

OCTOBER  
22-25



# 13TH ANNUAL INCOSE GREAT LAKES REGIONAL CONFERENCE (GLRC13) AND ENERGY TECH CONFERENCE & EXPO

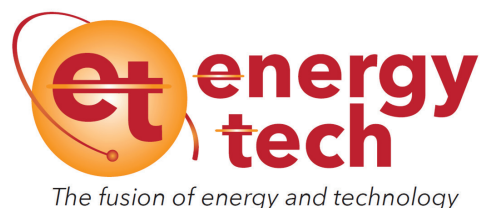
2019

## Giant Leaps with Systems Engineering

Looking back on the systems engineering of Apollo, on it's 50th Anniversary, while exploring the applications of today's systems engineering.

I-X CENTER  
CLEVELAND, OH  
USA

For more information visit  
[www.incose.org/GLRC13](http://www.incose.org/GLRC13)  
and [www.energytech.org](http://www.energytech.org)





# PROGRAM CONTENTS

Keynote Speakers	pgs 2-3
About INCOSE GLRC13 and EnergyTech Conference & Expo	pg 4
Overview of Programs	pg 5
I-X Center Map	pg 6
Daily Schedule	pgs 7-10
Creating The Future: K-12 STEM and Beyond Program	pg 11
INCOSE Professional Development Day Program	pg 12
ET Drone Competition Program	pg 13
INCOSE GLRC13 Sponsors	pg 14
Acknowledgments	pg 15
Upcoming Events	pg 16

# KEYNOTE SPEAKERS

(Wednesday, Grand Ballroom)



*(Dr. Schmitt will also speak at the Tuesday evening reception at the Great Lakes Science Center.)*

## **Harrison Hagan "Jack" Schmitt** **NASA Astronaut, Apollo 17**

Harrison Hagan "Jack" Schmitt was born July 3, 1935, in Santa Rita, New Mexico. Schmitt grew up in nearby Silver City, and is a graduate of the Western High School (class of 1953). He received a B.S. degree in geology from the California Institute of Technology in 1957 and then spent a year studying geology at the University of Oslo in Norway. He received a Ph.D. in geology from Harvard University in 1964, based on his geological field studies in Norway.

In December 1972, as one of the crew on board Apollo 17, Schmitt became the first member of NASA's first scientist-astronaut group to fly in space. As Apollo 17 was the last of the Apollo missions, he also became the twelfth and second-youngest person to set foot on the Moon, and the second-to-last person to step off of the Moon (he boarded the Lunar Module shortly before commander Eugene Cernan).

After the completion of Apollo 17, Schmitt played an active role in documenting the Apollo geologic results and also took on the task of organizing NASA's Energy Program Office. He resigned from NASA in August 1975 in order to run for election to the United States Senate as a member from New Mexico. As the Republican candidate in the 1976 election, he defeated the two-term Democratic incumbent Joseph Montoya. Following his Senate term, Schmitt has been a consultant in business, geology, space, and public policy.

Dr. Schmitt is an adjunct professor of engineering physics at the University of Wisconsin-Madison, and has long been a proponent of lunar resource utilization. In 1997 he proposed the Interlune InterMars Initiative, listing among its goals the advancement of private-sector acquisition and use of lunar resources, particularly lunar helium-3 as a fuel for notional nuclear fusion reactors. Schmitt wrote a book entitled *Return to the Moon: Exploration, Enterprise, and Energy in the Human Settlement of Space* in 2006. Harrison lives in Silver City, New Mexico, and spends some of his summer at his northern Minnesota lake cabin.



## **Mark Jennings-Bates** **VP, PAL-V Flying Car Company**

Mark Jennings-Bates has been entrepreneur since his teenage years and was accepted as one of the youngest Fellows of the prestigious Institute of Sales and Marketing Management in the UK. His business interests have given him a very broad experience in many industries from adventure guiding to real estate development. He has also led teams on aviation world record adventures. For PAL-V Mark is responsible for Sales in North America.

# KEYNOTE SPEAKERS

*(Thursday, Grand Ballroom)*



**Michael Pennotti**  
**Stevens Institute of Technology**

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.



**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 enterprises 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 enterprise 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.



# ABOUT INCOSE GLRC AND ENERGYTECH CONFERENCE & EXPO

## **ABOUT THE INCOSE GLRC:**

The International Council on Systems Engineering (INCOSE) Great Lakes Regional Conference (GLRC) is a medium-sized annual INCOSE systems engineering (SE) event organized by the INCOSE Chapters of the INCOSE Americas Sector North (Great Lakes) Region.

The GLRC was established in 2007 to provide a forum for supporting and promoting INCOSE and SE at the local Chapter and Regional levels.

The GLRC is strategically positioned “in-between” INCOSE’s smaller-sized chapter-level events and INCOSE’s two large-sized international events – the Annual INCOSE International Symposium (IS), held in July, and the INCOSE Annual International Workshop (IW), held in January. The GLRC strives to deliver an exceptional high-value conference experience to attendees and presenters alike. Our approach is to provide an outstanding peer-reviewed program at a remarkably affordable price, with significantly less time commitment and travel expense than the INCOSE IS and IW events.

## **ABOUT THE ENERGYTECH CONFERENCE & EXPO:**

The EnergyTech Conference and Expo is an annual Cleveland-based event that explores the intersection of

- (1) Power & Energy Systems with emphasis on smart- and micro-grid technologies
- (2) Critical Infrastructure and Megaprojects as Complex Systems, utilizing a PM-SE Integration approach
- (3) Vehicle Electrification and Autonomous Control – *for Land, Sea, Air, and Space.*

Since its founding in 2009, EnergyTech has enjoyed a continual partnership with both INCOSE and NASA. Additional partners over the past decade include IEEE, AIAA, InfraGard, the ISS, and others. In 2019, EnergyTech welcomes SAE!

EnergyTech provides a forum for government-industry- education collaboration, technology transfer, and accelerated learning. In 2018 EnergyTech held the 1st Annual “Spirit of Innovation” Exposition and K-12 STEM/STEAM Education Program, which hosted over 600 middle and high school students.

# OVERVIEW

## Overview of INCOSE GLRC13 & ET2019 PROGRAMS

	INCOSE GLRC13 PROGRAM	EnergyTech2019 PROGRAM
<b>MONDAY OCT 21</b>	Exhibitor Set-Up ( <i>Grand Ballroom</i> )	
<b>TUESDAY OCT 22</b>	Pre-Conference Tutorials	Day 1 - Technical Sessions
	Apollo 50th Anniversary Reception ( <i>Great Lakes Science Center</i> )	
<b>WEDNESDAY OCT 23</b>	Combined GLRC+ET+ISS Plenaries and Keynotes	
	Day 1 - Technical Sessions	Day 2 - Technical Sessions
<b>THURSDAY OCT 24</b>	Day 2 - Technical Sessions/Kenote	NASA-SAE Workshop (Part 1)
	Requirements Engineering AI Machine Learning "Hackathon" Competition	
<b>FRIDAY OCT 25</b>	Post-Conference Tutorials/SEP Exam	NASA-SAE Workshop (Part 2)
	Chapter Development Workshop	Drone Program and Competition
	Exhibitor Tear-Down ( <i>Grand Ballroom</i> )	

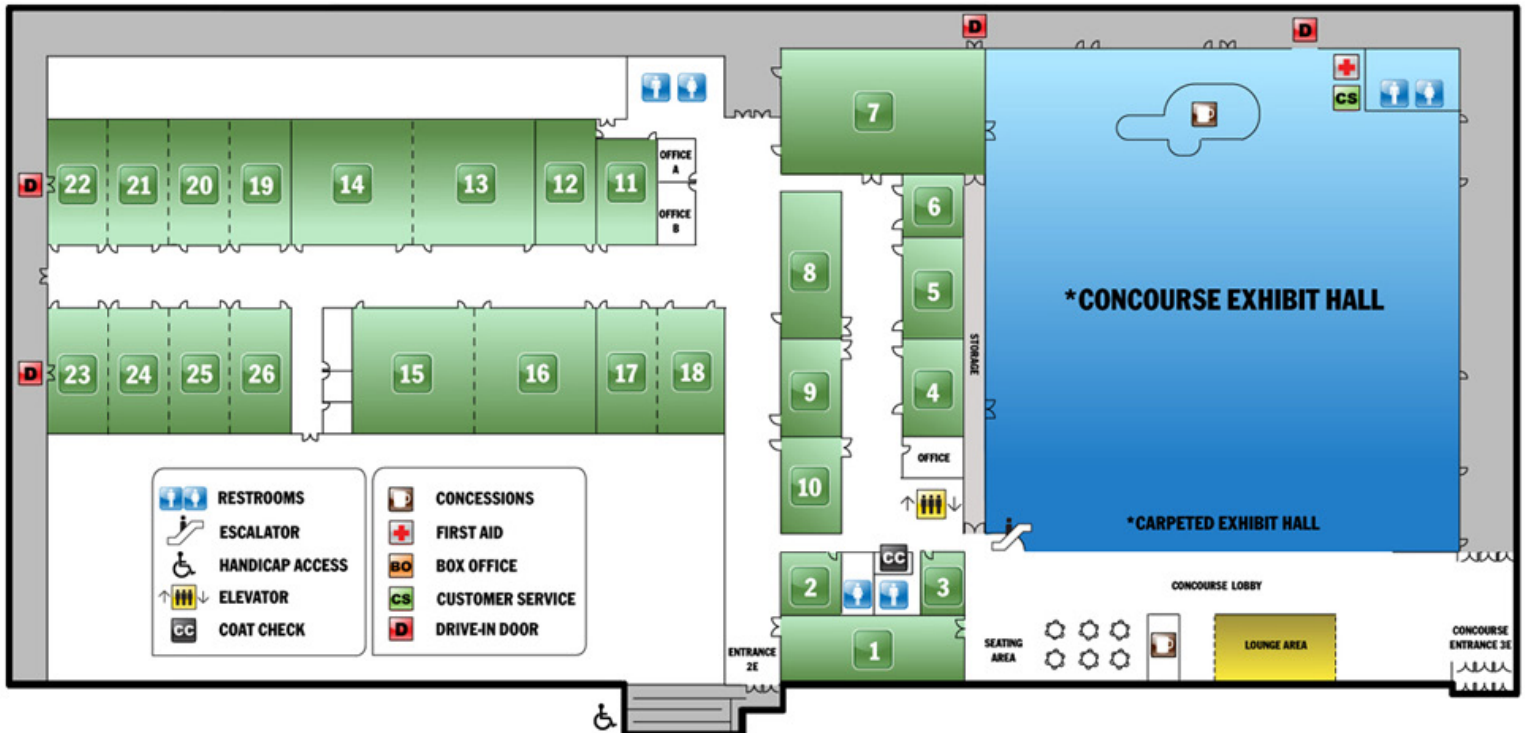
The main conference sessions days for the ET2019 conference are Tuesday and Wednesday Oct 22-23, while the main days of the INCOSE GLRC13 are Wednesday and Thursday Oct 23-24. On Wednesday Oct 23rd registrants of both conferences may attend the sessions of the other conference at no additional cost. Thus, this is a "joint" conference day.

INCOSE GLRC13 attendees who have purchase a combined (GLRC13+ET2019) 3-day conference registration have access to the ET2019 Tuesday Oct 22, and ET2019 attendees who have purchased a 3-day or 4-day (ET2019 + GLRC23) registration have access to the GLRC13 sessions on Thursday Oct. 24. The following table provides an overview of the INCOSE GLRC13 and EnergyTech2019 programs.

# I-X CENTER MAP

## CONFERENCE CENTER MEETING ROOMS (LOWER LEVEL)

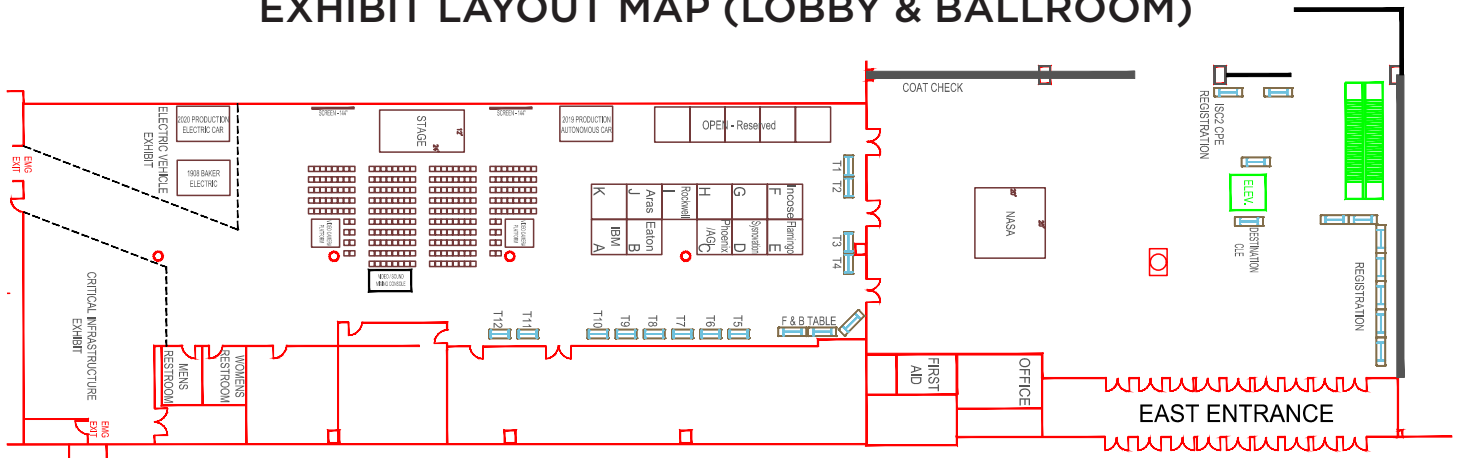
*NOTE: Lunches will be in the Concourse Exhibit Hall.*



## GRAND BALLROOM & EAST LOBBY





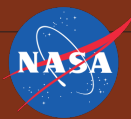



## EXHIBIT LAYOUT MAP (LOBBY & BALLROOM)









# TUESDAY OCTOBER 22


REGISTRATION AND EXHIBIT DISPLAYS IN I-X CENTER EAST LOBBY						
TIME (EDT)	INCOSE GLRC Tutorial Track (Conference Center Rm. 22)	ET Plenaries & STEM Education (Grand Ballroom)	ET Session Track (See ET Insert for Rooms)	ET Session Track (See ET Insert for Rooms)		
7:30 AM	REGISTRATION AND CHECK-IN (I-X CENTER EAST LOBBY)					
8:00 AM	EnergyTech Conference Welcome (8:00AM - Grand Ballroom)					
8:15 AM	<b>TUTORIAL</b>  <b>PART 1 of 2:</b> Lean Startup Method (LSM) and Agile for Resiliency Initial Project Planning (IPP)  <b>Instructor:</b> Mike Pafford	-- Opening Panel Discussion -- <b>Resilient Power &amp; Energy: Mission Needs, Challenges and Opportunities</b> Manto, Kerman, Baker, Schull, Fallen <b>Moderator:</b> A.J. Misra				
8:30 AM						
9:00 AM						
9:30 AM						
10:00 AM		<b>MORNING BREAK (10:00AM - 10:30AM)</b>				
10:30 AM		-- Panel Discussion -- <b>Powering Through: Building Critical Infrastructure Resilience</b> W. Harris, G. Baker, R. Krieg, M. Kerman <b>Moderator:</b> M. Lasky	<b>Power Generation:</b> Photovoltaic, Nuclear, and Energy Conversion Technology Challenges and Needs (Room 1)			
11:00 AM						
11:30 AM						
12:00 PM	<b>LUNCH BREAK (12:00PM - 1:00PM)</b>	<b>K-12 STEM Education Program</b>   	<b>LUNCH BREAK (12:00PM - 1:00PM)</b>			
12:30 PM						
1:00 PM	<b>TUTORIAL</b>  <b>PART 1 of 2:</b> Lean Startup Method (LSM) and Agile for Resiliency Initial Project Planning (IPP)  <b>Instructor:</b> Mike Pafford		<b>Energy Storage:</b> Battery, Fuel Cell, and Flywheel, and Energy Storage Technology Challenges and Needs (Room 1)	<b>Session 4 (Kerman)</b> <b>The Future of Energy Systems</b> T. Blees and A. Juhasz	<b>Session 5 (Baker)</b> <b>Microgrids - Transforming Our Infrastructure:</b> Integrating Microgrid Design (B. Campbell) and Modeling Blackout Vulnerability	
1:30 PM						
2:00 PM				<b>AFTERNOON BREAK (2:30PM - 3:00PM)</b>		
2:30 PM						
3:00 PM						
3:30 PM		<b>Enegytech (ET) Track Poster Presentations and Networking (3:00 PM, Grand Ballroom)</b>	<b>Session 7 (Jones)</b> <b>Guarding Our Critical Infrastructure Systems</b>		<b>Session 8 (Thomas)</b> <b>Microgrids - More Power to the CITY</b>	
4:00 PM						
4:30 PM						
5:00 PM			Apollo 50th Anniversary Celebration Attendees Travel from the I-X Center to the NASA Visitor and Great Lakes Science Center			
5:30 PM						
6:00 PM	Viewing: NASA Visitor Center Dome Theater -- Film "Apollo 17"					
6:30 PM	 	<b>"Apollo 17 and Beyond"</b> Dr. Harrison Schmitt (Apollo 17 Crew Member)			 	
7:00 PM						
7:30 PM						
8:00 PM						
8:30 PM	*This schedule reflects best information available on 17Oct2019 and is subject to change. Visit <a href="http://www.incose.org/GLR13">www.incose.org/GLR13</a> or <a href="http://www.energytech.org">www.energytech.org</a> for the most current version*					

# WEDNESDAY OCTOBER 23

## REGISTRATION AND EXHIBIT DISPLAYS IN I-X CENTER EAST LOBBY

TIME (EDT)	ET Session Track (See ET Insert for Rooms)	INCOSE GLRC Day 1, Session Track 1 (Conference Center Rm. 23)	INCOSE GLRC Day 1, Session Track 2 (Conference Center Rm. 24)	ET Session Track (See ET Insert for Rooms)	
7:30 AM	REGISTRATION AND CHECK-IN (I-X CENTER EAST LOBBY)				
8:00 AM	GLRC-ET-ISS Opening Plenary and Keynote Addresses (8:00AM - Grand Ballroom)				
8:15 AM		-- Keynote -- "The Era of the Jetsons: Evolution of Air Mobility" Mark Jennings-Bates (Motivational Speaker and Vice President, PAL-V Flying Car Company)		 PAL-V Production Flying Car	
8:30 AM					
9:00 AM		-- Honorary Keynote -- "Hammers, Core Tubes, and Rock Boxes - Reflections on Apollo 17" Harrison Hagan "Jack" Schmitt (Geologist, University Professor, former U.S. Senator, NASA Astronaut and Apollo 17 Crew Member)			
9:30 AM					
10:00 AM	MORNING BREAK (10:00AM - 10:30AM)			EnergyTech (ET) Track	
10:30 AM	EnergyTech (ET) Track	Improving Patients' Quality of Care in an Emergency Department Using Systems Engineering Tools, H. Khazaei, R. Promyoo and H. El-Mounayri [49]	MBSE 2.0: Enabling the Digital Enterprise, Mark Simons [15]		
11:00 AM		Simulation Modeling of Energy Systems, Rainer Dronzek [19]	Methods for Security Analysis of Automotive Systems: A Comparative Study, A Sidhu and S. Mahadevan [51]		
11:30 AM		Building the Failsafe Hospital, J Sparber			
12:00 PM	LUNCH BREAK (12:00PM - 1:00PM)				
12:30 PM					
1:00 PM	EnergyTech (ET) Track	Experiences with Collaborative Model Based System Architecture Development within a Joint Venture R&D Organization, Scott Millsap [11]	Sponsored Presentation: Managing Variability in Systems, Tim Kerr (Aras)	EnergyTech (ET) Track	
1:30 PM		INCOSE Infrastructure Working Group Exploratory Study of SE for Complex Buildings - Progress in Year One, Jon Mooney [20]	Effectively Communicating MBSE Concepts to Both Technical and Business Audiences, David Walden [39]		
2:00 PM					
2:30 PM	AFTERNOON BREAK (2:30PM - 3:00PM)				
3:00 PM	-- Panel Discussion (3:00 PM - Grand Ballroom) -- "Engineering the Infrastructure of the Future: Modeling, Building, and Managing Complex Systems of Systems" See ET Program Insert for details and updates				
3:30 PM					
4:00 PM	-- Keynote (4:00 PM - Grand Ballroom) -- "The Need to Change the Paradigm of Control System Cyber Security - Culture and Technology" Joe Weiss (CEO, Applied Control Solutions, LLC and Chair, INCOSE Complex Systems WG) See ET Program Insert for details and updates				
4:30 PM					
5:00 PM	GLRC-ET-ISS Grand Reception (5:00 PM - Grand Ballroom) Featuring the "Spirit of Innovation" Exposition, Exhibitor Displays, and EnergyTech Track Poster Presentations				
5:30 PM					
6:00 PM	**This schedule reflects best information available on 17Oct2019 and is subject to change. Visit <a href="http://www.incose.org/GLR13">www.incose.org/GLR13</a> or <a href="http://www.energytech.org">www.energytech.org</a> for the most current version*				

# THURSDAY OCTOBER 24

REGISTRATION AND EXHIBIT DISPLAYS IN I-X CENTER EAST LOBBY				
TIME (EDT)	Standards Workshop (Conference Center Rm. 1)	Plenary Sessions and SE Professional Development Day Track (Grand Ballroom)	INCOSE GLRC Day 2, Session Track 2 (Conference Center Rm. 24)	SE Tool Challenge Track (Conference Center Rm. 25)
7:30 AM	REGISTRATION AND CHECK-IN (I-X CENTER EAST LOBBY)			
8:00 AM	<div>NASA-SAE Electric and Autonomous Vehicle Standards Development Workshop</div> <div>(Day 1 of 2)</div> <div>NOTE: This workshop requires registration with the EnergyTech NASA-SAE Standards Workshop at <a href="http://www.energytech.org">www.energytech.org</a>.</div>	INCOSE GLRC Opening Plenary: Michael Vinarcik, Emcee (8:00AM - Grand Ballroom)		
8:15 AM		<div></div> -- INCOSE GLRC13 Keynote (8:15 AM - Grand Ballroom) -- "Answering the Call for Technical Leaders" Michael Pennotti (Stevens Institute of Technology) [21]		
8:30 AM				
9:00 AM		-- Presentation and Panel Discussion (9:00 AM - Grand Ballroom) -- "Collaborating for Agile Project Success: Integrating Project/Program Management (PM) and Systems Engineering (SE) Approaches"		
9:30 AM				
10:00 AM		MORNING BREAK (10:00AM - 10:30AM)		
10:30 AM		Back to Basics: Systems Engineers Must Think About the End before the Beginning, Dave Walden (Sysnovation) [38]		Sponsored Presentation: How Systems Engineering With SysML Helps in Complex Systems Design, Saulius Pavalkis - No Magic
11:00 AM		Apollo and the 1960's: One Giant Leap for Systems Engineering, Michael Vinarcik (SAIC) [16]		A Comparative Study of ARCADIA/Capella and OOSEM/SysML for System Architecture Development, S. Alai, R. Promyoo, H. El-Mounayri and K. Kalvit [48]
11:30 AM				
12:00 PM		LUNCH BREAK (12:00PM - 1:00PM)		
12:30 PM				
1:00 PM		Growing Systems Engineers through Gamification, David Long (Air Force Institute of Technology) [43]		Model Based Technical Risk Assessment, R. Gupta, M. Sease, C. Sundaram and J. Hummell [26]
1:30 PM		Top Ten Ways Engineers Undermine Their Success, Sean McCoy		Cost-Effective Control System Cyber Risk Management, Mike Radigan
2:00 PM				
2:30 PM	AFTERNOON BREAK (2:30PM - 3:00PM)			
3:00 PM	MBSE Complete Eco-System Explained, James Hummell (MBSE Solutions) [41]		Developing Safety and Mission Assurance Use Cases as a Foundation for Modeling, S. Beckman and S. Cornford [32]	
3:30 PM	Sigma Theta Mu Lecture: "From Models to Interactive Stories in Virtual Worlds: Model Based Systems Engineering in the 21st Century", Dr. Azad M. Madni (University of Southern California)		Finding the STEM: An Analysis of Children's Activities for Systems Engineering Principles, Erika Esala [22]	
4:00 PM				
4:30 PM	CLOSING PLEANARY (and Award Presentations) (4:30 PM - Grand Ballroom)			
5:00 PM				
5:30 PM	CLOSING RECEPTION (5:00 PM - Grand Ballroom)			
6:00 PM	*This schedule reflects best information available on 17Oct2019 and is subject to change. Visit <a href="http://www.incose.org/GLR13">www.incose.org/GLR13</a> or <a href="http://www.energytech.org">www.energytech.org</a> for the most current version*			

# FRIDAY OCTOBER 25

## REGISTRATION AND EXHIBIT DISPLAYS IN I-X CENTER EAST LOBBY

TIME (EDT)	INCOSE GLRC Tutorial Track (Conference Center Rm. 25)	INCOSE Exam and Chapt. Dvlmt. Track (Conference Center Rm to be announced)	ET Drone Event Panels & Exhibits (Grand Ballroom)	ET Drone Activities Track (Conf. Center & Conv. Floor)
7:30 AM	REGISTRATION AND CHECK-IN (I-X CENTER EAST LOBBY)			
8:00 AM	<div>TUTORIAL</div> <div>System Model Simulation: Monte Carlo, Probabilities, and More</div> <div>Instructor: Saulius Pavalkis</div>	<div>INCOSE ASEP/CSEP Exam</div> <div>INCOSE Systems Engineering Professional (SEP) Certification Exam</div> <div>Proctor: Michael Vinarcik, ESEP</div>	<div>Drone Panel Session (8:00 AM - Grand Ballroom)</div> <div>NOTE: This activity requires registration for the EnergyTech Drone Event at <a href="http://www.energytech.org">www.energytech.org</a></div>	<div>FAA Drone Pilot Certification (Drone Meeting Rm, Conference Center)</div> <div>NOTE: This activity requires registration for the EnergyTech Drone Event at <a href="http://www.energytech.org">www.energytech.org</a></div>
8:15 AM				
8:30 AM				
9:00 AM				
9:30 AM				
10:00 AM				
10:30 AM				
11:00 AM				
11:30 AM				
12:00 PM	LUNCH BREAK (12:00PM - 1:00PM)			
12:30 PM				
1:00 PM	<div>TUTORIAL</div> <div>Less Work, More Right: Error-Proofing and Detection Techniques</div> <div>Instructor: Michael Vinarcik</div>	<div>INCOSE Chapter Development Workshop</div> <div>TOPICS: -- Chapter Website -- Financial Management -- Membership Growth and Engagement</div>	<div>"Spirit of Innovation" Exhibits and Drone Displays</div> <div>NOTE: This activity requires registration for the EnergyTech Drone Event at <a href="http://www.energytech.org">www.energytech.org</a></div>	<div>Drone Flying Competition (Convention Center Main Floor)</div> <div>NOTE: This activity requires registration for the EnergyTech Drone Event at <a href="http://www.energytech.org">www.energytech.org</a></div>
1:30 PM				
2:00 PM				
2:30 PM				
3:00 PM				
3:30 PM				Drone Event Closing Plenary (4:30 PM - Grand Ballroom)
4:00 PM				
4:30 PM				
5:00 PM	*This schedule reflects best information available on 17Oct2019 and is subject to change. Visit <a href="http://www.incose.org/GLR13">www.incose.org/GLR13</a> or <a href="http://www.energytech.org">www.energytech.org</a> for the most current version*			



# TUESDAY

# HIGHLIGHT

## Creating the Future: K-12 STEM and Beyond!

TUESDAY, OCTOBER 22, 2019

12:00pm - 3:00pm

Live from the Cleveland I-X Center Grand Ballroom



### FEATURED SPEAKERS



#### DEBOSHRI SADHUKHAN

Aerospace Engineer, Safety and Mission Assurance (S&MA)  
Joined NASA Glenn Research Center as Pathways Intern, May 2015  
Converted full time in May 2016  
Reliability and System Safety Branch, NASA Glenn Program and  
Project Assurance Division

#### NATHAN VINARCIK

Eagle Scout, Two Silver Palms  
Sophomore, University of Detroit Mercy, Mechanical Engineering  
Interned at NASA Jet Propulsion Laboratory (JPL), California, May-Aug 2019  
Computer Aided Engineering (CAE) and SysML, Presented to Pathfinder Program



#### SUSANAH R. KOWALEWSKI

Senior, University of Akron, Electrical Engineering  
Joined NASA Glenn Research Center as a Pathways Intern, May 2016  
Diagnostics and Electromagnetics Branch, NASA Glenn Power Division

#### LAURYN TAYLOR

Graduate of Renaissance High School, Detroit, MI  
Engineering Society of Detroit (ESD) High School Student of the Year Award, 2018  
Sophomore, Embry-Riddle Aeronautical University, Daytona Beach, FL  
Major: Aerospace Physiology, Minor: Human Factors



### STEM EDUCATION PROGRAM SUPPORTERS



IBM Watson IoT.





# THURSDAY

## 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)

## 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 Grand Ballroom  
at the Cleveland I-X Center*



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

*\*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.*

# FRIDAY

# HIGHLIGHT

## DAWN OF THE DRONES

*See them Live in Action!*



**energytech**



presents



## DRONE CHAMPIONSHIP PROGRAM OCTOBER 25, 2019

— International Drone Week Demonstration & Competition —

### WITNESS THE LATEST IN DRONE TECHNOLOGY

with Professional Drone Demonstrations, Hobby & Commercial Drone Displays, Competitive Time Trials (registration required), Drone Pilot Training Class & More!



#### Demos & Panels

Pro pilots demonstrate drone capabilities and maneuvers with video feeds on display screens. PLUS - FAA Pilot Training Class



#### Competitive Events

Test your piloting skills! Drones are provided and First Prize is a modern drone & control unit (\$200 value). Registration required.



#### Drones on Display

Numerous Hobby & Commercial Drones on static display.



#### 10,000 sq. ft arena

allocated with 35ft. ceiling height for flying drones through obstacles



Cleveland, OH



October 25, 2019



1PM-5PM

**CLEVELAND • I-X CENTER  
ONE I-X CENTER DR. 44135**

### REGISTRATION & MORE DETAILS

Can be found online at  
[https://www.energytech.org/exhibits/  
drone-championship-program/to-drone-page](https://www.energytech.org/exhibits/drone-championship-program/to-drone-page)

### SOCIAL MEDIA

Follow us on:   

**Energy Tech** @EnergyTech  
Use #EnergyTech19 as you share!



OCTOBER 21-25, 2019 • CLEVELAND • I-X CENTER

[EnergyTech.org](http://EnergyTech.org)

# INCOSE GLRC13 SPONSORS



**IBM Watson IoT™**

**DS CATIA** / *No Magic*



## **PARTICIPATING AND SUPPORTING CHAPTERS**

Cleveland-Northern Ohio (CNO) Chapter

Michigan Chapter

Chicagoland Chapter

North Star Chapter

Crossroads of America Chapter

Finger Lakes Chapter

Wright Brothers Chapter

Great Plains Chapter

Heartland Chapter

Three Rivers Chapter

**Also Thanks To:** The INCOSE Americas Sector and INCOSE Outreach

Visit [www.energytech.org](http://www.energytech.org) and see ET Program Insert for EnergyTech 2019 Sponsors

# ACKNOWLEDGMENTS

**We would like to thank the following  
INCOSE GLRC13 and EnergyTech volunteers:**

Joel Knapp	GLRC Chair	John Juhasz	EnergyTech Chair
Robert Parro	GLRC Co-Chair	Ray Beach	EnergyTech Co-Chair

## MARKETING AND COMMUNICATION

Jack Stein  
Dean Norfleet

## FINANCE

Curtis Potterveld

## PROGRAM COMMITTEE

Joel Knapp  
Kevin Devaney  
Sean McCoy

## PAPER PRESENTATION REVIEWERS

Julianne Alexander	Al Garcia	Curtis Potterveld
George Awad	Rebecca Haag	Ricardo Santos
Kevin Devaney	Holly Handley	Esteban Solorzano Zeldon
Omer Ertekin	Valkand Jhaveri	Kelly Weyrauch
Kader Fellague	Joshua Kaufer	Rachel White
Teresa Froncek	Eileen McConkie	Richard Zinni
	Sean McCoy	

## CONFERENCE ON-SITE VOLUNTEERS

Marian Cronin	Curtis Potterveld	Jack Stein
Nancy Hall	Malcolm Lunn	Kevin Devaney
Valkand Jhaveri	Dennis Rohn	Sean McCoy
Joel Knapp	Deboshri Sadhukhan	Cathy Wilson
Susanah Kowalewski	Timothy Schuler	Linyana Lane
Dean Norfleet		Robert Parro



# PLAN AHEAD FOR THE INCOSE GREAT LAKES REGIONAL CONFERENCE (GLRC)

**SEPTEMBER  
2020**



**Mobility Systems:  
Land, Sea, Air, and Space**

**DETROIT, MI**

**SEPTEMBER  
2021**

**Catch the *Systems* Spirit  
of St. Louis**



**ST. LOUIS, MO**



# CONFERENCE NOTES

**JOIN US!**

October 23 @ 1:00 PM

# An Open Platform for Managing MBSE Driven System Design



**Tim Keer**  
Director, Customer Solutions, Aras



GRAB OUR EBOOK  
A Systems-Centric Approach for  
Modern Product Development:  
5 Concepts for Engineering Leaders

