Mobility Systems: Land, Sea, Air and Space





The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded (in 1990) to develop and disseminate the trans-disciplinary principles and practices that enable the realization of successful systems. INCOSE is designed to connect systems engineering 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.





18000+



74 CHAPTERS



55 WORKING GROUPS



3489



VISION

A better world through a systems approach.



To address complex societal and technical challenges by enabling, promoting, and advancing systems engineering and systems approaches.

119 INCOSE Corporate Advisory Board (CAB) Member Organizations (June 2021)

321 Gang, Inc

Aerospace Corporation, The

Airbus

AM General LLC

Analog Devices, Inc.

ARAS Corp

Australian National University

Aviation Industry Corporation 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 SE Programs

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

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Georgia Institute of Technology

IBM

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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

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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



Alliances and Collaborations – by Memorandum of Understanding (MoU) *
CLICK ON THE LOGOS BELOW TO LEARN MORE















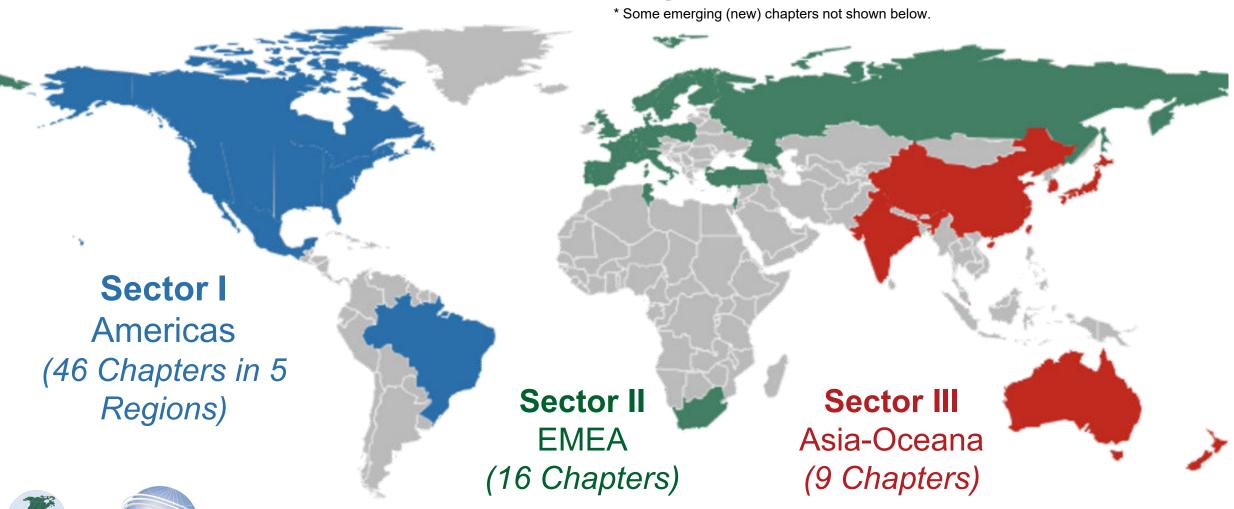






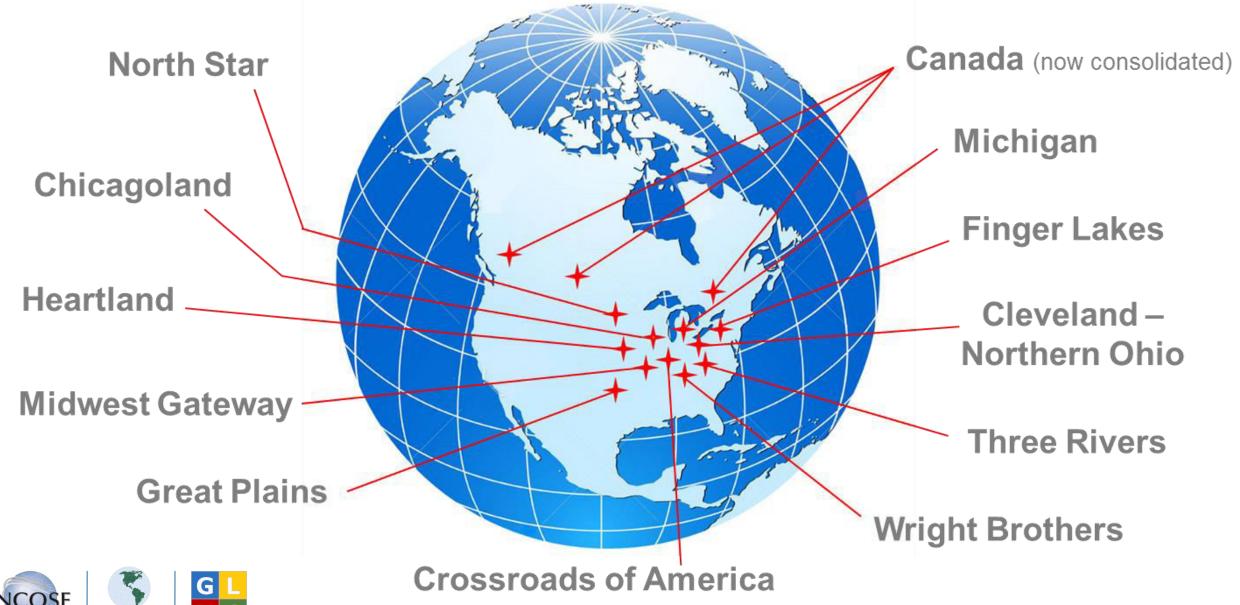
^{*} Not all INCOSE inter-organizational Alliances and Collaborations are shown. This is a sampling of example MoUs in June of 2021.

Three Sectors with 74* Chapters in 35 Countries



AMERICAS

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





Sponsors and Partners to Date

INCOSE 14th Annual GLNC Regional Conference

Detroit, MI, USA Fall 2022

Hybrid Edition









































Systems & Mission Engineering Conference (Complimentary Viirtual Event Connections)



Vehicle Systems and Technologies

Electric Propulsion ● Autonomous Control ● Communication (V2X) ● Batteries & Charging



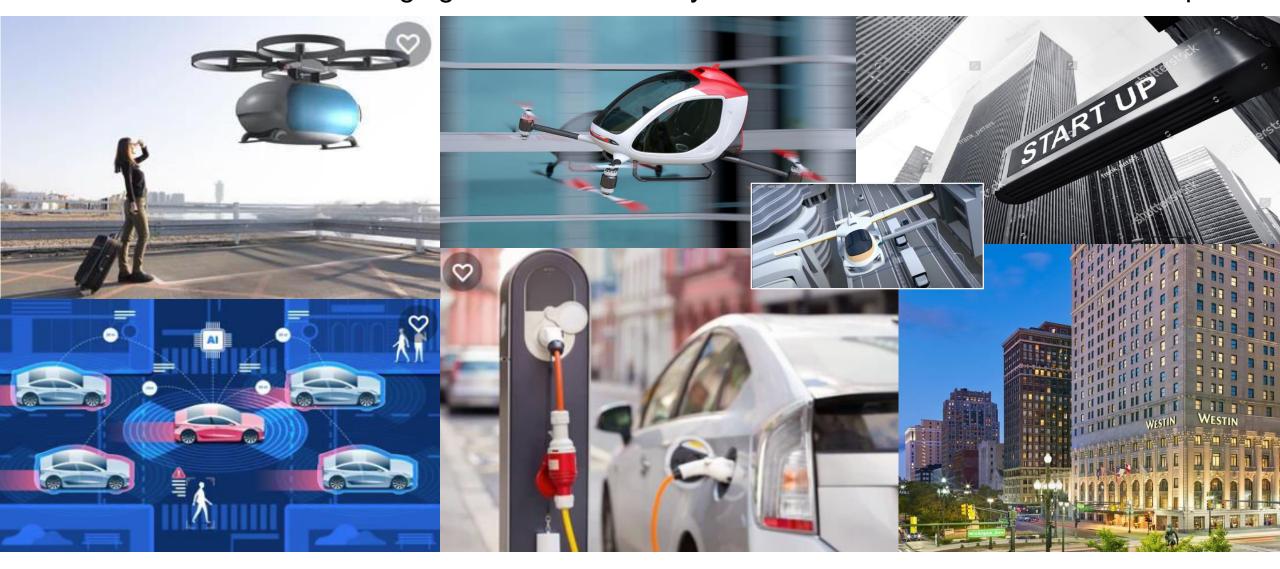
Urban Planning / Smart Cities

Future Vehicles

EV Charging

Connectivity

Innovation & Economic Development



Critical Infrastructure

Electric Power Grid • Telecommunications • IoT • Transportation Systems



Keynote Speakers (with notable books)



Dr. Tina P. SrivastavaMIT Aeronautics and Astronomics Engineering
Fellow, MIT System Design & Management CoChair, INCOSE PM-SE Integration WG



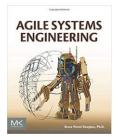


(1) Innovating in a Secret World: The Future of National Security and Global Leadership.(2) Integrating Program Management and Systems Engineering: Methods, Tools and Organizational Systems for Improving Performance (contributing author).



Dr. Bruce Powel DouglassSenior Principal Systems Engineer, MITRE Chief Evangelist (SysML/UML), IBM (1995-2019)



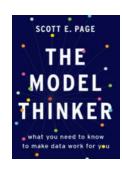


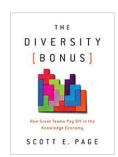
(1) Agile Model-Based Systems Engineering Cookbook. (2) Agile Systems Engineering *

* Bruce has authored twenty books.



Dr. Scott PageProfessor of Complexity, Social Science, and Management; Center for the Study of Complex Systems, University of Michigan



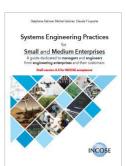


(1) The Model Thinker: What You Need to Know to Make Data Work for You. (2) The Diversity Bonus: How Great Teams Pay Off in the Knowledge Economy

Keynote Speakers (with notable books)



Claude Laporte, Ph.D.
Co-Chair, INCOSE Small Business Systems
Engineering Working Group
Professor, École de Technologie Supérieure
(ÉTS), Montreal, Quebec, Canada





(1) Systems Engineering
Practices for Small and Medium
Enterprises (co-author). (2)
Software Quality Assurance (co-author)



Nehal PatelSenior Global Program Manager,
Amazon Robotics



Practical Project Management for Engineers

Keynote and Featured Speakers



Dr. Rick Hefner
Program Director,
Center for Technology
and Management
Education, Caltech

Rick Hefner is the Program Director for Caltech's Center for Technology and Management Education, which designs and delivers customized professional training to technology-driven organizations. He has over 40 years of experience in systems development, research, and management, and has served in industrial, academic, and government positions. Dr. Hefner has worked with numerous companies including AeroVironment, Applied Physics Laboratory, Applied Materials, Ares Management, Boeing, DRS Technologies, Halliburton, Herbalife, Honeywell, Jet Propulsion Laboratory, John Deere, L-3 WESCAM, Maytag, Motorola, Northrop Grumman, Pacific Bell, Raytheon, Schlumberger, Southern California Edison, St. Jude Medical, Toshiba, TRW, U.S. Navy, and Xerox. Dr. Hefner is credited with over 200 publications and presentations and is a certified Lean Six Sigma Black Belt. He earned his PhD from UCLA and his MS and BS from Purdue University. He is Past-President, INCOSE Los Angeles Chapter.

Keynote and Featured Speakers (not all shown)



Trevor Pawl
Chief Mobility Officer, State of Michigan
Michigan Economic Development Corporation
Office of Future Mobility and Electrification

Trevor Pawl is the Chief Mobility Officer for the State of Michigan, and leads the Michigan's Office of Future Mobility and Electrification. In this position, Pawl is responsible for working across state government, academia and private industry to grow Michigan's mobility ecosystem through strategic policy recommendations and new support services for companies focused on the future of transportation.

Visit: https://www.michiganbusiness.org/ofme/



Thomas M. Doehne
Office of Technology Incubation and Innovation, Technology Transfer
NASA Glenn Research Center

The Technology Transfer Office at NASA Glenn Research Center (GRC) ensures that innovations developed for aeronautics and space exploration are made broadly available to the public – boosting the U.S. economy and maximizing the return on the nation's investment in NASA. The GRC has unique expertise in many areas, including materials and coatings, sensors, satellite and deep space communications, electrical/electronics, and power generation and storage. In addition, the office has a diverse portfolio of inventions available for licensing, especially in the categories of sensors, aeronautics, and information technology and software.

Visit https://technology.grc.nasa.gov/ and https://technology.grc.nasa.gov/ and https://technology.grc.nasa.gov/ and https://www.youtube.com/watch?v=QljEHEADX1k



Kerry Lunney

Dragidant International Council on S

President, International Council on Systems Engineering (INCOSE) Engineering Director and Chief Engineer, Thales Australia

Kerry Lunney is Engineering Director and Chief Engineer of Thales Australia. In this role she provides technical leadership and governance, and participates on a number of technical boards and communities of Thales. Kerry has extensive experience developing and delivering large system solutions, including design, software development, infrastructure implementation, hardware deployments, integration, sell-off, training and on-going support. She has worked in various industries including ICT, gaming, financial services, transport, and aerospace and defense. She has worked in Australia, Asia and the USA. Her experience includes combat systems, mission systems, communication systems, road and rail ITS's, flight simulators, security systems, vehicle electronic systems, gaming systems and ICT foundation systems. Kerry is currently serving a two-year term (2020-2021) as President, International Council on Systems Engineering (INCOSE). Prior to this she served as a member of the INCOSE Board of Directors representing INCOSE's Asia-Oceania Sector, and as national president of the Systems Engineering Society of Australia (SESA). Kerry is also a member of IEEE, a Fellow of Engineers Australia with the status of Engineering Executive and Chartered Professional Engineer, and a certified INCOSE Expert Systems Engineering Professional (ESEP).

Keynote and Featured Speakers (not all shown)



Brett Hillhouse
Global Automotive Leader
IBM AI Applications

As Global Automotive Leader for IBM AI Applications, Brett Hillhouse's responsibilities include industry and technology strategy, as well customer success for automotive companies around the world. His 25+ years of industry experience includes transformation engagements at global automotive and aerospace OEM's and Tier 1 suppliers. The scope of these engagements include transformation of product development, reuse strategy and implementation, manufacturing 4.0, supply chain management and compliance consulting. Previously, Mr. Hillhouse has held several industry and leadership positions at IBM and Siemens (formerly SDRC). Brett holds a BS in Mechanical and Aerospace Engineering from Cornell University.



Gavin Brown

Chair, North American Space Summit (NASS) Executive Director, Michigan Aerospace Manufactures Association (MAMA) Gavin Brown heads up the Michigan Launch Initiative (MLI) which is focused on establishing vertical and horizontal launch space ports in the State of Michigan. He is the executive director of the Michigan Aerospace Manufactures Association and chairs the North American Space Summit (NASS), held annually in Traverse City, MI.

(Overview - Press Story)



Jon Mooney, PE

Co-Chair, Smart Cities Initiative, International Council on Systems Engineering (INCOSE) Principal, Acoustics by JW Mooney, LLC

Jon Mooney, PE, is Co-chair of the INCOSE Smart Cities Initiative, He has an extensive career as a consultant specializing in acoustics, vibration and systems engineering, and holds an MBA from St. Ambrose University, and a B.S. in Aerospace Engineering from the University of Cincinnati. Jon is a contributing editor to Walls & Ceilings magazine, an associate editor to Noise Control Engineering Journal, and author of Inventor's Guide to Identifying Profitable Ideas, JW Mooney's Practical Architectural Acoustics Notebook, and How to Be a Good Inventor. Recent Acoustics by JW Mooney, LLC projects include Willis Tower, Old Armory Concert Hall, Nationwide Children's Hospital Data Center, Northrop Grumman Conference Center, Genesis Hospital MRI suite, Ohio Health Neuroscience Wellness Center, and ISU Sports Performance Center. As Lead Acoustics Engineer with KJWW Engineering Consultants, 2007-2017, Mr. Mooney's 400+ projects included Bettendorf Event Center, Cedar River Fine Arts, Iowa Central Bio-Science, Renaissance Chicago, University of Chicago, Argonne National Laboratory, and Chicago Athletic Association. Between 1993-2007 Jon was Acoustics Consultant for 100+ projects including Oak Ridge National Laboratory, Cincinnati Art Museum, Carnegie Theater, Curtis Studios, Ray & Joan Kroc Corps Community Center. Jon's early career with L3 KDI Precision Products and Martin Marietta, as Aerospace R&D and Co-op Engineer, included work on the Patriot Missile, Skylab and Space Shuttle.

INCOSE GLNC14 Conference Program Schedule:

Event Day 1 (Arrival / Private Tour)

Arrival - Tour - Check-in - Set-up - Reception



ACM Tour Time: 1pm - 4pm



and customizable test environments, ACM offers:

Comprehensive Intelligent Transportation System (ITS) network

Closed data network to support testing and product development

Professional engineering services

The American Center for Mobility (ACM) is a collaborative effort comprised of government, industry and academic organizations focused on accelerating the mobility industry through research, testing, standards development and educational programming.

Located in Southeast Michigan on over 500-acres at the historic Willow Run site in Ypsilanti, MI.

Hosted by:





INCOSE GLNC14 Conference Program Schedule: Event Day 2 (Main Program)

Plenary Track (Live-Streamed)

Breakout Track (Zoom Hybrid)

Virtual/Live Exhibit Hall / Student Career Fair

Morning Plenary Track: 9:00am-12:30pm EST

Future Mobility

- Complex Systems of Systems
- Land, Sea, Air and Space
- Electrification, Autonomy, Connected
- IoT / AI / Telecommunications / GPS
- Infrastructure (local and global)
- Charging Stations / Infrastructure
- Smart Cities / Urban Planning
- Smart Mobility / Smart Intersections

Afternoon Plenary Track: 1:30pm – 5pm EST

Accelerating Innovation

- Start-up, Tech-Transfer, Small Business Programs (NASA, MEDC, other)
- Resources for Research, Development, Testing & Education/Training (Federal, State, Local, Private)
- Systems Engineering for rapid innovation, Start-ups, Small Business, Incubators, Lean/Agile projects in large organizations.

Breakout Track: (1) PM-SE Integration Workshop. (2) Bruce Douglass Agile MBSE Workshop.

INCOSE GLNC14 Conference Program Schedule: Event Day 3 (Main Program)

Plenary Track (Live-Streamed)

Breakout Track (Zoom Hybrid)

Virtual/Live Exhibit Hall / Student Career Fair

Morning Plenary Track: 9:00am-12:30pm EST

Engineering Systems

- Understanding, Designing and Managing Complex Systems
- Integrating Project/Program
 Management & Systems Engineering
- Infrastructure Systems Engineering
- SE Fundamentals and Competency
- System Thinking & Modeling
- Building Organizational SE Capability

Afternoon Plenary Track: 1:30pm – 5pm EST

MBSE / Digital Engineering

- Model-Based Systems Engineering (MBSE) / Agile MBSE
- Modeling Languages (UML, SysML, etc.)
- Systems for System Modeling
- MBSE and Modeling System of Systems
- Diversity in Applications of MBSE
- Accelerating Innovation Using MBSE

Breakout Track: (1) No Magic MBSE Tutorial. (2) Smart Cities Workshop - Part 1. (3) NASA Tech-Transfer Program Workshop .

INCOSE GLNC14 Conference Program Schedule: Event Day 4 (Workshops & Tour)

Tours

Breakout Tracks (Zoom Hybrid & Virtual)

_

Student Career Fair

Workshops (Hybrid/Virtual): 8:30am–5pm EST

Smart Cities Workshop

Part 2 of 21. Hosted by INCOSE
 Smart Cities Initiative with in-person and virtual participation from Urban Planning schools and cities worldwide.

Other Workshops/Tutorials

- Smart/Micro Grid Systems Modeling
- Additional MBSE-related material
- Overflow Sessions: NASA / MEDC
 Small Business & Start-up Programs

Tours: 9am – 5pm EST

Motown Museum

- Original Hitsville USA recording studio and offices. Amazing!
- https://www.motownmuseum.org/

Museum Group Discount Tickets Provided with Conference Registration

INCOSE GLNC14 Conference Program Schedule: Date Selection Information (Status on 16Dec2021)

The following date options are currently available for rescheduling at the Book Cadillac venue. All 5 options support the event program and floor plan layout "as designed" for the postponed Nov 30 – Dec 3, 2021 event.

Tuesday (Day 1) – Friday (Day 4) Date Options *

September 27-30, 2022

October 4-7, 2022

November 1-4, 2022

November 15-18, 2022

December 13-16, 2022

^{*} Mon-Thur dates (in the same week) are also available for all 5 of the above options.



INCOSE GLNC Quartely Virtual Student Systems Engineering (SE) Career Fairs



INCOSE Chapter
Sponsorship
Opportunity

Fall/Winter 2021-22 Virtual

Student SE Career Fair

Nov 22 - Feb 4



Explore the World of Opportunities in Systems Engineering (SE)

- Entry Level
- Internships

FREE to all students and recent graduates.

* The INCOSE/YOR virtual career fair system completed successful Bets sessing in April 2021. The Fall 2021 fair is a scale up that establishes

Nov 22 – Feb 4 (24/7)

- Browse Company Virtual Booths
- Use Chatbots/IT to Connect
- Visit INCOSF Welcome Center
- Upload Your Resume

Live Interactions:

- Coaching Sessions: Dec-Jan
- Interviews & One-on-OnesRound 1: Jan 25–27Round 2: Feb 2–4

Engage with INCOSE Corporate Advisory Board (CAB) and GLNC event-affiliated systems engineering (SE) employers:











VISIT CAREER FAIR
WEBPAGE

BAE SYSTEMS

... and more!

ine international council on systems Engineering (INCLOS) is a notrorprofit membership organization founded to develop and disseminate the transdisciplinary principles and practices that enable the realization of successful systems. INCOSE is designed to connect systems engineering 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 wishlifty in the world. I www.incsec.prg 1



VISIT SE CAREER FAIR

Powered by Norman http://secareerfair.xor.ai/incose

Virtual SE Student Career Fair

Call for Employers

Annual Booth Subscriptions | Next Fair: Fall/Winter 2021-22



Connect with Top Systems Engineering (SE) Talent:

- INCOSE-Affiliated SE Schools
- INCOSE Student Members

chase includes Fall/Winter 2021-22, Spring & Summer 2022 Fairs

he Fall 2021 fair is a scale up that establishes the envisioned on-going semi-annual event. Mucl

How the Fair Works

- Register for a Virtual Booth
- Set up virtual booth & chatbot
- Monitor chat & resume uploads
- Connect with best-fit candidates

Fall/Winter 2021-22 Fair

- Booth Set-up (takes 2-4 hrs) Dec 2021– Jan 21, 2022
- Live Interactions / Interviews Round 1: Jan 25-27 Round 2: Feb 2-4

Applicants seeking internship & entry-level SE positions are recruited from over 20 INCOSE-affiliated SE schools.









M DETROIT MERCY













THE UNIVERSITY OF ARIZONA

... and more!

isful systems. INCOSE is designed to connect systems engineering tunities in the interest of developing the global community of ns engineers and systems approaches to problems. We are als ocused on producing state-of-the-art work products that support and

View Booth Options / Register

Powered by http://secareerfair.xor.ai/incose

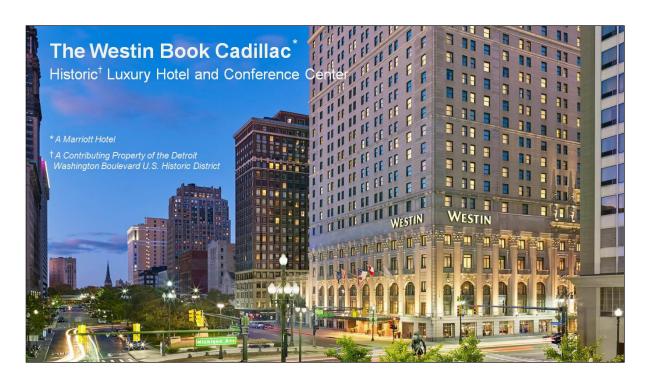
Virtual Student Systems **Engineering Career Fair***



https://secareerfair.xor.ai/incose

* There are 4 Fairs each year. The Fall/Winter 2021-22 Fair is setting up at this time. The Fall 2022 Fair will coincide with GLNC14. Booth purchases are on an annual basis.

The Conference Venue * - A Landmark Hotel Rich in History



The Westin Book Cadillac

Historic Luxury Hotel and Conference Center 1114 Washington Boulevard, Detroit, MI 48226

Antoine de la Mothe Cadillac (1658–1730) was a French explorer and adventurer in New France, which stretched from Eastern Canada to Louisiana on the Gulf of Mexico. In 1701, he founded Fort Pontchartrain du Détroit, which became the city of Detroit. He was commandant of the fort until 1710. Between 1710 and 1716, he was the governor of Louisiana,



Cadillac was born Antoine Laumet on March 5, 1658, in the small town of Saint-Nicolas-de-la-Grave in the province of Gascony (today in the Tarn-et-Garonne, Occitanie). His father, Jean Laumet, was born in the village of Caumont-sur-Garonne, and was a lawyer in the Parliament of Toulouse. Jean was appointed lieutenant to the judge of Saint-Nicolas-de-la-Grave in 1652 and judge in 1664. Antoine's mother, Jeanne Péchagut, was the daughter of a merchant and landowner. La Mothe's youth included rigorous study at a Jesuit institution where he learned theology, the law, agriculture, botany and zoology. He enlisted in the military as a cadet at the age of 17 and within a few years became an officer in the Clérambault regiment. In 1683, at the age of 25, he departed from France to the New World.

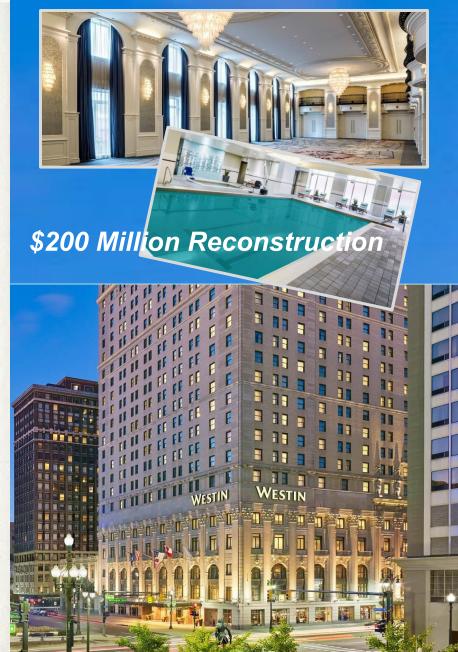
Hotel Cadillac – 1888



Book-Cadillac - 1924



Westin Book Cadillac – 2008



On the "Fifth Avenue of the Midwest" – 1924

Announcing the MAGNIFICENT, NEW



Book: Cadillac

m DETROIT

Opening the week of December 1, 1924, the new Book-Cadillac Hotel, Detroit, immediately takes rank with the finest hostelries of Europe and America.

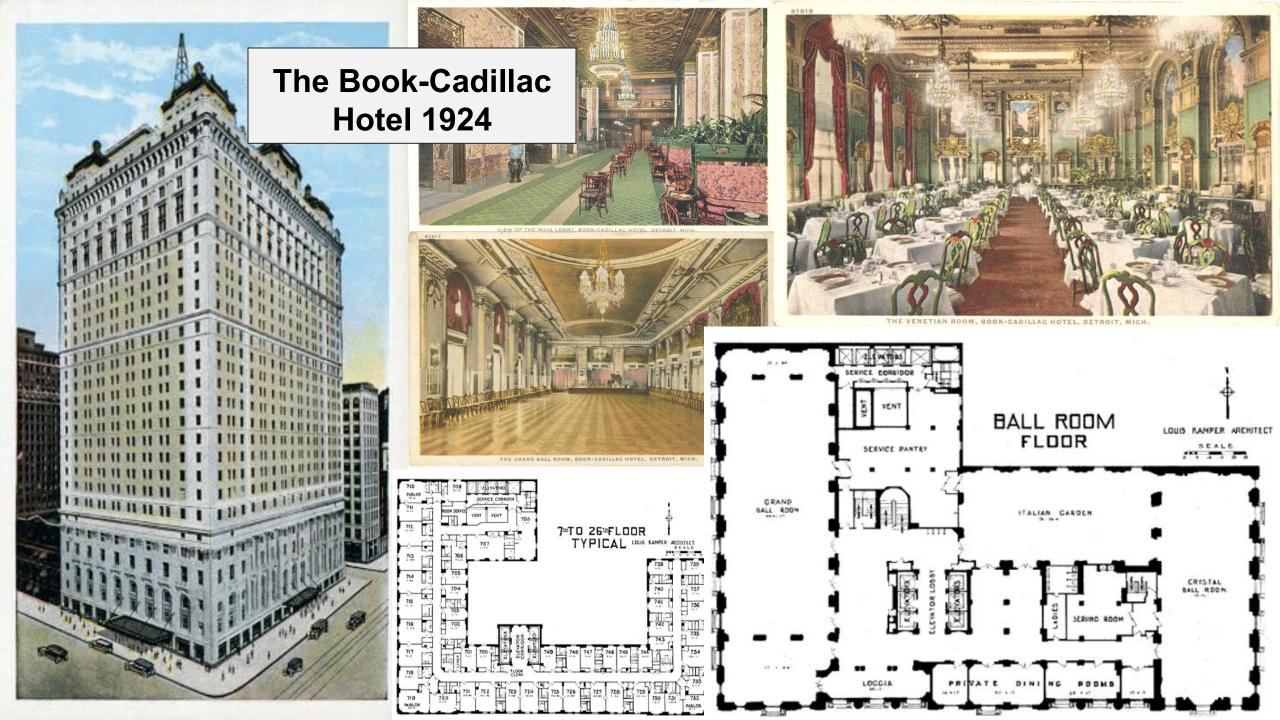
The Book-Cadillac rises on the site of the former Hotel Cadillac at the intersection of Washington Boulevard and Michigan Avenue. Towering twentynine stories above the street, with twelve hundred rooms and bath, it is the tallest hotel structure in the world.

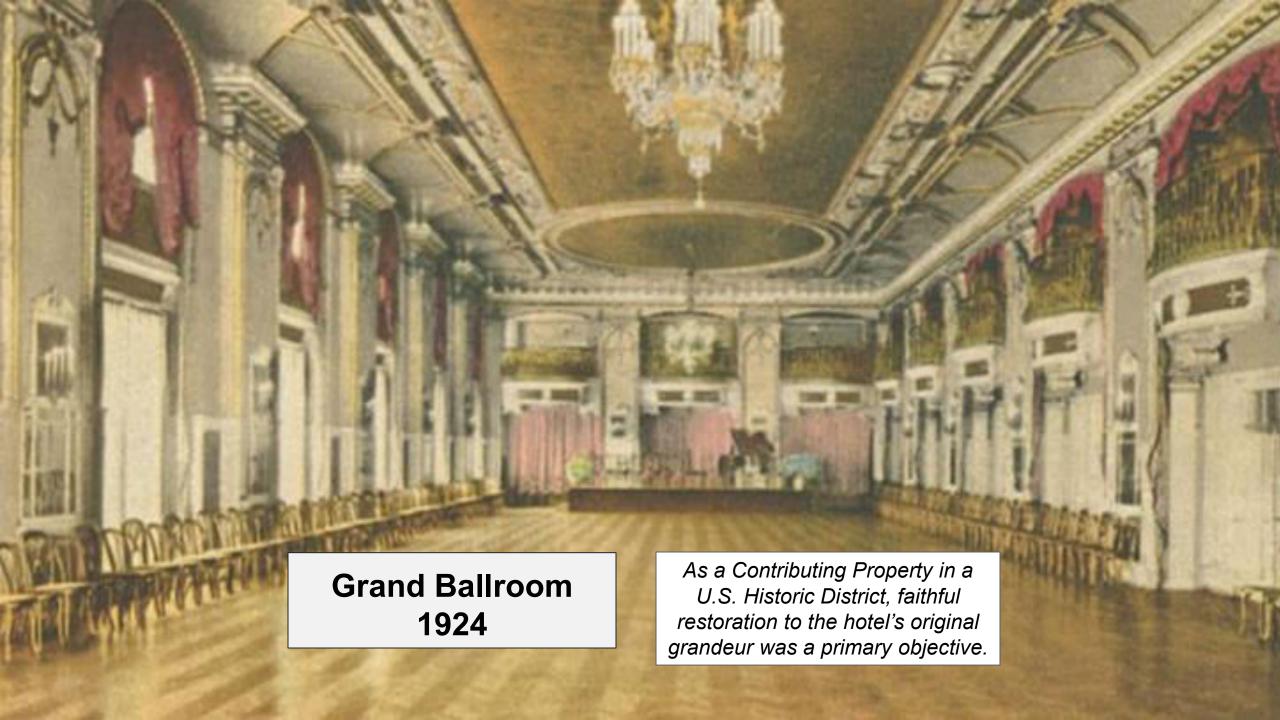
Under the personal direction of Mr. Roy Carruthers, nationally recognized authority in hotel management, every facility is provided for extending maximum courtesy and comfort to guests.

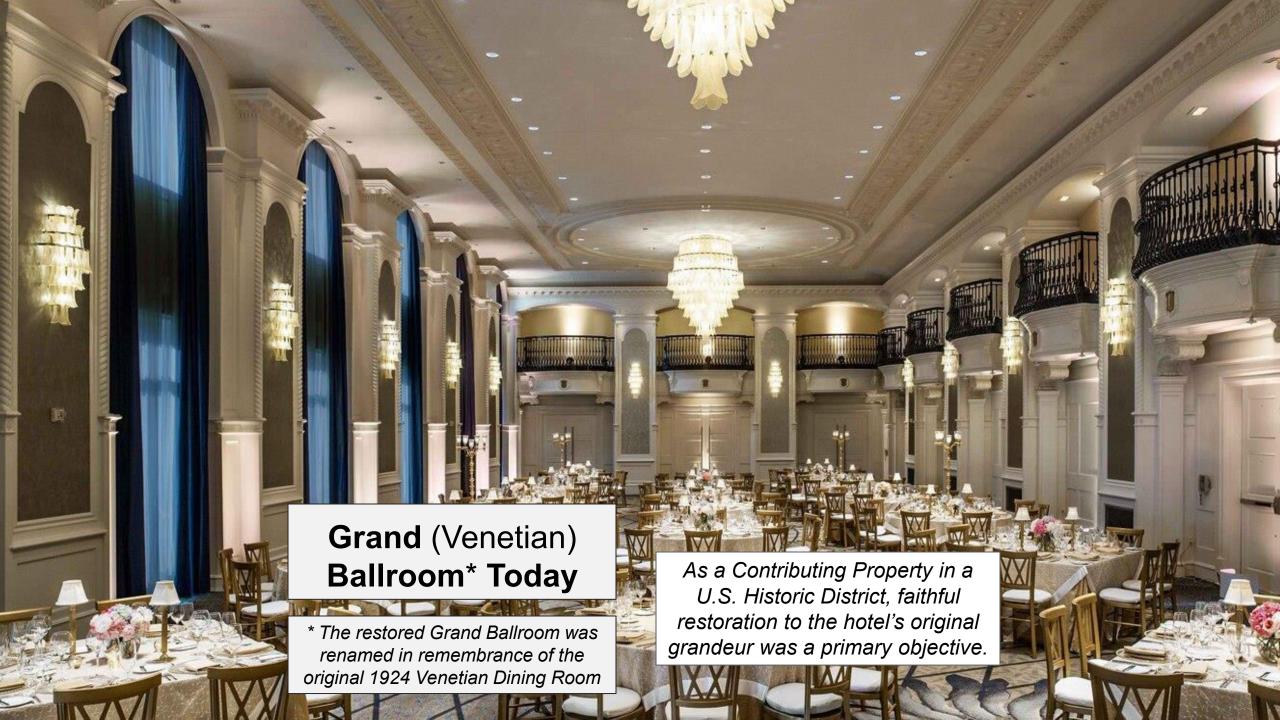
BOOK-CADILLAC HOTEL COMPANY, DETROIT

ROY CARRUTHERS, President R. J. TOMPKINS, Resident Manager



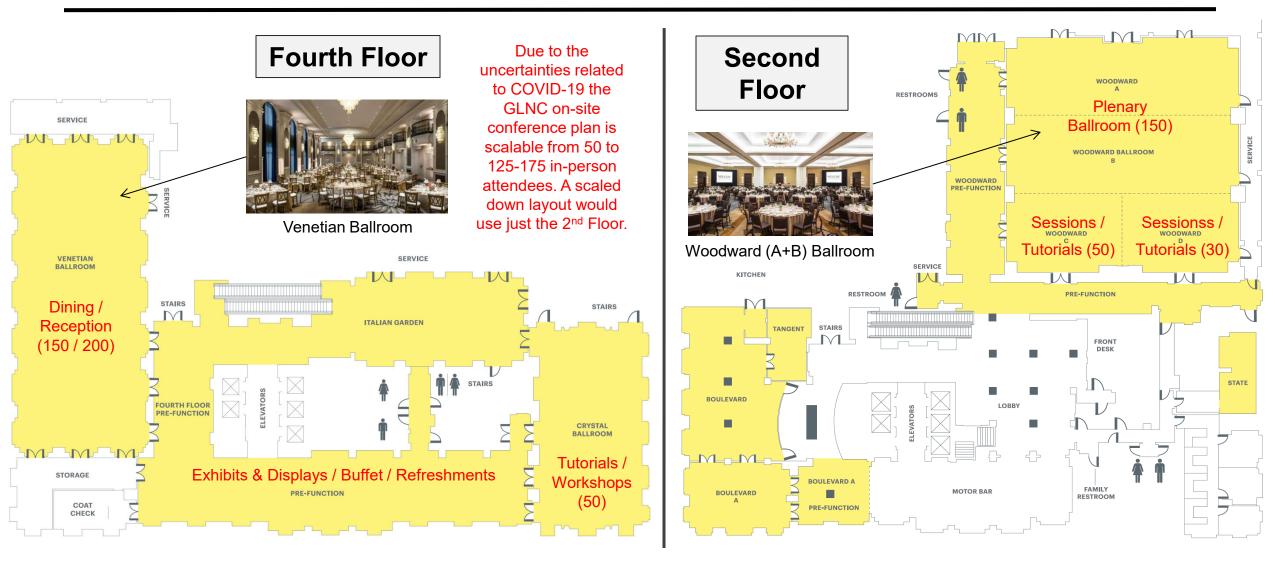






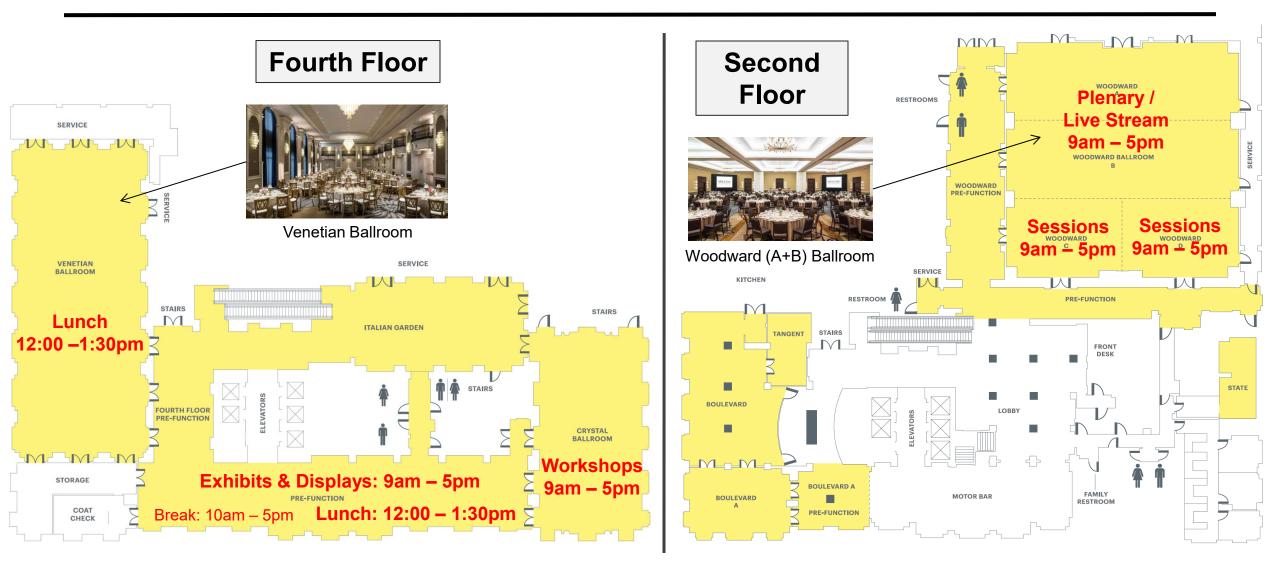


General Layout: Function Rooms – Book Cadillac

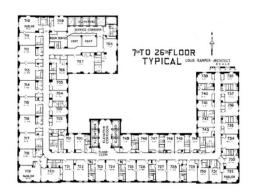


The GLNC14 is a hybrid (virtual + in-person) event with on-site AV/IT by Marriot provider Encore Global and Virtual Platform by INCOSE provider KMD Events, Toulouse, France.

Main Conf. (Day 2 and Day 3): Room Schedule – Book Cadillac



The GLNC14 is a hybrid (virtual + in-person) event with on-site AV/IT by Marriot provider Encore Global and Virtual Platform by INCOSE provider KMD Events, Toulouse, France.



Standard Guestroom 1924

Standard Guestroom 2021





(To open July-Aug 2022)