Models in Engineering:
Where Does Model-Based Systems Engineering (MBSE) Fit?

Thur May 26, 2022
6:30 – 8:00 PM CDT
7:30 – 9:00 PM EDT

INCOSE

Stephen Cash
Sr. Technical Specialist,
Systems and Electrification
AVL Mobility Technologies, Inc.

A **FREE** Virtual INCOSE Event
Registration Required

HEARTLAND CHAPTER | MICHIGAN

Host Chapters:
INCOSE Heartland and INCOSE Michigan

Thur May 26, 2022

6:30 - 8:00 PM CDT
(7:30 PM - 9:00 PM EDT)

Supporting/Guest Chapters:

THREE RIVERS | WRIGHT BROTHERS | CANADA

INCOSE

Tonight's Agenda

Welcome to all members and guests!

Host Chapters:

HEARTLAND CHAPTER

MICHIGAN

Welcome and Announcements ..... 6:30pm CDT

- Shadrak Rajkumar / Robin Mikola (*Heartland/MI Welcome)*
- Jack Stein, *Asst. Director, INCOSE Americas Sector (INCOSE Overview)*
- Shadrak Rajkumar, *President, Heartland Chapter*
- Dr. David Long, *President, Wright Brothers Chapter*
- Mike Casper, *Secretary, Three Rivers Chapter*
- Ray Barton, *Vice-President, Canada Chapter*
- Robin Mikola, *President, Michigan Chapter*

Feature Presentation ..... 7:00pm CDT

Q & A ..... 7:45pm CDT

Adjourn ..... 8:00pm CDT

Supporting Guest Chapters:

CANADA

THREE RIVERS

WRIGHT BROTHERS

INCOSE

INCOSE:
A Better World Through a Systems Approach

The global professional association for systems engineers

International Council on Systems Engineering

A better world through a systems approach

www.incose.org

Vision and Mission

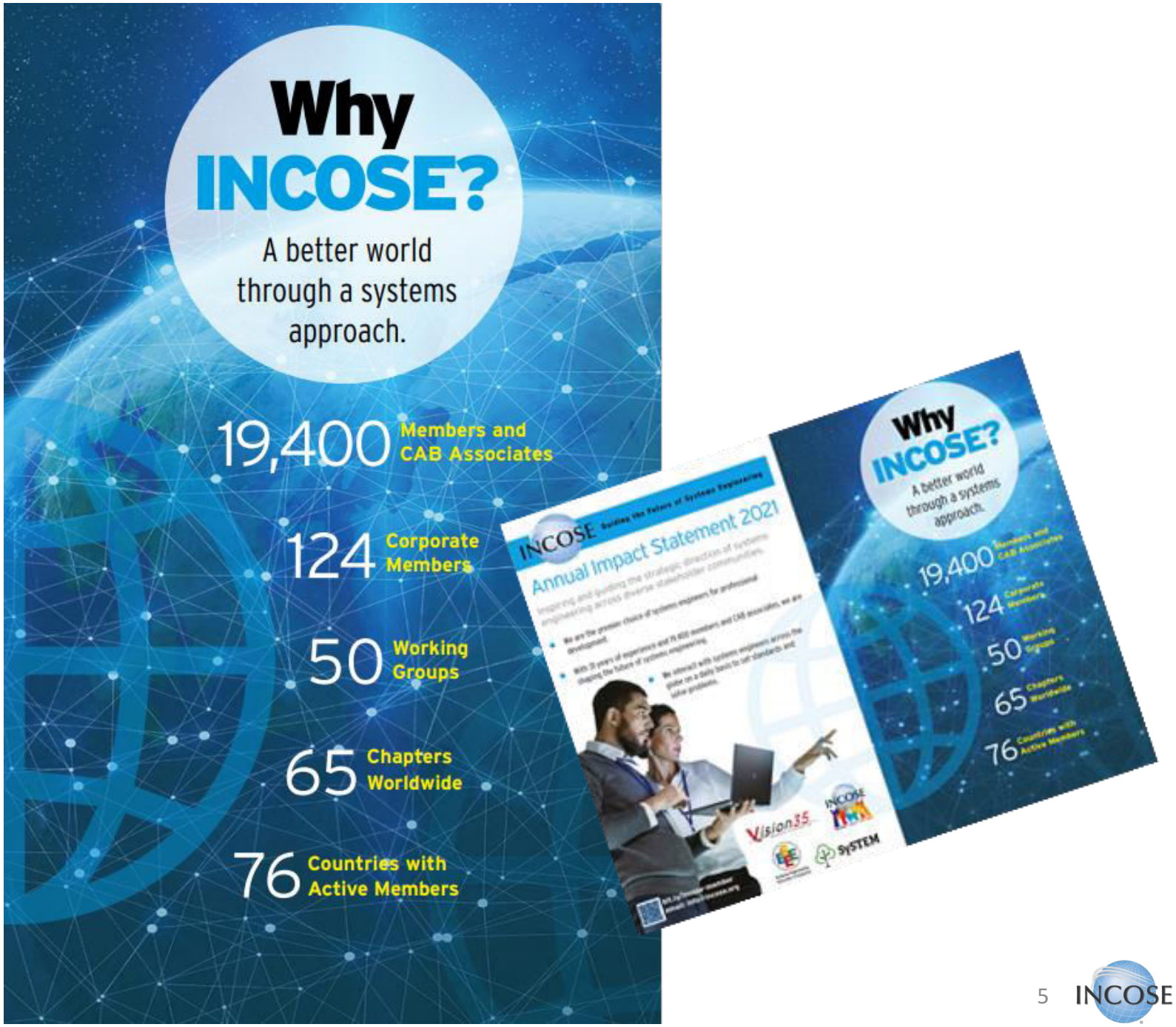
VISION: A better world through a systems approach

MISSION: To address complex societal and technical challenges by enabling, promoting, and advancing Systems Engineering and systems approaches

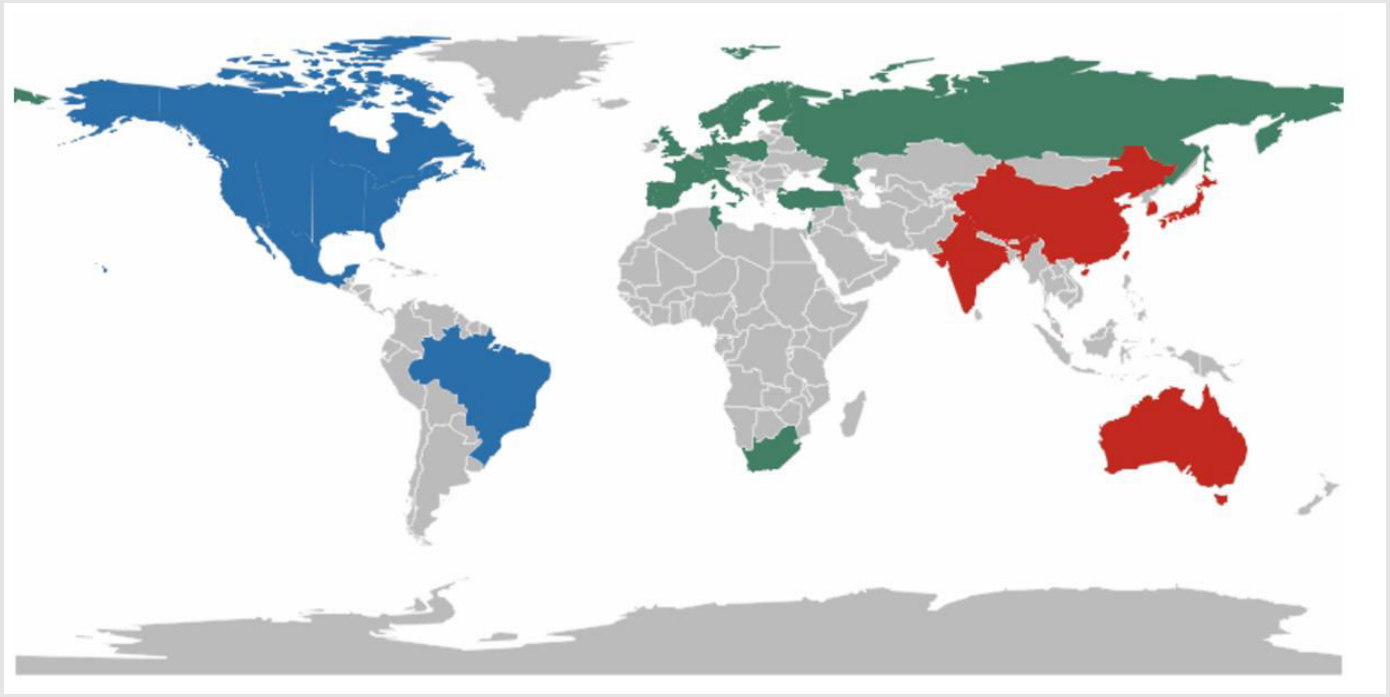
OBJECTIVE: Global leader for systems engineering professionals for career development

FUTURE: Lead the future of systems engineering, academically, in emerging domains, and in practice

Global Impact



INCOSE:
The International Council on Systems Engineering



- Connect systems engineers professionals
- Educational tools
- Resources they need
- Networking events
- Virtual platforms
- Handbooks and publications
- Career development
- Advancement through products and services
- Developing global community
- Problem solving through systems approaches
- Forward thinking
- State-of-the art
- Certification

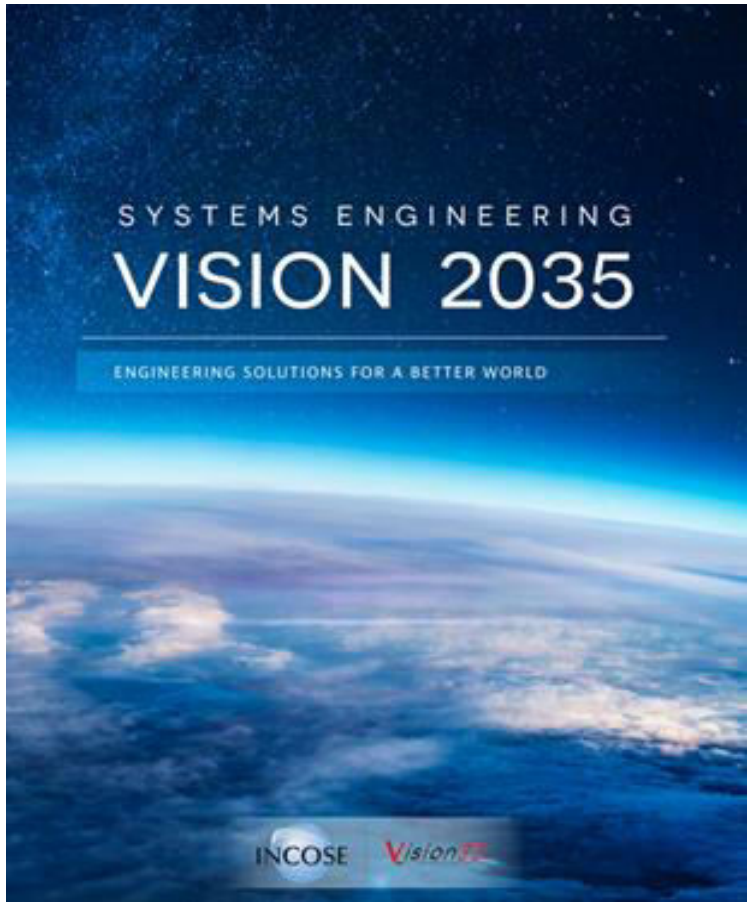
Certification

Systems Engineering Vision 2035

(Supersedes SE Vision 2025)

Just Published!

Available FREE to the public



incose.org/sevision

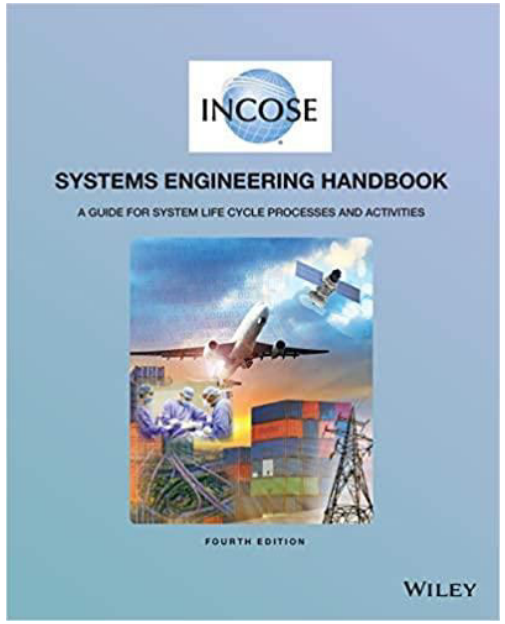
This Systems Engineering Vision was sponsored by INCOSE and produced by a team of leaders from the systems community, with inputs from across industry, academia, and government.

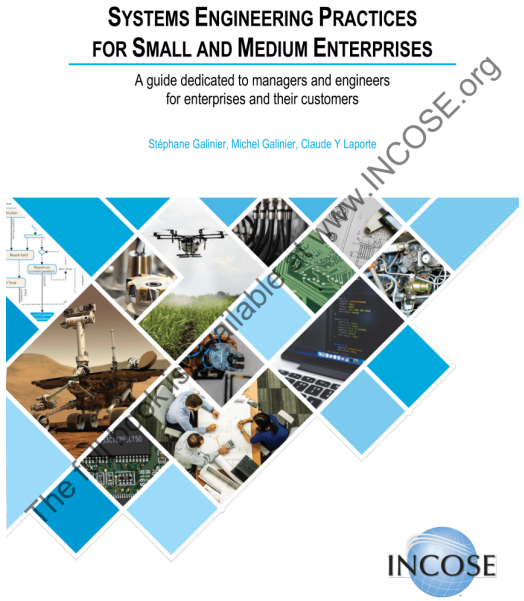
The Systems Engineering Vision 2035 addresses:

- The Global Context for Systems Engineering
- The Current State of Systems Engineering
- The Future State of Systems Engineering
- Realizing the Vision

We encourage you to work with INCOSE to help realize this vision.
The complete Systems Engineering Vision 2035 is available as a website and pdf at www.incose.org/sevision.

Publications





https://www.incose.org/products-and-publications/se-handbook

Corporate Advisory Board

The INCOSE Corporate Advisory Board (CAB) is the Voice of the Customer to the INCOSE leadership.

The CAB provides strategic guidance to technical leadership, leading to the development of systems engineering products and input to standards to meet their needs.

INCOSE Corporate Advisory Board (CAB) Member Organizations

- **126** Total *(worldwide)*
- **Government** *(defense, space, regulatory, re-search)*
- **Industry** *(commercial, defense, widely diverse & broad)*
- **Academia** *(Universities with SE Programs)*

321 Gang, Inc
Aerospace Corporation, The
Airbus
AM General LLC
Analog Devices, Inc.
ARAS Corp
Australian National University
Aviation Industry Corp. of China
BAE Systems
Ball Aerospace
Bechtel
Becton Dickinson
Blue Origin
Boeing Company, The
Bombardier Transportation
Booz Allen Hamilton Inc.
C.S. Draper Laboratory, Inc.
California State University
Carnegie Mellon University SEI
Change Vision, Inc.
Colorado State University
Cornell University
Cranfield University
Cubic
Cummins Inc.
Cybernet MBSE Co, Ltd
Defense Acquisition University
Deloitte Consulting, LLC
Denso Create Inc
Drexel University
Eindhoven University of Technology
EMBRAER
ENAC
Federal Aviation Administration (FAA)
Ford Motor Company
Fundacao Ezute
General Dynamics
General Electric Aviation
General Motors
George Mason University
Georgia Institute of Technology
IBM
Idaho National Laboratory
ISAE - Supaero
ISDEFE
ITID, Ltd
Jacobs
Jama Software
Jet Propulsion Laboratory
John Deere
Johns Hopkins University
KBR
KEIO University
L3Harris Technologies
Leidos
Lockheed Martin Corporation
Los Alamos National Laboratory
ManTech International Corporation
Maplesoft
Massachusetts Institute of Technology (MIT)
MBDA (UK) Ltd
Missouri University of Science & Technology
MITRE Corporation, The
Mitsubishi Heavy Industries, Ltd
NASA
National Reconnaissance Office (NRO)
National Security Agency Enterprise Systems
Naval Postgraduate School
Nissan Motor Co, Ltd
No Magic Inc. (Dassault Systemes)
Northrop Grumman Corporation
Pacific Northwest National Laboratory
Pennsylvania State University
Peraton
Petronas Nasional Berhad
Prime Solutions Group, Inc
Project Performance International (PPI)
QRA Corp
Raytheon Corporation
Roche Diagnostics
Rolls-Royce
Saab AB
SAIC
Sandia National Laboratories
Siemens
Sierra Nevada Corporation
Singapore Institute of Technology
Skoltech
SPEC Innovations
Stellar Solutions
Stevens Institute of Technology
Strategic Technical Services LLC
Swedish Defense Materiel Administration
Systems Planning and Analysis
Thales
Torch Technologies
Trane Technologies
Tsinghua University
TUS Solution LLC
UC San Diego
UK Ministry of Defense (MoD)
University of Alabama in Huntsville
University of Arkansas
University of Connecticut
University of Maryland
University of Maryland, Baltimore County
University of Michigan, Ann Arbor
University of New South Wales
University of Southern California
University of Texas at El Paso (UTEP)
University of Washington ISE
US Department of Defense (DoD)
Veoneer
VG2PLAY
Vitech
Volvo Construction Equipment
Woodward Inc
Worcester Polytechnic Institute- WPI
Zuken Inc

INCOSE Corporate Advisory Board (CAB) Member Organizations

321 Gang,
Aerospace
Airbus
AM Gener
Analog Devices, Inc.
ARAS Corp
Australian National University
Aviation Industry Corp. of China
BAE Systems
Ball Aerospace
Bechtel
Becton Dickinson
Blue Origin
Boeing Company, The
Bombardier Transportation
Booz Allen Hamilton Inc.
C.S. Draper Laboratory, Inc.
California State University
Carnegie Mellon University SEI
Change Vision, Inc.
Colorado State University
Cornell University
Cranfield University
Cubic
Cummins Inc.
Cybernet MBSE Co, Ltd

Eindhoven Univ
EMBRAER
ENAC
Federal Aviation Administration (FAA)
Ford Motor Company
Fundacao Ezute
General Dynamics
General Electric Aviation
General Motors
George Mason University
Georgia Institute of Technology
IBM
Idaho National Laboratory
ISAE - Supaero
ISDEFE
ry
John Deere
Johns Hopkins University
Lockheed Martin Corporation
Los Alamos National Laboratory
ManTech International Corporation
Maplesoft
Massachusetts Institute of Technology (MIT)

MBDA (UK) Ltd
Missouri University of Science & Techno
MITRE Corporation, The
Mitsubishi Heavy Industries, Ltd
NASA
National Reconnaissance Office (NRO)
National Security Agency Enterprise Sys
Naval Postgraduate School
Nissan Motor Co, Ltd
No Magic Inc. (Dassau
Northrop Grumman C
Pacific Northwest Nati
Pennsylvania State Un
Peraton
Petronas Nasional Ber
Prime Solutions Group, Inc
Project Performance International (PPI)
QRA Corp
Raytheon Corporation
Roche Diagnostics
Rolls-Royce
Saab AB
SAIC
Sandia National Laboratories
Siemens
Sierra Nevada Corporation
Singapore Institute of Technology
Skoltech
SPEC Innovations
Stellar Solutions

nistration
Tsinghua University
TUS Solution LLC
UC San Diego
UK Ministry of Defense (MoD)
University of Alabama in Huntsville
University of Arkansas
University of Connecticut
University of Maryland
University of Maryland, Baltimore County
University of Michigan, Ann Arbor
University of New South Wales
University of Southern California
University of Texas at El Paso (UTEP)
University of Washington ISE
US Department of Defense (DoD)
Veoneer
VG2PLAY
ipment
nstitute- WPI

Academic Council

Branch of the Corporate Advisory Board facilitating discussion and exploration of issues relevant to academia and strategic collaborations within INCOSE.

A well-educated workforce is key to Global Prosperity

Council member organizations offer bachelors, masters, and doctorate degrees in systems engineering and related programs.

Active in advancing the state-of-the-art of systems engineering through academic programs.

INCOSE Academic Council – 35 University Systems Engineering Schools

University of Arkansas
Gregory S. Parnell
http://www.uark.edu

University of Alabama in Hunts...
Lawrence D. Thomas
https://www.uah.edu/eng/dep...

University of Michigan, Ann Ar...
Robert F. Bordley
https://isd.engin.umich.edu/gr...

Australian National University
Jeremy Smith
https://cecs.anu.edu.au/people...

California State University Dom...
Toni Boadi
https://www.csudh.edu/system...

Carnegie Mellon University Soft...
Paul D. Nielsen
http://www.sei.cmu.edu

Colorado State University Syste...
James M. Adams
https://www.engr.colostate.ed...

Cornell University
Erika Palmer
https://www.systemseng.corne...

The University of Arizona
Alejandro Salado
https://sie.engineering.arizona....

Tsinghua University
Lefei Li
http://www.tsinghua.edu.cn/

UC San Diego
Jon P. Wade
http://www.jacobsschool.ucsd....

Cranfield University
Timothy L. Ferris
https://www.cranfield.ac.uk/

Drexel University
Richard Grandrino
http://www.drexel.edu/syeng

Eindhoven University of Techn...
Ward Cottaar
https://www.tue.nl/en/

George Mason University
John Shortle
http://seor.gmu.edu/

Georgia Institute of Technology
Edwin Romeijn

University of Connecticut
Amy E. Thompson
https://utc-iase.uconn.edu/edu...

University of Maryland
John S. Baras
http://www.umd.edu

University of Maryland, Baltim...
Woodrow W. Winchester
https://professionalprograms.u...

ISAE - Supaero
Rob VINGERHOEDS
https://www.isae-supaero.fr/en/

Johns Hopkins University
David A. Flanigan
http://www.jhu.edu

KEIO University
Seiko Shirasaka
http://www.sdm.keio.ac.jp

Massachusetts Institute of Technology
Joan Rubin
http://www.mit.edu

Missouri University of Science ...
Cihan H. Dagli
http://www.mst.edu

University of Southern California
Azad M. Madni
http://www.usc.edu

University of Texas at El Paso (...
Sergio Luna
https://www.utep.edu/enginee...

University of Washington ISE
Sheila Prusa
https://ise.washington.edu

Naval Postgraduate School
Ronald Giachetti
https://nps.edu/web/seet/nps-...

Pennsylvania State University
Colin J. Neill

Purdue University
Tugba Karabiyik

Singapore Institute of Technolo...
PakSan Liew
http://www.singaporetech.edu....

Stevens Institute of Technology
Mo Mansouri
http://www.stevens.edu/sdoe

University of New South Wales,...
Sondoss El Sawah
http://www.unsw.adfa.edu.au

Virginia Tech
Eileen M. Van Aken

Worcester Polytechnic Institute...
Donald S. Gelosh
http://www.wpi.edu

INCOSE Student Divisions

Undergraduate and/or graduate students who wish to become actively involved in INCOSE while enrolled in an accredited course of study at a college or university

Student Divisions are operated as a component of a nearby chartered INCOSE chapter, and require:

- 1) a student body interested in becoming involved with INCOSE,
- 2) a faculty member who is a member of INCOSE and willing to act as the Division mentor and liaison between INCOSE and the university, and
- 3) active sponsorship and participation by a chartered INCOSE chapter.

Student Divisions

What is a Student Division?

A Student Division is comprised of a group of undergraduate or graduate students who wish to become actively involved in INCOSE while enrolled in an accredited course of study at a college or university. Student Divisions are operated as a component of a nearby chartered INCOSE chapter. In order for a Student Division to be created, it requires 1) a student body interested in becoming involved with systems engineering/INCOSE, 2) a faculty member who is a member of INCOSE and willing to act as the Division mentor and liaison between INCOSE and the university, and 3) active sponsorship and participation by a chartered INCOSE chapter.

Student Divisions	Student Division Download Files
Arizona State University Cornell University Drexel University Florida Institute of Technology George Mason University Missouri University of Science & Technology Purdue Student Division Stevens Institute University of Alabama in Huntsville (UAH) University of Arizona University of Central Florida University of Connecticut, George Bollas University of Michigan University of South Alabama University of Texas at El Paso University of Virginia	Guide to Developing INCOSE Student Division Student Division By Law Template INCOSE Engineering Challenge INCOSE Student Division Brochure Student Division Program Architecture

www.incose.org/academic-affairs-and-careers/student-divisions

Why Establish a Student Division?

Students are the next generation of systems engineers and participation in INCOSE activities gives students an opportunity to gain exposure to current SE practices being used in the working world. It also gives them an opportunity to engage in career networking and mentoring opportunities. In addition, participation by Faculty provides them an opportunity to get more involved in INCOSE and local industry, and contribute to INCOSE's body of knowledge and practice. Student divisions offer an opportunity to forge relationships between industry, government, and academia. See FAQS for Students.

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Student Divisions

Arizona State University
Cornell University
Drexel University
Florida Institute of Technology
George Mason University
Missouri University of Science & Technology
Purdue Student Division
Stevens Institute
University of Alabama in Huntsville (UAH)
University of Arizona
University of Central Florida
University of Connecticut, George Bollas
University of Michigan
University of South Alabama
University of Texas at El Paso
University of Virginia

1885 Michigan Technological University

Welcome Michigan Tech!

Why Establish a Student Division?

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INCOSE GLNC – SE Student Virtual Career Fair

Chapter sponsorships and employer booths available on a continual basis.

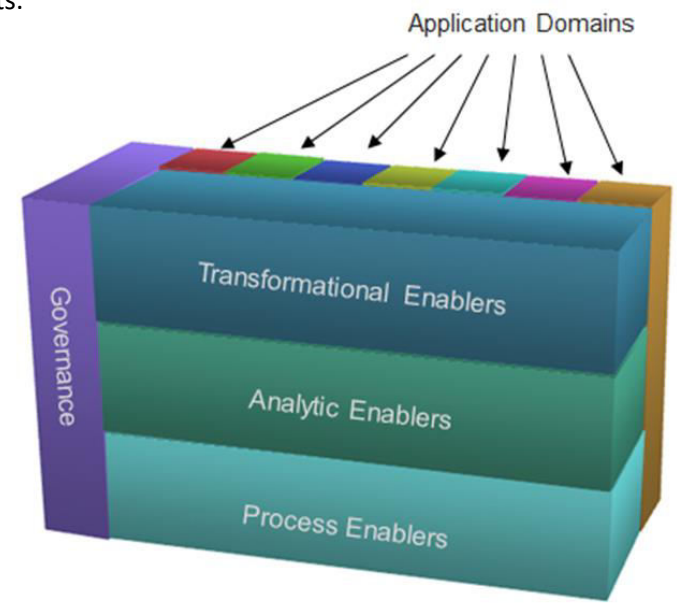
3-4 Fairs per year.

Visit www.incose.org/GLNC "Programs" tab.

Working Groups

Working groups are the resource practitioners need.

Discuss, collaborate, share in person, and online across more than 60 working group in INCOSE with a wide diversity of interests.



INCOSE working groups create products, present panels, develop and review standards.

55* INCOSE Working Groups (WGs) and Initiatives

Agile Systems and Systems Engineering Rick Dove Transformational	**Architecture** A. Kumar/ JL. Garnier/ R. Martin/ R. Sieger Process Enablers	**Artificial Intelligence Systems** Thomas Shortell / Tom McDermott Transformational	**Automotive** Alain Dauron Application Domains	**Competency** Cliff Whitcomb Analytic Enablers	**PM-SE Integration** JC Roussel/ John Lomax / Tina Srivastava Process Enablers	**Power & Energy Systems** Ray Beach Application Domains	**Process Improvement** Jeffrey Brown / J. Clark Transformational	**Product Line Engineering** H. Chale / R. Darbin / C. Krueger Analytic Enablers	**Professional Competencies & Soft Skills** Sean McCoy / C. Whitcomb Transformational
Complex Systems Michael Watson / A.Raz / M. Do Analytic Enablers	**Configuration Management** Adriana DSouza Process Enablers	**Critical Infrastructure Protection and Recovery** D. Eisenberg Application Domains	**Decision Analysis** Frank Salvatore Analytic Enablers	**Defense Systems** Karl Geist Application Domains	**Requirements** T. Katz Process Enablers	**Resilient Systems** Ken Cureton / John Brtis Analytic Enablers	**Risk Management** Bob Parro/ Jack Stein Process Enablers	**SE in Early Stage Research & Development** A. Hodges / N. Lombardo/ H. Hahn / M. Transformational	**SE Tools Database** John Nallon Transformational
Digital Engineering Information Exchange Sean McGervey Transformational	**Enterprise Systems** K. Nortrup / T. McDermott Process Enablers	**Global Earth Observation System of Systems (GEOSS)** Ken Crowder	**Healthcare** Chris Unger Application Domains	**Human Systems Integration** Guy Boy Analytic Enablers	**Small Business Systems Engineering** Angela Robinson/ Claude Laporte/ Ken Ptack/ Transformational	**Smart Cities Initiative** Jennifer Russel Initiative	**Social Systems** Erika Palmer Analytic Enablers	**Space Systems** David Kaslow Application Domains	**System of Systems** Alan Harding Analytic Enablers
Infrastructure A. Kouassi Application Domains	**Integration, Verification & Validation** Russell Kubycheck Process Enablers	**Knowledge Management** Jean Duprez/ Robert Nilsson Transformational	**Lean Systems Engineering** Arthur Hyde Transformational	**MBSE Initiative** Mark Sampson Transformational	**System Safety** Duncan Kemp / Meaghan O'Neil / Russell Kubycheck Analytic Enablers	**Systems and Software Interface** Nick Guertin Transformational	**Systems Engineering Quality Management (SEQM)** Barclay Brown Process Enablers	**Systems Science** Javier Calvo Transformational	**Systems Security Engineering** Rick Dove Analytic Enablers
MBSE Patterns Bill Schindel Transformational	**Measurement** Paul Frenz Process Enablers	**NAFEMS-INCOSE Systems Modeling & Simulation** Peter Coleman / Frank Popielas Transformational	**Natural Systems** Curt McNamara Analytic Enablers	**Object-Oriented Systems Engineering Method (OOSEM)** Howard Lykins Transformational	**Telecommunications** John Risson Application Domains	**Tools Integration & Model Lifecycle Management** John Nallon Transformational	**Training** Gabriela Coe / John Clark Analytic Enablers	**Transportation** Dale Brown Application Domains	**Value Proposition Initiative** Juan Amenabar / Ken Harmon

* Some emerging (new) and re-structuring WGs are not shown in above chart

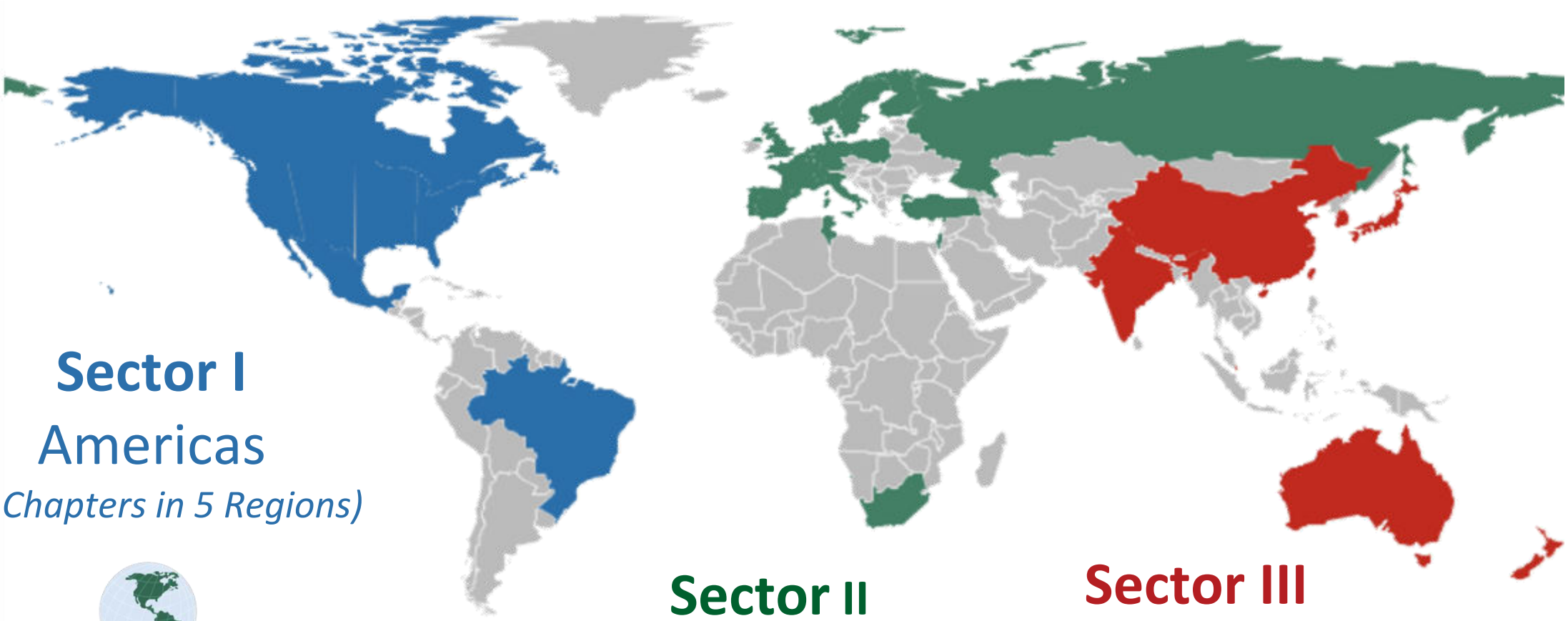
NOTE: Seven or more of the above WGs and Initiatives have a relationship to MBSE

Sectors, Regions and Chapters

- At the heart of INCOSE is the ability to connect people.
- Whether you are interested in increasing your circle of influence, or in working on an issue, INCOSE Chapters offer unparalleled points of connection.

INCOSE: 3 Sectors / 65* Chapters / 76 Countries

* Emerging (new) chapters not reflected in total above .



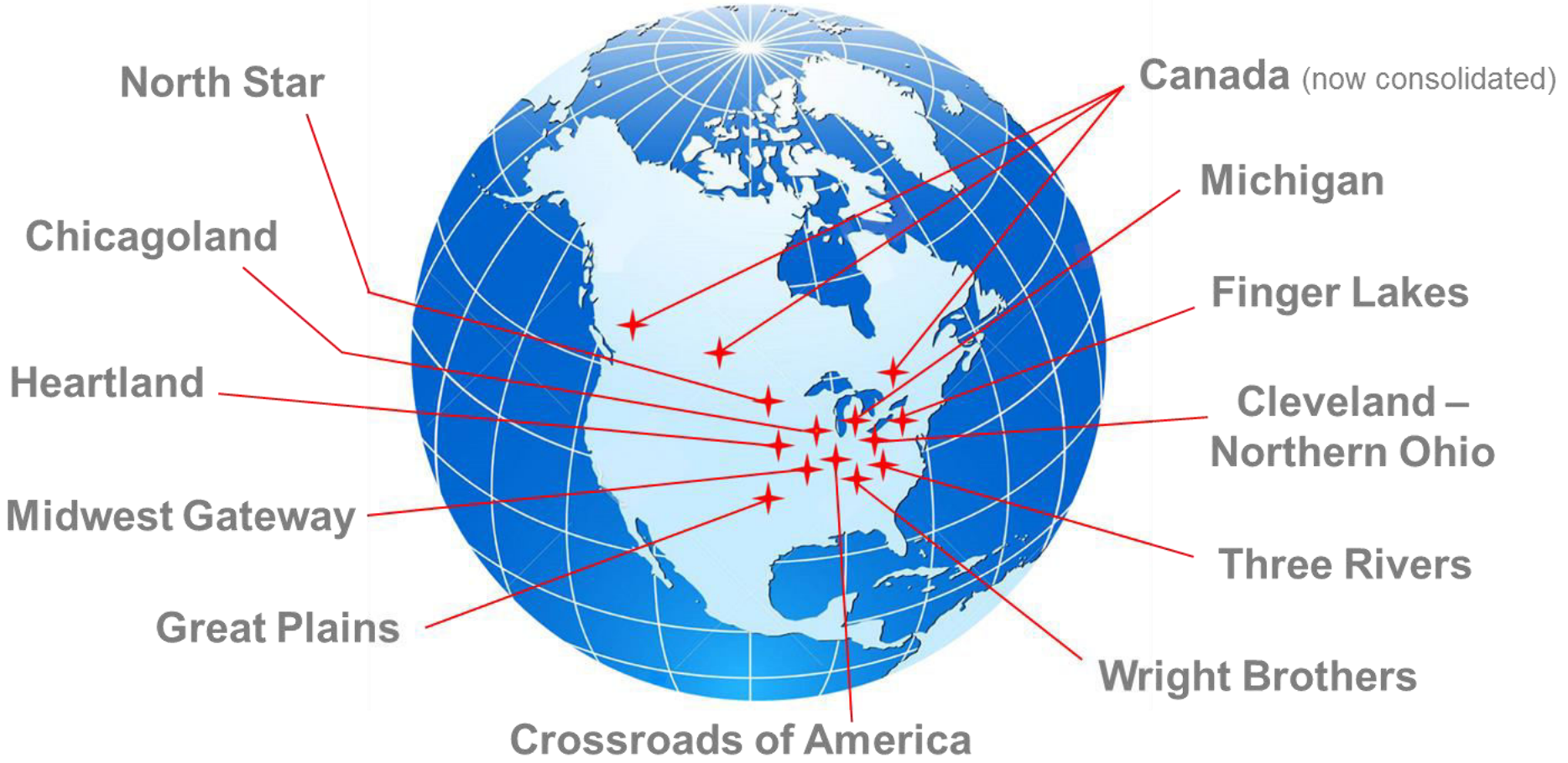
Sector I
Americas
(46 Chapters in 5 Regions)

AMERICAS

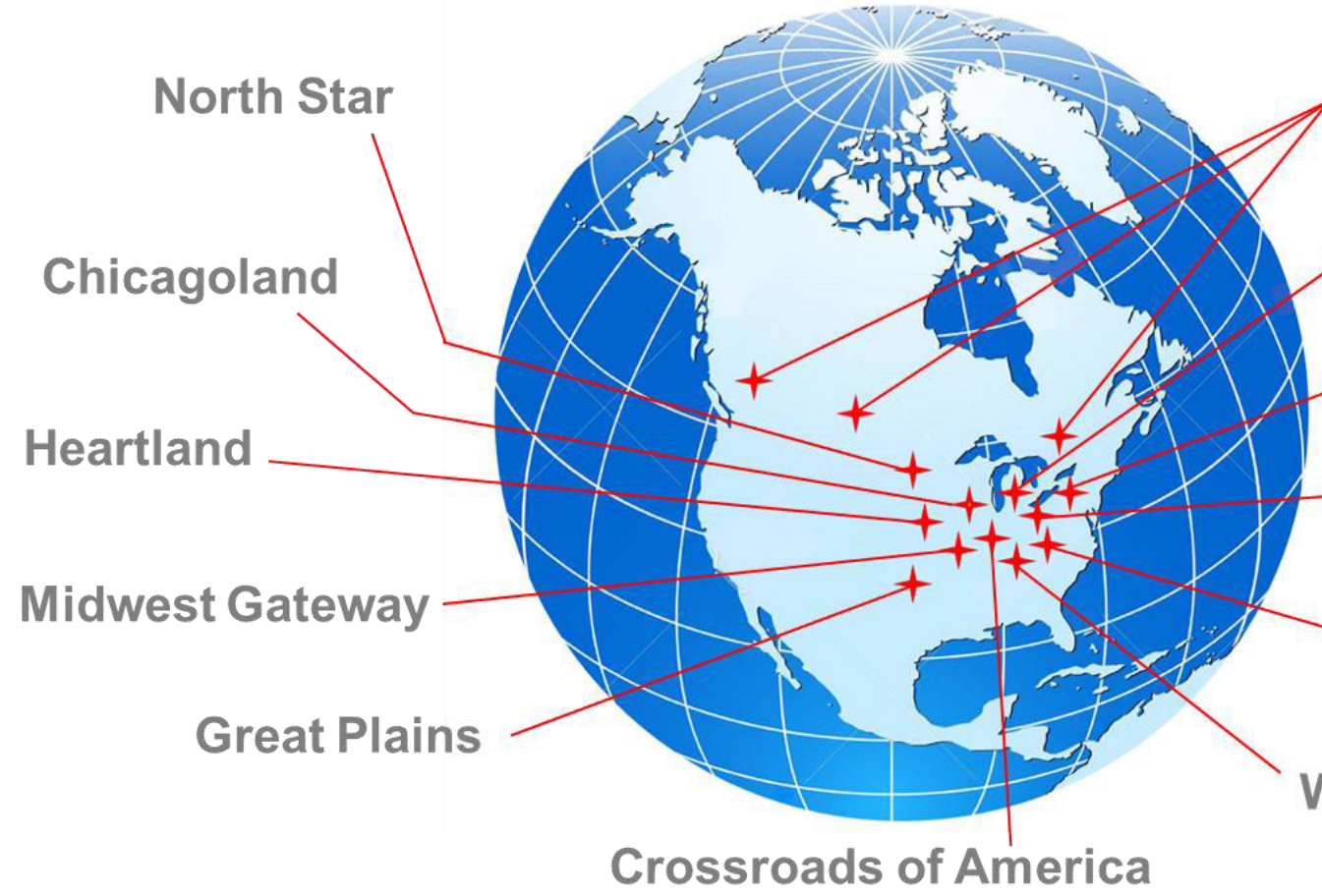
Sector II
EMEA
(16 Chapters)

Sector III
Asia-Oceana
(9 Chapters)

The 12 Chapters of the INCOSE Americas Sector
Great Lakes / North-Central (GLNC) Region

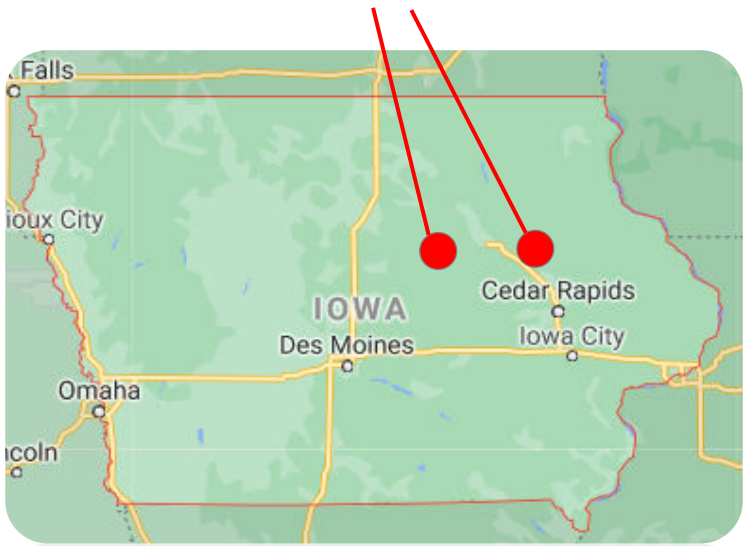


The 12 Chapters of the INCOSE Americas Sector
Great Lakes / North-Central (GLNC) Region



Co-Host Chapter: INCOSE Heartland

HEARTLAND CHAPTER



- Founded in 1996 by a group of Collins & few other systems engineers, Cedar Rapids, Iowa
- Received INCOSE Chapter Silver Award 8 years in a row. Bronze Award 2021.
- Supported GLRC13 and 14 Regional Conferences.
- Spearheaded over 1 dozen regionally-offered co-organized virtual chapter meetings throughout the pandemic with over 1000 attendees
- **Current Leadership**
  - President: Shadrak R. Murugesan
  - Past-President: Obi Odenigbo
  - Treasurer: Andrew Muxen
  - Program Director: Sean Mahrt
- **Develop local initiatives such as**
  - SE certification programs
  - Technical Presentations
  - Activities with other professional organizations

Contact: *Sean Mahrt*
mahrtsean@johndeere.com

Heartland Chapter Officer Elections 2022
All Positions Open (Iowa Statewide)

Supporting Guest Chapter: Wight Brothers

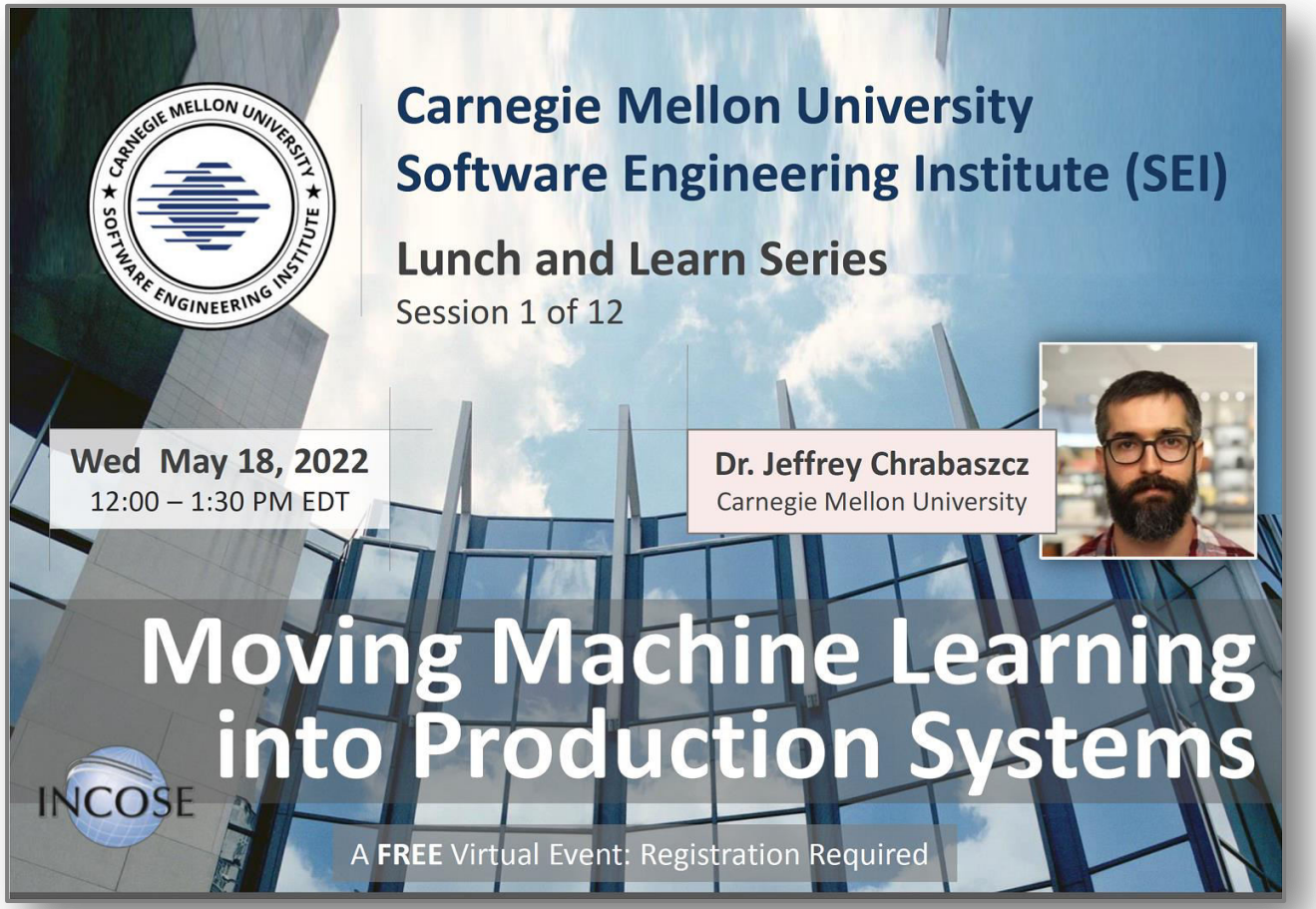
- Serving the INCOSE Southern Ohio territory
- Dayton, Cincinnati and Columbus
- Rich diversity of industry, education and government organizations
- Chapter President, Dr. David Long

INCOSE

Supporting Guest Chapter: Three Rivers

- Overview: Three Rivers Chapter (TRC)
  - Serving Southwestern Pennsylvania (Greater Pittsburgh Area), Founded 2010
  - Expanding into Western and Central Pennsylvania. Bronze Chapter Award, 2021.
- 2021-22 Chapter Growth Initiative
  - Full Leadership Team – 7-member Board elected and installed in Spring 2021
  - Looking for members who want to engage and assist the Chapter growth.
  - Have actively engaged (local Pittsburgh) INCOSE CAB and Academic Council member organization Carnegie Mellon University (CMU) Software Engineering Institute (SEI),
- Regionally and Internationally Offered Chapter Meetings & Events
  - Organizing and supporting co-hosted meetings with other chapters in the GLNC region.
  - Spearheaded an INCOSE Multi-Chapter “Agile MBSE” Lunch & Learn Series of 8 Sessions Sept 2021 – Jan 2022. The 6-chapter collaboration attracted approx. 2000 attendees. All sessions were recorded and slides/videos are posted for FREE viewing.
  - Have initiated a 12-Session Lunch & Learn Series with Carnegie Mellon SEI. Session 1 was held Wed May 18, 2022 session 2 is scheduled for Wed June 15, 2022.

Session 1 of 12: INCOSE CMU-SEI Lunch & Learn Series Launched on Wed May 18, 2022



Dr. Jeffrey Chrabaszcz is a machine learning research scientist at Carnegie Mellon University, where his research focuses on software architecture for machine learning systems. He holds a BA in Psychology from the George Washington University and a PhD in Neuroscience and Cognitive Sciences from University of Maryland, College Park.

Previously, Dr. Chrabaszcz was the founding member of the Data Science and Machine Learning team at the data company Govini, winner of a US$400M contract with the US Department of Defense. He helped the agent-based modeling company Epistemix, which closed their series A last year. Since 2010, Dr. Chrabaszcz has run a statistical consultancy focused on medical device and pharmaceutical companies.

Organizing/Supporting INCOSE Chapters:

THREE RIVERS

CANADA

WRIGHT BROTHERS

MICHIGAN

CHICAGOLAND

HEARTLAND CHAPTER

INCOSE CMU-SEI Lunch & Learn Series

INCOSE | Carnegie Mellon Software Engineering Institute

TIM MORROW

Carnegie Mellon University Software Engineering Institute CERT Division Situational Awareness Technical Manager

Tim has been a member of the CMU-SEI staff for 18 years, and provide acquisition and technical support in the areas of system of systems, system and software architecture and engineering development and analysis, cybersecurity, risk management, process development and improvement. His team works with DoD, USG, and commercial organizations employing a hybrid network environment are able to observe their security posture in a quantitative or strongly qualitative manner for management of security and other risks throughout the system engineering lifecycle.

EDUCATION: M.S., Electrical Engineering, University of Pittsburgh, Pittsburgh, PA; B.S., Electrical Engineering, Pennsylvania State University, University Park, PA

SAVE THE DATE!

Session 2 of 12

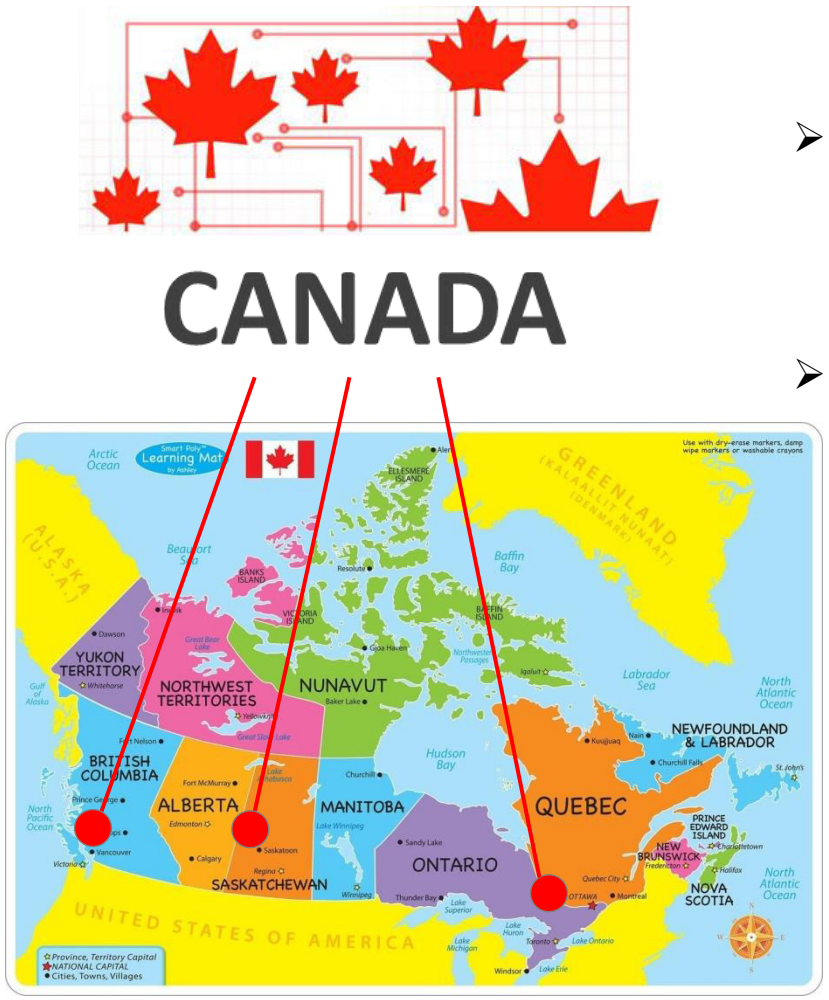
Topic: Zero Trust

Wed June 15, 2022

12:00 - 1:30 PM EDT

(11:00 AM - 12:30 PM CDT)

Supporting Guest Chapter: INCOSE Canada



- Currently consolidating Western (Vancouver) and Eastern (ON/QC) Chapters to form a National Chapter. A Central Canada division is possible.
- Prior to COVID: Successfully ran four national conferences with up to 170 attendees. Had also run multiple evening workshops local to Ottawa with coast-to-coast virtual attendance.
- **Leadership** (2022 election planning has started)
  - President: Mike Meakin
  - Vice President: Ray Barton
  - Treasurer: **OPEN** *(Please Contact if Interested)*
  - Membership Director: Derya Marquette
  - Webmaster /IT: Terry Fitzgerald

Develop local initiatives such as

- Professional Development workshops in SE
- Industry recognition and advocacy for SE
- Government advocacy of SE
- Activities with other professional organizations
- Establish local branches and divisions

Contact:

Derya Marquette

derya.marquette@incose.org

Mike Meakin

mmeakin@innuvativesystems.com

ANNOUNCEMENT:

New (National) Website has been Launched:

www.incose.org/Canada

Much Thanks to Terry!

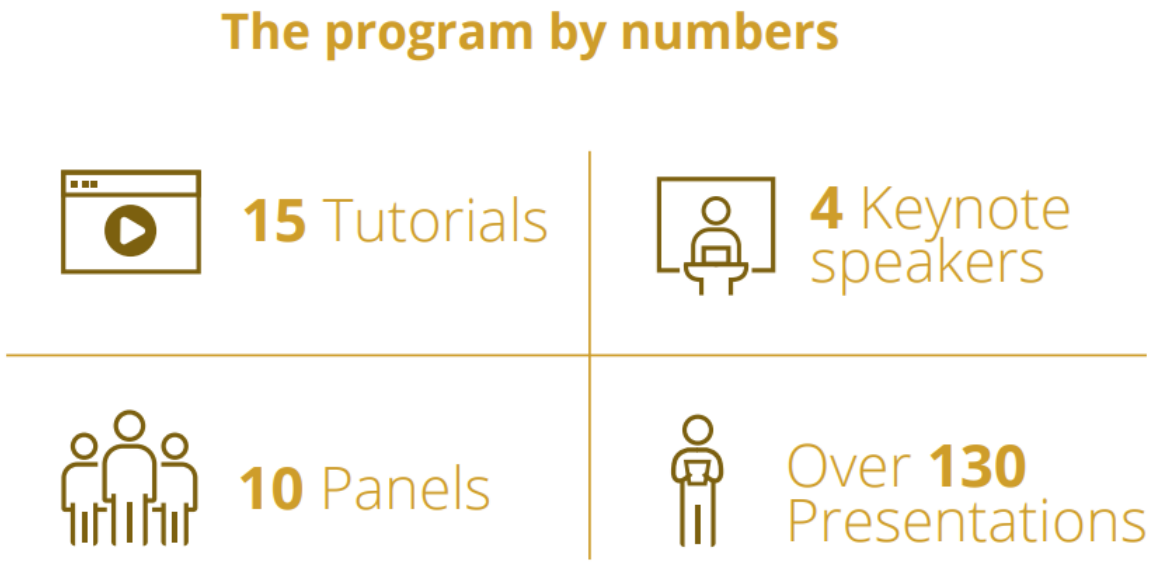
INCOSE Michigan: Co-Host Chapter

- Overview
  - Serving the State of Michigan and two Student Divisions (UMICH and MTU)
  - 225 Members (24 are Students) / Also serve 300+ CAB Associate Members
  - Established in early 1990s as the “Detroit Tri-State” Chapter serving MI and parts of OH, IN and IL. Became the “Michigan” Chapter in 2009 coinciding with the formation of the Cleveland-Northern Ohio Chapter (2009) and the Chicagoland Chapter (2010).
  - Hosting the 32nd Annual INCOSE International Symposium (IS2022), June 25-30, 2022
- 2022 Chapter Leadership Team
  - Robin Mikola – President
  - Garima Bhatia – President-Elect / Vice President
  - Samantha Lutz – Secretary
  - Dean Norfleet – Treasurer
  - Stephen Cash – Program Committee Chair
  - Dr. Robert Bordley (University of Michigan INCOSE Student Division Advisor)

INCOSE International Symposium

International Symposium 2022 (IS2022)

- June 25 - June 30, 2022.
- A hybrid event with the physical portion at Huntington Place (Cobo Center), Detroit, MI (USA)
- Theme: **The Power of Connection**



key event
Figures

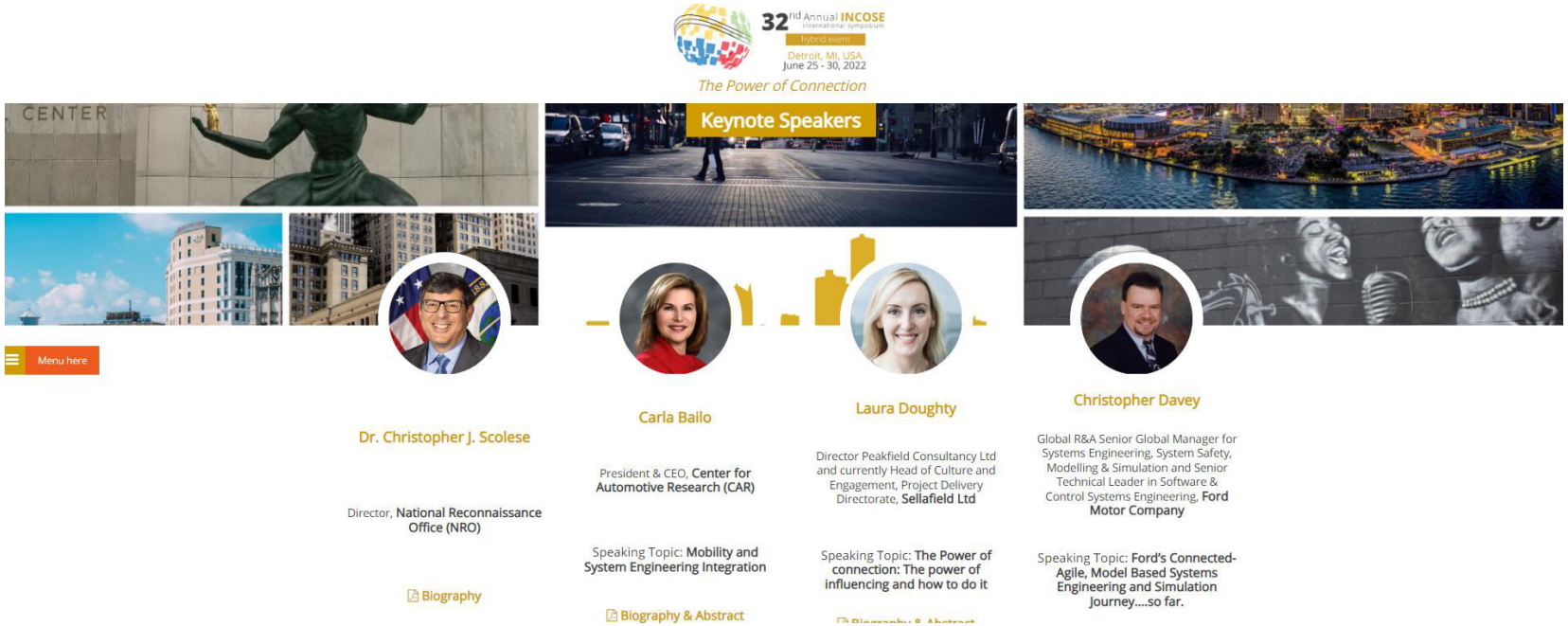
Average of
900
participants

- The INCOSE International Symposium has been taking place uninterrupted since 1991.
- It is the largest annual gathering of people who do systems engineering.
- The event includes presentations, case studies, workshops, tutorials and panel discussions.
- The program attracts an international mix of professionals at all levels, and includes practitioners in government and industry, as well as educators and researchers.

About the International Symposium (IS)

Why Should You Attend IS2022?

- Share ideas, network, build competency, pursue certification.
- Contribute to the advancement of the profession through collaboration on tools, processes and methodologies.
- Learn about new offerings in training and education, and forge new partnerships.
- Tickets from $500.
- Listen to talks from global leaders such as:



Book your place at www.incose.org/symp2022

Keynote Speakers

Dr. Christopher J. Scolese

Director, **National Reconnaissance Office (NRO)**

Speaking Topic: **Architecting the Future: The Role of SE and DE at the NRO**

Carla Bailo

President & CEO, **Center for Automotive Research (CAR)**

Speaking Topic: **Mobility and System Engineering Integration**

Laura Doughty

Director Peakfield Consultancy Ltd and currently Head of Culture and Engagement, Project Delivery Directorate, **Sellafield Ltd**

Speaking Topic: **The Power of connection: The power of influencing and how to do it**

Christopher Davey

Global R&A Senior Global Manager for Systems Engineering, System Safety, Modelling & Simulation and Senior Technical Leader in Software & Control Systems Engineering, **Ford Motor Company**

Speaking Topic: **Ford's Connected-Agile, Model Based Systems Engineering and Simulation Journey....so far.**

Monday June 27th
INCOSE IS2022 Attendee Reception

Ford Fireworks
Detroit

Riverfront Terrace
Huntington Place (Cobo Center)

View Program and Register: www.incose.org/symp2022

Dear Christopher Hoffman,

The technical program is on-line. Start exploring the program and build your own agenda.

Technical Program

Saturday, June 25 - Sunday, June 26
12 Tutorials

Monday, June 27 - Thursday, June 30
130+ Papers and Presentations on Systems Engineering
5 tracks
7 panels

4 Inspiring Keynote Speakers
Monday, June 27 : Dr. Christopher Scolese (NRO)
Tuesday, June 28 : Carla Bailo (Center for Automotive Research)
Wednesday, June 29 : Laura Doughty (Peakfield Consultancy Ltd & Sellafield Ltd)
Thursday, June 30 : Christopher Davey (Ford Motor Company)

24 Application Domains
Top Domains : Defense, Enterprise SE, Aerospace, Academia, Automotive, Social/Sociotechnical and Economic Systems, Industry 4.0 & Society 5.0, Biomed/Healthcare/Social Services, Infrastructure, Oil and Gas

34 Topics Represented
Top Topics : System Architecture/Design Definition, MBSE, Systems Thinking, Needs and Requirements Definition, Modeling/Simulation/Analysis, Processes, Systems of Systems, Resilience, Decision Analysis and/or Decision Management, Complexity, Product Line Engineering, Project Planning, Project Assessment, Project Control, Technical Leadership, Verification/Validation, System Security, Measurement and Metrics, Artificial Intelligence, Machine Learning

28 Countries Represented
Australia, Austria, Brazil, Canada, China, Denmark, Finland, France, Germany, Hungary, India, Israel, Italy, Japan, Lebanon, Lithuania, Malaysia, Netherlands, Norway, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, United Kingdom, United States

BROWSE THE PROGRAM

Certification

IS2022 is just one of many of events eligible for PDUs. You can claim 1 PDU towards your INCOSE Systems Engineering Professional (SEP) certification per hour of participation.

Exhibit hall

Come and meet our exhibitors. More than 40 exhibitors will showcase their products, services and/or training.

Registration

Register **before May 15th** to benefit from the discounted rate.

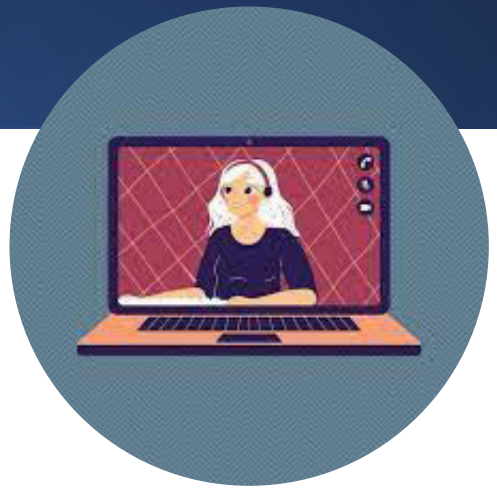
REGISTER

Hotel Reservation

A limited number of guestrooms are available for IS participants at the Detroit Marriott at the Renaissance Center.
Reservation deadline: May 31st

BOOK YOUR HOTEL

Conferences and Connections

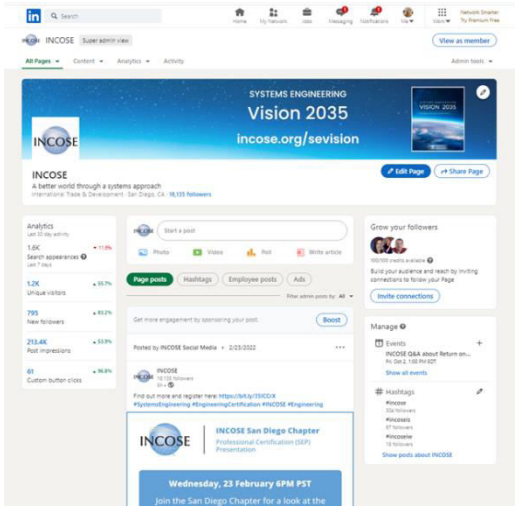


- https://www.incose.org/events-and-news

Engage with INCOSE **Follow us on social media**

Follow, like, comment, and share on all INCOSE social media platforms.

- LinkedIn: https://www.linkedin.com/company/44559/
- LinkedIn Group: https://www.linkedin.com/groups/7499834/
- Facebook
- Twitter
- Instagram
- More to come



Thank You!

INCOSE:

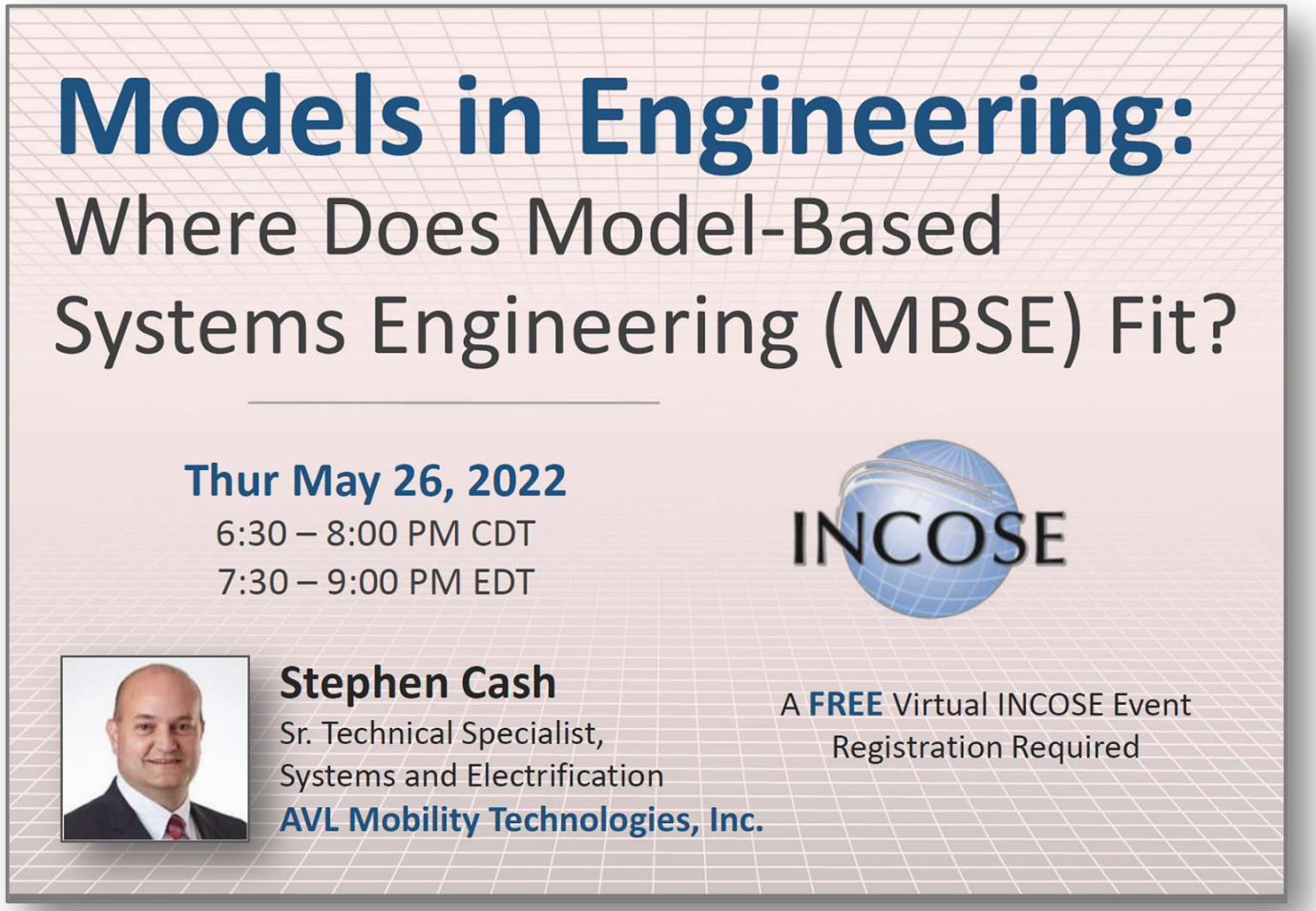
The global professional association for systems engineers

International Council on Systems Engineering

A better world through a systems approach

www.incose.org

Without further ado …..



Steve Cash is a Certified Systems Engineering Professional (CSEP) through the International Council on Systems Engineering (INCOSE). Steve has spent 25+ years developing his systems engineering skills through experiential learning. While his experience is broad, he has spent the majority of that time in the automotive sector supporting the development of engine controls, transmission controls, suspension controls, and lithium-ion batteries. His roles over the years have ranged from electrical engineer to project lead to subject matter expert to manager. Steve holds a B.S. in Electrical Engineering from Marquette University. He is also a graduate of the INCOSE Institute for Technical Leadership.