

# NE INCOSE Member Meeting

## November 15<sup>th</sup>, 2022

Hybrid: Virtual + UConn Hartford Campus

[incosenewengland@gmail.com](mailto:incosenewengland@gmail.com)



- **6:00 – 6:45 Chapter Business**
  - Introductions
  - 2022 INCOSE NE Chapter Organization and Committees
  - INCOSE / INCOSE NE Updates
  - New Member Introductions
- **6:45 – 7:30: Guest Speaker**
  - “*Generating a robust system architecture using ARCADIA Capella*” by **Dr. Eric Dano**, Associate Professor of Practice at the George Washington University.
- **7:30 – 8:00: Q & A / Wrap Up**

# 2022 Chapter Leadership Team

**President**

Madhu Rao, Ph.D.  
Belcan Engineering, LLC

**Vice President**

Haifeng Zhu, Ph.D.  
Smart Machinery Lab

**Treasurer**

Rachel McGrath  
Raytheon (P&W)

**Secretary**

Michael Tymms  
Vicarious Surgical Inc.

**Past President**

Eric Dano, Ph.D.  
BAE Systems

**Director**

Amy Thompson, Ph.D.  
UConn, UTC IASE

**Director**

Randy Skelding  
Raytheon (P&W)

**Director**

Jim Garman  
Sikorsky Aircraft

**Director**

Daniel Burbank  
Collins Aerospace

**Director**

Dave Finigan  
BAE Systems

**Director**

Bao Truong, Ph.D.  
Malta Inc.

**Director**

Peter Huie  
WPI

**Director**

Stephen Nichols  
Schindler Elevator Corp.

**Director**

Diane Alsing  
Strategic Global

**Director**

Brian Sheehan  
Draper Labs

## Operations Committee

**Madhu Rao, Chair**

**Eric Dano, Past President & BoD Chair**

**Haifeng Zhu, VP/President Elect**

**Amy Thompson, Advisor**

**Rachel McGrath, Treasurer**

**Mike Tymm, Secretary**

**Bao Truong, Director**

**Vision:** Plan and organize chapter operations. Create strategic and operations plans. Communicate and coordinate with Directors through BOD. Coordinate execution with committees. Report back to INCOSE national. Manage chapter finances.

**Regular Meeting Times:** 1st Tuesday of each month at 6:00pm, open to all members

## Membership Committee

**TBD, Chair**

**Peter Huie**

**Jim Garman**

**Daniel Burbank**

**Vision:** Serve current membership. Recruit new members. Serve all industry sectors and states. Perform direct and indirect outreach to members. Collect information about how we can better serve. Member categories: existing members, new members, CAB members, university members.

**Regular Meeting Times:** 3rd Thursday of each month at Noon, open to all

## Programming Committee

**TBD** (Madhu Rao), Chair  
Eric Dano, **Past President & BoD Chair**  
Ed Medri  
Randy Skelding  
Brian Sheehan

**Vision:** Plan high quality events throughout the year that engage all chapter members based upon regular input and feedback from the membership.

**Regular Meeting Times:** 3rd Thursday of each month at 6:00pm, open to all

## Certification, Training & Workforce Development

**TBD** (Randy Skelding), Chair  
Rich Powers  
Dave Finigan  
Chris Massa  
Bao Truong

**Vision:** Plan high quality training events throughout the year for members that help them achieve their professional development goals. Offer ASEP-CSEP

## Communications

Mike Tymm, Chair  
Peter Huie  
Amy Thompson  
Stephen Nichols

**Vision:** Communicate effectively with members of the chapter and INCOSE international. Communication methods should support all other committee goals and members should coordinate with other committees to send and receive their messages. Maintain chapter records.



- Thank you to all for supporting and promoting the event
  - Successful with presentations and workshop training events
  - Good discussion and feedback at the virtual social networking
- Sponsors:
  - UConn, CalTech and Intercax
- Program:
  - Two tracks – Digital Engineering and Organizational Transformation
  - Two Keynote presentations
  - Six presentations per track (Day 1)
  - Two presentation per track (Day 2)
  - Closing remarks and virtual social networking
- Event Stats:
  - 72 total registrations
  - 10 countries: 60 (US), Israel (2), France (2), Germany (2), Australia, Canada, China, Finland, South Africa and Spain



<https://www.neincose.org/2022-incose-ne-fall-workshop>

## Call for Presentations

The INCOSE New England chapter will be hosting its fourth annual fall workshop on October 28<sup>th</sup> and 29<sup>th</sup>, 2022. The workshop will be conducted as a two-day virtual event. The workshop is aimed at creating a forum for the systems engineering community to network, share ideas, knowledge, and practices, and learn more about the most recent innovations, trends, experiences, and issues in all aspects of systems engineering from world-class thought leaders in the field.

This year's workshop will be themed around Organizational Transformation and Digital Engineering.

INCOSE New England is seeking presentations. Topics of Interest include but are not limited to:

### Organizational Transformation

- Cultural & Workforce Adoption
- Digital Standards
- Digital Environments
- Digital Work Products
- Vendor Showcases/Training
- Systems Engineering Career
- Intellectual Property
- Cross-Organizational Collaborations

### Digital Engineering

- Digital Twins
- Digital Data Threads
- Authoritative Single Source of Truth
- Product Lifecycle Management
- Model Integration Strategies

Paperless presentations (aka Power Point Presentations) provide the opportunity for practitioners to share their work, novel approaches, or interesting problems addressed without writing a formal paper. Sessions are 45 minutes: 30 minutes for presentation with 15 minutes for Q&A.

All submission documents including presentation template are available at INCOSE New England web page: <https://www.neincose.org/2022-incose-ne-fall-workshop>.

Initial submission for presentations consists of an abstract of no more than 1000 words at website <https://s.confir.com/pBTNb0>. Each submittal will be reviewed by multiple members of the INCOSE NE review team. Selected presentations will later be notified to submit the IP release, Bio, and permission to record forms.

Please note that the material submitted may have been presented elsewhere. If it has been presented elsewhere, this should be noted with the original citation and link to any copyrighted material. Presentations will be posted on the INCOSE New England Presentation Library and will be accessible for all attendees.

### Key Dates:

Presentation abstract / tutorial proposal submission: September 07, 2022

Acceptance notification: September 14, 2022

Final presentation copy submission: October 14, 2022

INCOSE New England Fall Workshop 2022				
Session	Start	End	Day 1	
Welcome and Keynote	8:30	9:45	Welcome - Dr. Madhu Rao, Belcan Engineering LLC and INCOSE New England Chapter President	
			Key Note - "Beyond Digital: Bridging the Divides", David Long, <i>Blue Holon</i> ; Founder, Vitech Corp.	
	9:45	10:00	Break	
			Track 1: Digital Engineering	Track 2: Organizational Transformation
Session 1	10:00	10:55	"Real Digital Threads with the Intercax Syndeia Digital Thread Platform" - Lonnie VanZandt, <i>Intercax</i>	"Impact of INCOSE Systems Engineering Handbook update on Certification Process" - Mrunmayi Joshi, Courtney Wright, <i>INCOSE</i>
	10:55	11:00	Break	
Session 2	11:00	11:55	"Behavioral Twins: Theory and framework for SoS integration" - Avi Harel, <i>Ergolight</i>	"Building a Cultural Growth Mindset" - Xiaomei Yu, <i>Sikorsky</i>
	12:00	12:30	Lunch Break	
Session 3	12:30	13:25	"Integrated Excel User-interfaces for Multi-disciplinary Knowledge Sharing and Collaboration through the System Model" - Paul Goossens, Bharani Mohan, <i>Maplesoft</i>	"An Introduction to Complex System Governance Diagnostics" - Satya Moorthy, <i>Georgia Tech.</i>
	13:25	13:30	Break	
Session 4	13:30	14:25	"National Reactor Innovation Center (NRIC) Digital Engineering Ecosystem" - Peter Suyderhoud, <i>Idaho National Laboratory</i>	"Manufacturing Industry in Industry 4.0: As Experienced by Engineering Managers" - Bongekile Matsenjwa, <i>Mondelez International</i>
	14:25	14:30	Break	
Session 5	14:30	15:25	"Articulating Failures for Building Resilience in Robot Swarms: A Case Study in Model-Based Systems Engineering" - Arsalan Akhter, <i>WPI</i>	"Creating Solutions Across Product Lines" - Roopa Guttal and Kyle Shwartz Stryker
	15:25	15:30	Break	
Session 6	15:30	16:25	"Athena Roadshow" - Dr. Joe Fulton, <i>DSoft Technology</i>	"INCOSE Certification Program as a System of Systems" - Courtney Wright Mrunmayi Joshi, <i>INCOSE</i>
Closing Remarks and Virtual Social Networking	16:30	17:00	Closing Remarks, Dr. Haifeng Zhu, Boeing and INCOSE New England Chapter Vice President	

Virtual Café  
Open

INCOSE New England Fall Workshop 2022				
Session	Start	End	Day 2	
Keynote	9:00	9:45	Key Note - "Digital Transformation Manifesto: Amplifying the Need for Systems Engineering", Ray Sheen, President and Founder, <i>Product &amp; Process Innovation</i>	
	9:45	10:00	Break	
			Track 1: Digital Engineering	Track 2: Organizational Transformation
Tutorial Session I	10:00	12:00	"Model-Based Cyber-Physical Systems Engineering: The James Webb Space Telescope as a Case in Point" - Dov Dori, <i>MIT</i>	"Behavioral Twins: Theory and Framework for SoS Integration" - Avi Harel, <i>Ergolight</i>
	12:00	13:00	Lunch Break	
Tutorial Session II	13:00	15:00	"Complex Simulation Specification: Do Your Simulations Meet their Needs?" - Henri Sohler, <i>Irt Systemx</i>	"How to Apply for ESEP" - Renee Steinwand, <i>INCOSE</i>
	15:00	15:15	Break	
Closing Remarks and Virtual Social Networking	15:15	16:00	Closing Remarks, Dr. Haifeng Zhu, Boeing and INCOSE New England Chapter Vice President	

VirtualCafé  
Open



- Coming soon!!
- Nominations and elections for 2023 Officers and BoD
- Open Positions:
  - VP / President Elect
  - Treasurer
  - Certification, Training & Workforce Development Committee Chair
  - Membership Committee Chair
  - Programming Committee Chair
  - General BoD positions
  - General Committee positions
- Please email [incosenewengland@gmail.com](mailto:incosenewengland@gmail.com) for anybody members interested

# 2022 New Members (+46)

- Ertan Ergezen
- Lewis Malaver
- Hanning Wong
- Jon Hodge
- Preston Wilkey
- Rodervin Urena
- Steven Thorwarth
- Geoffrey Lichtenheim
- Danielle Conneely
- Alexander Moon
- Brianne Hirschfeld
- Natasha Berner
- Mostafa Elshibiny
- Brian Baillie
- Lou Palecki
- Randy Mocadlo
- Andrew Hanshaw
- Maxwell Brown
- Samuel Felton



**Welcome to INCOSE New England!!**

- Lew Cote
- Scott Morris
- Todd Jackson
- Greer Koerner
- David Fontaine
- Rahmeh Fares
- Michael Shatz
- Sasha Smiljanic
- Matteo Pietrobelli
- Amir Eftekhari
- Jennifer Pandolf

- Scott Law
- Patterson Sisson
- Khrystyna Shvedova
- Rebecca Petteys
- Heather Morris
- Candice Bell
- Marin Casanovas
- George Ziboulis
- Karen Brzostowski
- Michael Salpukas

- James Pennington
- Brian James
- Keith Works
- Radu Morar
- Geoffrey Brelsford
- Jamison Boie

# 2022 Guest Speakers

Month	Guest Speaker	Organization	Title / Topic
Jan	Dr. Don Gelosh	WPI	INCOSE Professional Development Portal Initiative
Feb	Paul White	BAE Systems	Building the Digital Engineering Workforce of the Future
Mar	Cameron Hendricks	Raytheon (P&W)	Taming Unreliable Variables in Systems Engineering
Apr	Dan Burbank	Raytheon (Collins)	Reliability and Survivability in Crewed Spacecraft
May	Dr. Phillip Palmer	Sunrise Labs	The Benefits of a Systems Engineering Approach: How to reduce risks and improve performance in medical device development
Jun	Guru Madhavan	National Academy of Engineering	Engineering Our Care Systems
Jul	Bao Truong, CSEP	Malta Inc.	Use of Systems Engineering in Repurposing Coal-Fired Power Plants with the Malta Pumped Thermal Energy Storage System
Aug	Matthew Hause	SSI	The Future of Unified Architecture Framework (UAF)
Sep	Chris Swickline & Heidi Jugovic	SAIC	A Data-Centric System Architecture Model Development Process Emphasizing Rapid Tempo and Quality
Oct	<i>No meeting</i>		<i>New England Fall Workshop</i>
Nov	Dr. Eric Dano	Faculty, GWU	Generating a robust system architecture using ARCADIA Capella
Dec	<i>No meeting</i>		<i>Elections</i>

# 2022 Chapter Award

28-Feb-21		2022 Chapter Award Submission				(name automatically copied from 1st tab)	
CERTIFICATION REQUIRED BY CHAPTER OFFICER - SEE FIRST TAB		Chapter					
<b>Instructions</b> 1) Complete Chapter info & Certification tab 2) Enter points claimed & a brief description of what was done to satisfy the criteria (Columns F&G) 3) Upload any supporting evidence to the Chapter Awards area of INCOSE Connect in the Evaluation Category listed in column H. 4) All activities, events...	<b>Achievement Levels</b>  Platinum - 12,000 pts.* Gold - 8000 pts.* Silver - 5000 pts. Bronze - 3000 pts.  *Must meet minimum points per section	<b>Summary</b> Section A Officer Training Section B Chapter Planning Section C Event Results Section D Communications Results Section E Membership Results Section F Technical Results Section G Outreach & Collaboration Results Section H INCOSE Support Results Section I Operations & Local Recognition Results Section J Subjective <b>Total</b>	<b>Pt Cap</b> 500 1,000 3,000 2,000 2,000 1,500 2,000 1,500 1,500 1,000 16,000	<b>Claimed by Chapter</b> 0 0 0 0 0 0 0 0 0 0 0	<b>Min Pts. for Gold or Platinum</b> 300 600 1,000 1,000 500 500 500 500 500 500 0	<b>References:</b> Guidelines and Good/Best Practices for many of the activities/products are available at the Keys to Effective Chapters Wiki at <a href="http://keys-to-effective-ch.wikispaces.com">http://keys-to-effective-ch.wikispaces.com</a> . This site will be continually updated as good examples are identified.  <b>All Evidence Files not in English should be accompanied by an English translation when being uploaded to INCOSE Connect since the majority of the Volunteer Awards Committee Evaluators come from Chapters in the United States.</b>	
	2nd Column (B) is reference to Chapter Planning Workbook paragraph.						
	<b>Note: Points Allowed for each Section are generally capped at less than sum of the Max Points for the various rows within the Section.</b>						
	<b>Activity/Product Description</b>	<b>Points per Activity</b>	<b>Max Points</b>	<b>Required Documentation for Verification</b>	<b>Points Claimed</b>	<b>Description of Chapter Activity</b>	<b>Evidence Submitted</b>
	<b>Section A -1.0 Officer Training</b> Officer Training reviews the current resources available to officers, and helps build alignment among the leadership team. All officers are encouraged to take the training provided on the Keys to Effective Chapter Wiki at least once.						
	A1 <b>Leadership Orientation:</b> Chapter Board training can be accomplished via web meeting or in person, or via self-study of a presentation. To be of value, training should occur shortly after each officer is installed or before.	100 pts. per New or Continuing Chapter officer who completes the training in 2021.  Completed by April 15th - 100% Completed by May 15th - 80% Completed by June 15th - 60% Completed by July 15th - 40% Completed by August 15th - 20%  Otherwise, try again next year.	500	To achieve full points the Chapter must provide attendance list, or evidence of self-study completion (such as a certified list of names and date training completed).  Leadership team members who previously completed the training can re-qualify by participating in a team meeting that reviews the materials with a discussion on updates such as new events, IT updates, Keys to Effective Chapters, and other new resources.	0		Identify as: A1
	<b>Summary Allowed for Training</b>		500		0		
	<b>Section B - 2.0 Chapter Planning</b> The process of planning is essential and to be most effective must be a joint effort of the Chapter Leadership Team. The plan should be straightforward and periodically updated. The template provided on the Keys to Effective Chapters Wiki, or equivalent, is recommended. A step-by-step planning workbook is available on the						
	B1 <b>Survey</b> Chapter membership to aid the BOD in setting Chapter direction and addressing member desires such as events and topics. Survey should address Chapter and INCOSE-level concerns. Survey is intended to assist in planning future activities of the Chapter. Chapter may add local topics appropriate for their	1) 100 pts for conducting survey 2) 75 pts for publishing results 3) 75 pts for analyzing results  If conducted Jan - June - 100% If conducted after 30 June - 50%	250	To achieve full points the Chapter must provide: 1) A copy of the survey (to verify objectives), 2) A copy of the results, and 3) A copy of the analysis of results/ conclusions.	0		Identify as: B1
	B2 <b>Strategic Planning:</b> The Chapter should develop or update the Chapter	Submission deadlines 300 pts. - by 15 April	300	To achieve full points the Chapter must provide documented long range	0		Identify as: B2

# Guest Speaker



## Generating a robust system architecture using ARCADIA Capella

### Bio: Dr. Eric Dano

Dr. Eric Dano received a B.S. in Physics from the U.S. Naval Academy, and a Ph.D. in Electrical Engineering from the University of Michigan. Eric worked at Sanders/BAE Systems for over 25 years and served as a Technical Director and system architect on numerous defense systems. He is currently an Associate Professor of Practice at the George Washington University, Engineering Management and Systems Engineering (EMSE) Department.

### Abstract:

System Architecture is often attributed to defining 70% of the cost and capabilities of a system. However, even after a decade of MBSE being mainstreamed, there is a lack of architecture focused methodologies and tools to aid programs in performing a proper, rigorous, transdisciplinary system architecture. While SysML has become the defacto standard, its lack of methodology makes it hard to align with a robust Architecture Development Methodology (ADM) without making some modifications to the profile to better align it with architecture nomenclature (e.g. capability, activity, function, etc.) and to avoid users from having to stereotype multiple blocks. INCOSE's OOSEM approach is certainly a big step in the right direction, but suffers with some of the usability issues of its underlying SysML.

This presentation will describe a hybrid approach based on the ARCADIA method/language and associated Capella tool, which were specifically created to focus on system architecture, along with some legacy DoDAF views added into the model to provide an even richer description of the synthesized system architecture.



# Questions

[incosenewengland@gmail.com](mailto:incosenewengland@gmail.com)