**

PANEL DISCUSSION

Collaborating for Agile  
Project Success

**10:30 - 12:00pm**

SESSION 1

Back to Basics

Apollo and the 1960's

**1:00 - 2:30pm**

SESSION 2

Growing Systems  
Engineers through  
Gamification

Top Ten Ways Engineers  
Undermine Their  
Success

**3:00 - 4:30pm**

SESSION 3

MBSE Complete Eco-  
System Explained

Systems Honor Society  
Sigma Theta Mu Lecture

**4:30 - 5:00pm**

CLOSING PLENARY

Michael Vinarcik, Emcee

# 4th Annual INCOSE GLRC Systems Engineering Professional Development Day (SE-PDD)

ADVANCED PROGRAM \*

## FEATURED SPEAKERS



Michael Pennotti  
Professor, Stevens Institute of Technology  
INCOSE Fellow



Dr. Azad M. Madni  
Professor of Astronautical Engineering  
University of Southern California

## THURSDAY OCTOBER 24, 2019

LiveStreamed from the Cleveland I-X Center



Companies, Universities, Government Agencies, Professional  
Societies, and Other Organizations

Site Registration Closes Friday October 18, 2019

→ Register to Host an SE-PDD LiveStream Site ←

*\*This program contains the best information available at time of printing and is subject to change. Please visit [www.incose.org/GLRC13](http://www.incose.org/GLRC13) to check for changes and site registration.*

# TOPICS & SPEAKER PROFILES



## **Michael Pennotti**

### **Answering the Call for Technical Leaders**

Dr. Pennotti is a Distinguished Service Professor and the former Director of Systems and Software Programs in the School of Systems and Enterprises at Stevens Institute of Technology. His research interests include technical leadership, the intersection of software and systems engineering, and the implications of complexity theory for systems engineering and architecting. He is a Fellow of the International Council on Systems Engineering, a senior member of both the IEEE and the American Society for Quality, and a former trustee of Caldwell University. Dr. Pennotti's industry experience includes systems engineering leadership at Bell Laboratories and executive positions at AT&T, Lucent Technologies and Avaya. He holds Ph.D. and M.S. degrees in electrical engineering from the Polytechnic Institute of New York and a B.E.E. from Manhattan College, and is a graduate of the AEA/Stanford Executive Institute for Technology Executives.



## **Dave Walden**

### **Back to Basics: Systems Engineers Must Think About the End before the Beginning**

David D. Walden, ESEP, is co-owner and principal consultant for Sysnovation, LLC, a Systems Engineering consulting and training firm he formed in 2006. Previously, Mr. Walden was with General Dynamics Advanced Information Systems for 13 years and McDonnell Aircraft Company for 10 years. Mr. Walden was the lead editor of the INCOSE SE Handbook Fourth Edition. He is an INCOSE liaison to ISO/IEC JTC1/SC7 Working Groups 10 and 22. Mr. Walden was Program Manager of the INCOSE Certification Program from 2007-2013. He has an M.S. in Management of Technology (MOT) from the University of Minnesota, an M.S. in Electrical Engineering and in Computer Science from Washington University in St. Louis, and a B.S. in Electrical Engineering from Valparaiso University in Indiana. Mr. Walden was one of the first to earn the INCOSE Certified Systems Engineering Professional (CSEP) credential in 2004 and was awarded the INCOSE Expert Systems Engineering Professional (ESEP) credential in 2011.



## **Michael Vinarcik**

### **Apollo and the 1960's: One Giant Leap for Systems Engineering**

Michael J. Vinarcik is a Chief Solutions Architect at SAIC and an adjunct professor at the University of Detroit Mercy. He has over twenty years of automotive and defense engineering experience and regularly presents at regional and national conferences. He received a BS (Metallurgical Engineering) from the Ohio State University, an MBA from the University of Michigan, and an MS (Product Development) from the University of Detroit Mercy. He is a licensed Professional Engineer (Michigan) and holds INCOSE ESEP-Acq, OCSMP: Model Builder - Advanced, Booz Allen Hamilton Systems Engineering Expert Belt, ASQ Certified Quality Engineer, and ASQ Certified Reliability Engineer certifications. He is a Fellow of the Engineering Society of Detroit and the President and Founder of Sigma Theta Mu, the systems honor society.



## **David Long**

### **Growing Systems Engineers through Gamification**

Dr David S. Long earned his PhD from MIT in 2012 in Engineering Systems. He is currently teaching Systems Engineering at the Air Force Institute of Technology. To get to this point in his career, he spent 25 years in the Air Force in a variety of positions including aircraft integration, system development, flight test, aircraft maintenance, a Pentagon tour, and in the Air Force Research Laboratory. He retired as a colonel in 2013 and has held defense contractor positions since his "first retirement".

Dr Long is currently focusing on how to apply gamification to knowledge work to advance personal capabilities. (CSEP) credential in 2004 and was awarded the INCOSE Expert Systems Engineering Professional (ESEP) credential in 2011.



### Sean McCoy

#### Top Ten Ways Engineers Undermine Their Success: The Importance of Soft Skills

Sean McCoy is the Chief Architect for controls at Trane. He received his CSEP in 2016, has 13 patents, is a 6-Sigma black belt, and has over 35 years of experience designing and building software systems. 23 of those years have been at Trane developing Building Automation Systems and helping develop Trane's Systems Engineering discipline. Sean has been an active member of INCOSE since 2011 and is the acting President of the North Star Chapter for 2019. In addition, he has been on the GLRC conference planning committee for the past 3 years. His most recent work assignment was leading the development effort for the Requirements Management, Process Automation, and Test Management tools in PTC Integrity. In his spare time, Sean likes to play guitar and is often seen at Rock Camp Experience events in the Twin Cities.



### James Hummell

#### MBSE Complete Eco-System Explained

James Hummell is an expert trainer for SysML, UML, and UPDM/UAF, currently working as chief consultant for MBSE Solutions. He is an expert in software and systems engineering, specializing in modeling and simulation analysis using UML and SysML. James has extensive experience in embedded systems for safety-critical systems (Do178b Level A), configuration management (CM), the software development life cycle (SDLC), and process engineering development. He has been developing software and systems in model-based design engineering (UML and SysML) for over 20 years. He is a member of the RTCA SC-205 subgroup developing Do-178C model-based development and verification supplement and has worked with the Object Management Group (OMG) and the International Council on Systems Engineering (INCOSE) on many specifications and working groups.



### Dr. Azad M. Madni

#### From Models to Interactive Stories in Virtual Worlds: Model Based Systems Engineering in the 21st Century

Azad Madni is a researcher, entrepreneur, educator and author. He is the founder and CEO of Intelligent Systems Technology, Inc. a high tech company specializing in modeling and simulation technology for complex systems engineering, education and training. He's the Executive Director of University of Southern California's Systems Architecting and Engineering (SAE) Program and Professor of Astronautical Engineering in USC's Viterbi School of Engineering. His previous positions include Executive Vice President and Chief Technology Officer of Perceptronics, and Simulation Research Leader at Rockwell International on NASA's Space Shuttle Program.

Dr. Madni pioneered the meta-discipline of transdisciplinary systems engineering to exploit the convergence of systems engineering with other disciplines. He is the creator of model-driven storytelling, a transdisciplinary approach that integrates model-based engineering with interactive storytelling in virtual worlds to enhance stakeholder participation in upfront engineering. His areas of expertise include model-based methods for architecting and design of resilient systems and enterprizes and intelligent systems for planning, decision making, training and tutoring. His research in these areas has been sponsored by the federal government, aerospace and automotive companies, several DOD agencies, Air Force, Army, Navy and Marine Corps. His research sponsors in the government include DARPA, OSD, DHS, S&T, MDA, DOE, NIST and NASA. His research sponsors in the aerospace and automotive industries include Boeing, General Motors, NGC, Raytheon, Hughes, Omnicon and SAIC. He has served as a consultant to Institute for Defense Analysis, RAND Corporation, UCLA, Oakridge National Laboratory, and Omnicon.

Azad Madni's current research focuses on formal and probabilistic methods for complex systems engineering, model-based engineering frameworks and testbeds for defining, analyzing, integrating and testing of adaptive cyber-physical-human-systems, and system-of-systems and enterprize architecting. He is the co-founder and current chair of IEEE Systems, Man and Cybernetics, Model-Based Systems Engineering Technical Committee, and serves on the steering committees of multiple centers at USC. He received his B.S., M.S., and Ph.D. from the University of California, Los Angeles.

Systems Honor Society Sigma Theta Mu Lecture



The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. INCOSE is designed to connect SE professionals with educational, networking, and career-advancement opportunities in the interest of developing the global community of systems engineers and systems approaches to problems. We are also focused on producing state-of-the-art work products that support and enhance this discipline's visibility in the world. Globally, INCOSE has over 17000 members, more than 70 chapters, 45 working groups, and 3500 certified systems engineers. Visit [www.incose.org](http://www.incose.org) to learn more.



# PANELIST PERSPECTIVES AND PROFILES

## Collaborating for Agile Project Success: Integrating Project/Program Management (PM) and Systems Engineering (SE) Approaches



### Michael Pafford

#### Influence of Agile on Systems Engineering and Project/Program Management

Michael E. (Mike) Pafford has over 45 years of military, government, industry, and research center experience in the concept, analysis, architecting, design, development, testing, operations, and management of complex socio-technical and cyber-physical system solutions. He holds a BS from the University of Maryland University College (UMUC) and an MS from the Naval Postgraduate School. Mike has been a member of INCOSE since 1998 and is a Past President of the Chesapeake Chapter. From 2008-2018 he taught the course “Software Systems Engineering” for the Johns Hopkins University (JHU) MS in Systems Engineering program. For the past three years Mike has facilitated workshops for Systems and Software Systems Engineers, as well as Project and Program Managers, in using Lean Startup Method (LSM) and Agile for Initial Project Planning.



### Shadrak Rajkumar

#### Demonstration of Mistake-Proof Scaled Agile SE Framework for Complex Systems Development Applied to Aerospace Domain – A Real-Life Example

Shadrak Rajkumar has been a practicing Systems Engineering 2004. He has 15+ years of Experience in System Analysis, Design, Development, and Verification & Validation of Avionics applications such as Aircraft Electrical System, Flight Management system Flight Control system, Onboard Maintenance System, Stand by Unit, Weather Radar, TAWS, Flight Display System, Datalink, Radio Tuning System and Stall Protection System (SPS). I hold a Master of Engineering in Avionics and MBA in Quality Management.



### Sean McCoy

#### Soft Skills and the Agile Manifesto

See Sean McCoy's bio on previous page.

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### PM-SE Integration, the PMI-INCOSE Strategic Alliance, and the Project/Program Management (PM) Agile Perspective

In 2011 the Project Management Institute (PMI) and the International Council on Systems Engineering (INCOSE) formed a Strategic Alliance as a means of significantly improving engineering project/program performance, particularly in the development of complex systems. The Massachusetts Institute of Technology (MIT) Center for Engineering Program Excellence (CEPE) was enlisted by the Alliance to oversee research and analysis studies and document results. A significant result of the Strategic Alliance is the Wiley book “Integrating Program Management and Systems Engineering: Methods, Tools, and Organizational Systems for Improving Performance.” Understanding and integrating SE-centric and PM-centric approaches to Agile can be an important success factor.

The PMI Agile Certified Practitioner (PMI-ACP)<sup>®</sup> formally recognizes practitioner’s knowledge of agile principles and skills with agile techniques. The PMI-ACP<sup>®</sup> is PMI’s fastest growing certification, and it’s no wonder. Organizations that are highly agile and responsive to market dynamics complete more of their projects successfully than their slower-moving counterparts — 75 percent versus 56 percent — as shown in PMI’s 2015 Pulse of the Profession<sup>®</sup> report. The PMI-ACP spans many approaches to agile such as Scrum, Kanban, Lean, extreme programming (XP) and test-driven development (TDD.)

NOTE: *At the time of publication of this program the selection of a panelist representing this topic area was still in process.*

