INCOSE Michigan Chapter

Monthly Newsletter

February 2026

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President's Message

We held our Winter Social this week and I have formally assumed the role of President. I would like to thank Dr. Douglas Neeley for his service as our 2025 President; all of us benefited from his efforts and leadership last year. I would also like to welcome the newly elected members of the INCOSE Michigan Chapter Board of Directors: Karl Selewski (President-Elect), Dean Norfleet (Treasurer), and Nathan Vinarcik (Secretary). Patrick Rye (Membership) and Robin Mikola (Education) are continuing in their roles and we look forward to adding more volunteers to help us execute this year's programs. If you are interested, please reach out to michigan@incose.net.

We are introducing two additional event types this year (in addition to the *Engineering Expeditions* mentioned last month); *Systems Soirées* are semi-regular social/networking events (possibly in partnership with other local technical societies); INCOSE Michigan will provide appetizers and attendees will purchase their own drinks. Our hope is that we can provide interesting venues and partnerships to allow our members to expand their personal networks and gain insights and understanding from practitioners in other disciplines. Another new event type is the *Sidequest Social*, a more offbeat type of event, typically organized by a third party. See below for an announcement for our first event of this type, *The Dungeon Cocktail Experience* on March 14.

The ASM International Detroit Chapter event (Bay Bridge Bolt Failure) on Monday was an interesting study in failure analysis…with a root cause that highlighted failures in specification development and testing that led to changes in standards and design practices.

The Chrysler Turbine Car Expedition was captivating; the speaker had a deep love of the subject and showcased the various constraints and challenges that led to the abandonment of the turbine car project. We did get to see aspects of the restoration work done on Jay Leon's car by Williams International in Pontiac (and we all got to smell turbine car exhaust when Stahl's started up their example).

On February 21st we will be at the Henry Ford Museum for the kickoff of Engineer's Week (see below for free tickets…and we will be running a scavenger hunt for elementary and high school students). Finally, February 24th is a busy day in systems engineering…there are 3 events on that date! See below for details.

Michael J. Vinarcik, ESEP-Acq, P.E, FESD

President

Dean Norfleet (Treasurer), Michael Vinarcik (President), Karl Selewski (President-Elect/Vice President), Nathan Vinarcik (Secretary), and Robin Mikola (Education)

Upcoming Events Calendar

Date	Event	Organization
February 9	Lunch & Learn: Servant Leadership	PMI Great Lakes Chapter
February 9	Bay Bridge Bolt Failure Presentation	ASM International Detroit Chapter
February 10	Winter Social	INCOSE Michigan Chapter
February 11	ReadyOne™ Digital Engineering Ecosystem	INCOSE WMA Chapter
February 12	Turbine Talk with Steve Lehto	INCOSE Michigan Chapter
February 21	Engineers Week at the Henry Ford Museum	INCOSE Michigan Chapter
February 24	Webinar: Does SysML v2 Improve MBSE Collaboration?	CIMData
February 24	Querying the SysML V2 Model	Dassault Systèmes
February 24	All Head Full: A Systems Engineer's Voyage	INCOSE Michigan Chapter
March 12	Pontiac Transportation Museum	SAE Detroit Section
March 14	The Dungeon Cocktail Experience	INCOSE Michigan Chapter
March 24	Systematic Innovation Toolkit	INCOSE Michigan Chapter
April 14-16	SysML v2 3-Day Bootcamp	INCOSE Michigan Chapter
April 17	Spring Symposium: AI in PM	PMI Great Lakes Chapter
April 25	Selfridge Military Air Museum Tour	ESD and SAE Detroit Section

Upcoming Chapter Events

Engineers Week Kickoff at the Henry Ford Museum

Date: February 21, 2026, 10:00 AM - 2:00 PM

Location: Outside *DaVinci The Exhibition*, Henry Ford Museum

We have 15 complimentary tickets available for the National Engineers Week Kickoff celebration at the Henry Ford Museum. Join us as we engage with the next generation of engineers!

What We're Doing:

- Operating an INCOSE Michigan chapter booth
- Running a scavenger hunt for elementary and high school students (with prizes)
- Connecting with future engineers and showcasing systems engineering

Event Highlights:

- Meet students from UM-Dearborn's National Society of Black Engineers and Society of Women Engineers chapters
- Watch the Henry Ford Academy Gator-Bots robotics team demonstrate engineering in action
- Participate in hands-on da Vinci-inspired catapult activities

How to Claim Your Free Tickets

Tickets are available on a first-come, first-served basis. Reply to nathan.vinarcik@incose.net by February 20 to reserve your spot. (Meet us in the lobby to pick up your tickets)

Event Information: **https://www.thehenryford.org/current-events/calendar/national-engineers-week-celebration**

Monthly Meeting: All Ahead Full: A Systems Engineer's Voyage

Date: February 24, 2026, 7:00 PM - 8:00 PM

Location: Virtual

What does it take to build a meaningful career in systems engineering? Dr. David Flanigan will share lessons learned across 26+ years at Johns Hopkins University Applied Physics Laboratory, where he has guided early-stage systems engineering for multiple government sponsors.

His path—from Navy Surface Warfare Officer to group supervisor of APL's Education Center and Associate Dean of Non-residential Graduate Education at the Johns Hopkins Whiting School of Engineering—offers practical insights for systems engineers at any career stage.

Dr. Flanigan will discuss how graduate education shaped his professional trajectory, the value of INCOSE involvement (including his tenure as Chesapeake Chapter president), and his experience pursuing CSEP and ESEP certifications.

Dr. Flanigan holds the following degrees:

- Ph.D. in Systems Engineering and Operations Research, George Mason University
- M.S. in Systems Engineering, Johns Hopkins University
- M.S. in Information Systems and Technology, Johns Hopkins University
- B.S. in Physics, University of Arizona

Register: https://lp.constantcontactpages.com/ev/reg/49t89wr

Sidequest Social: The Dungeon Cocktail Experience

Date: Saturday, March 14, 2026, 1:00 PM - 5:00 PM (including optional workshop)

Location: Epiphany Detroit, 10103 Kercheval Avenue, Detroit, 48214

Cost: Varies

Join your fellow chapter members for an afternoon that blends entertainment with surprising insights into how performers engineer memorable experiences.

Schedule

- 1:00 PM – "Inside the Dungeon" Character Workshop
- 3:30 PM – The Dungeon Cocktail Experience main show (~90 minutes)

Why This Event?

The pre-show workshop offers a fascinating behind-the-scenes look at how the cast develops their methods to meet a challenging set of requirements: deliver a compelling, one-of-a-kind experience every performance—with no script and no safety net.

Systems engineers will recognize familiar concepts at work:

- Requirements flow-down: Translating audience expectations into performer behaviors
- Real-time adaptation: Adjusting methods on the fly as conditions change
- Emergent system behavior: How individual character decisions combine to create a cohesive narrative
- Stakeholder engagement: Techniques for reading and responding to audience input
- Iterative refinement: Building story elements through rapid prototyping

The main show then lets you witness these methods in action as a live Dungeon Master, professional improvisers, and a musical bard collaborate to deliver a unique D&D-inspired comedy adventure—shaped by audience participation.

Details:

- Age: 21+ with valid ID
- Tickets: Reserve your own at https://feverup.com/m/554276
- Workshop Add-on: 30% off for show ticket holders

RSVP: Contact michael.vinarcik@incose.net if you plan to attend.

Introduction to Systematic Innovation: The Innovator's Mindset & Toolbox

Date: March 24, 2026, 6:00 PM - 8:00 PM (Dinner provided)

Location: The Engineering Society of Detroit, 20700 Civic Center Drive, Suite 450, Southfield, MI 48076

Innovation drives competitive advantage, yet most engineers receive little formal training in systematic innovation techniques. Join INCOSE Michigan in March 2026 for a hands-on workshop that bridges this gap.

About the Workshop

Dr. Jonathan Weaver, Professor of Mechanical Engineering at the University of Detroit Mercy, will guide participants through the Innovator's Toolbox—a structured approach organized into three areas:

Strategy & Problem Definition, Ideation/Concept Generation, and Idea Management & Implementation. Participants will experience short, focused exercises demonstrating problem framing, structured ideation (including biomimicry), and disciplined selection methods.

Who Should Attend

Practicing engineers, product development leaders, systems engineers, project managers, and R&D professionals seeking repeatable methods to generate high-value concepts.

SysML v2 3-Day Intensive Bootcamp

Date: April 14-16, 2026, 8:00 AM - 5:00 PM

Location: Dassault Systèmes, 118 N. Main Street, Suite 200, Royal Oak, MI 48067

Hosted by: INCOSE Michigan Chapter & Dassault Systèmes

This in-person 3-Day Intensive SysML v2 course will teach you the three pillars of Model-Based Systems Engineering: Language, Tool, and Methodology. You'll learn the fundamentals of the new language through lectures, demonstrations, and hands-on activities using CATIA Magic 2026x.

Why Attend?

- End-to-end coverage: Language, Tool, Methodology
- All materials, licenses, and installation files provided
- Network with the CATIA Magic team and fellow modelers

Cost: $150 (30 seats will be available)

Registration is not yet open. Full details and registration information will be announced soon. Stay tuned through INCOSE Michigan Chapter emails, website, and newsletters. INCOSE Michigan members will be given priority for tickets (we anticipate a sellout).

Note: As our 2026 calendar of events solidifies, we look forward to bringing you additional SysML 2.0 content with other vendors/tools.

Partner Organization Events

Engineering Expeditions/Partner Event: SAE Detroit Section – Pontiac Transportation Museum Tour

Date: Thursday, March 12, 2026
Time: 5:30 – 8:00 p.m.
Location: Pontiac Transportation Museum, 250 W Pike St, Pontiac, MI 48341
Registration Deadline: March 9, 2026

Through our collaboration with SAE Detroit Section, INCOSE Michigan members are invited to participate in a guided tour of the Pontiac Transportation Museum. The museum showcases more than 70 cars, trucks, and specialty vehicles designed or manufactured in the metro Detroit area, complemented by interactive exhibits that celebrate the region’s rich automotive and industrial heritage.

Agenda:

- 5:30 – 6:00 p.m. Registration
- 6:00 – 8:00 p.m. Tour

Registration: INCOSE Michigan members may register at SAE member pricing by entering **"INCOSE"** as their SAE member ID during registration.

Note: Tour is limited to members and guests 10 years and older.

Register: https://www.sae-detroit.org/register/?id=492
Questions: Contact Cassandra Irick at cassandra.irick@sae-detroit.org or (248) 324-4445 ext

Engineering Expeditions: SAE Detroit Section & ESD – Selfridge Military Air Museum Tour

Date: Friday, April 24, 2026
Time: 12:30 – 3:00 p.m.
Location: Selfridge Military Air Museum, 27333 C St, Harrison Township, MI 48045
Registration Deadline: April 16, 2026

Through our partnership with the SAE Detroit Section, INCOSE Michigan members are invited to join a guided tour of the Selfridge Military Air Museum, co-hosted with the Engineering Society of Detroit (ESD). The tour includes indoor exhibits, the new Aviation Education Center, and the outdoor Air Park featuring full-scale aircraft from the U.S. Air Force, Army, Navy, Marine Corps, and Coast Guard.

Selfridge is one of the nation's oldest continuously operating military airfields. For more than a century, it has played a central role in aviation innovation, illustrating the evolution of military, aerospace, and systems engineering from World War I to today, from early propeller-driven aircraft to jet-powered, high-speed, and systems-integrated aviation.

Agenda:

- 12:30 – 1:00 p.m.: Registration
- 1:00 – 3:00 p.m.: Tour

⚠️ **MANDATORY BACKGROUND CHECK REQUIRED:**
The museum is located on an active military installation. All visitors must complete a background check at https://selfridgeairmuseum.org/base-access-pre-registration/ **no later than 7 days before the event** (30 days for foreign nationals).
Registration: INCOSE Michigan members may register at SAE member pricing by entering **"INCOSE"** as their SAE member ID during registration.

Note: Tour is limited to members and guests 10 years and older.

Register: https://www.sae-detroit.org/register/?id=491
Questions: Contact Cassandra Irick at cassandra.irick@sae-detroit.org or (248) 324-4445 ext. 6

PMI Great Lakes Chapter

2026 Spring Symposium: Implementing AI in a Project Management World

Date: Thursday, April 17, 2026, 7:00 AM - 5:00 PM

Location: Suburban Collection Showplace, 46100 Grand River Ave, Novi, MI 48374

Join PMI Great Lakes for their annual symposium featuring keynote speaker Princess Castleberry, CEO of Castleberry Global and author of *The Truth Is in the Trigger*™.

Opening Keynote: AI-Ready Leadership: Managing Projects in the World of Generative, Predictive, and Agentic AI. Learn how to integrate AI across the project lifecycle and evaluate AI readiness through data integrity, ethical governance, and human adaptability.

Closing Keynote: *The Truth Is in the Trigger*™: Leading Under Pressure in the Age of AI. Discover how behavioral pressure shapes decisions and collaboration during high-stakes project cycles in AI-driven environments.

What to Expect:

- Networking with fellow project management professionals
- Breakout sessions (details TBA)
- Interaction with sponsors

PDUs: 17.0 | **Cost:** Members $250 | Non-members $310

Register: https://pmiglc.org/calendar?eventId=44816

Note: Cancellations up to 5 days before the event subject to $8 processing fee; no refunds after the Friday before the Symposium.

Other INCOSE Chapter Events

INCOSE WMA Chapter: ReadyOneTM Digital Engineering Ecosystem

Date: Wednesday, February 11, 2026, 6:30-8:00 PM

Format: Virtual (Zoom)

Topic: Andrew Fischer will present ReadyOne™ Foundational, a configurable digital engineering ecosystem that provides an out-of-the-box digital thread accelerator. The presentation will cover how organizations can connect disparate teams, tools, and data while leveraging existing infrastructure and tooling investments—particularly relevant as the industry transitions from document-based to model-based engineering methods.

Speaker Background: Andrew Fischer brings over a decade of SAIC experience supporting Intelligence Community and Department of Defense programs. He began his career as a Systems Engineer Technical Advisor (SETA) for the U.S. Intelligence Community before transitioning into management roles. Eight years ago, he took on the pivotal role of managing and hosting all Model-Based Systems Engineering (MBSE) and Digital Engineering tools at SAIC. His leadership was instrumental in the development and launch of SAIC's ReadyOne™ product, where he served as a founding member. Fischer currently serves as Senior Manager and ReadyOne™ Product Owner in SAIC's Innovation Factory. He holds a BS in Business Administration from the University of South Carolina, an MS in Data Analytic Science from George Mason University, INCOSE ASEP certification, and AWS Certified Solutions Architect – Associate certification.

Register: **Google Forms registration**

Other Events

Webinar: Does SysML v2 Improve MBSE Collaboration?

Date: Tuesday, February 24, 2026, 11:00 AM EST

Why Attend: Learn in 60 minutes what it took the AD PAG 18 months to investigate: A frank assessment of SysML v2's real-world readiness and its ability to bridge the MBSE collaboration gap.

Model-Based Systems Engineering (MBSE) was supposed to make collaboration easier, yet many find it more difficult than the old document-centric systems. Is SysML v2 the solution for safety-critical industries like A&D, Automotive, and Medical Devices? Or is it just more talk?

Domain experts in the CIMdata-administered Aerospace & Defense PLM Action Group (AD PAG) recently completed an in-depth, 18-month investigation to answer this question. On 24 February, they will share the results.

Topics:

- **The Architecture:** How v2 fundamentally differs from v1.
- **Supply Chain:** How data exchange between OEMs and global suppliers has improved.
- **Deployment Strategy:** When and how to roll out v2 effectively.
- **The Gaps:** Current limitations and critical "success factors" identified by the AD PAG.
- **Recommendations:** Specific actions for industry, solution providers, and the OMG (SysML v2 standard body).

While led by the AD PAG, these findings on multi-enterprise collaboration are critical for anyone managing complex systems across industries such as Automotive, Medical Devices, Pharmaceuticals, or Energy.

For more information, visit: https://www.cimdata.com/en/aerospace-and-defense/a-d-action-group-events-2/event/891-webinar-does-sysml-v2-improve-mbse-collaboration

Register: https://register.gotowebinar.com/register/7721867312201511256

Querying the SysML V2 Model

Date: Tuesday, February 24, 2026, 2:00-3:00 PM EST

As excitement for SysML V2 grows, industries are beginning to discover the benefits and explore the capabilities. One of the key promises of V2 is the ability to use textual notation to manipulate the model, introducing advanced capabilities not available in V1.

This presentation will explore several powerful use cases for querying data within the model. These examples will provide a foundation for model-based systems engineers to apply and innovate upon. Case studies will include determining the number of specific elements within the model, verifying satisfied requirements, filtering elements, and analyzing actions allocated to performers.

For more information, visit: https://events.3ds.com/querying-sysml-v2-model

ASM International Detroit Chapter: Woodside Lecture: Iron: How One Element Built Our World

Save the Date: May 4, 2026

Historical Corner

This Month in SE History: Mars Perseverance Rover Landing — 5th Anniversary

On February 18, 2021, NASA's Perseverance rover landed in Jezero Crater on Mars after autonomously decelerating from nearly 12,500 mph to a full stop without real-time ground control. Five years on, the mission offers rich, transferable lessons in systems integration, autonomous operations, interface management, and technology demonstration strategy.

EDL: Precision Through Integrated Innovation

Terrain-Relative Navigation (TRN) compared real-time descent imagery against onboard maps, reducing position estimation error from the 2–3 km typical of earlier inertial-only navigation down to approximately 40 meters. In flight, the Lander Vision System achieved 5-meter accuracy—an order of magnitude better than its 60-meter requirement—enabling landing in scientifically compelling terrain that prior missions' ellipses (tens to hundreds of km) would have excluded. Range Trigger shifted parachute deployment from a velocity threshold to a position-relative criterion, shrinking the ellipse's downrange dimension by more than 50%. Combined with TRN and guided entry, the total ellipse was ~10× smaller than Curiosity's and ~300× smaller than Sojourner's. The sky crane maneuver lowered the rover on a 6.4-meter bridle while maintaining attitude control—a multi-body dynamics integration of propulsion, guidance, and mechanical subsystems built on Curiosity's proven heritage design.

Autonomous Operations and Fault Management

Perseverance's AutoNav uses stereo cameras and a dedicated Vision Compute Element to plan paths while driving simultaneously. During the 2022 Rapid Traverse Campaign it averaged 200 m/sol, with single-sol records exceeding 320 m—roughly 5× Curiosity's autonomous speed. The fault protection architecture implements defense-in-depth across three layers: hardware redundancy (dual-computer architecture), software fault monitors triggering automated safing responses, and behavioral graceful degradation modes that sustain reduced operations when components fail.

Sample Caching: Interface Design Under Uncertainty

The sample caching system presents a distinctive SoS interface problem: designing for integration with partner elements that don't yet exist. The team's approach is instructive. Physical interfaces—standardized tube dimensions, hermetic sealing, documented depot locations—were fully defined and are robust to downstream changes. Operational interfaces—retrieval architecture, lander design, timeline—remain uncertain as NASA and ESA evaluate competing Mars Sample Return architectures. Decoupling stable physical interfaces from evolving mission architecture is a practical model for SoS interface management. Of the rover's 43 tubes (38 for samples, 5 witness tubes for contamination monitoring), 33 have been filled as of mid-2025, with 10 also cached at a backup depot at Three Forks.

Technology Demonstration: Ingenuity

The 1.8-kg Ingenuity helicopter, designed for five flights over 30 days, completed 72 flights over nearly three years before a navigation failure on its final flight broke all four rotor blades. NASA's accident investigation found that vision-based navigation could not track features over featureless sand ripple terrain, producing uncontrolled horizontal velocities that exceeded structural limits. Ingenuity's architecture as a physically and operationally decoupled payload meant its anomalies—including communication blackouts and its eventual crash—had zero impact on the primary science mission, demonstrating how separable technology demonstrations can enable high-risk innovation while generating engineering insight from both success and failure.

SE Lessons for Practitioners

Heritage with Innovation: Building new capabilities (TRN, AutoNav) atop a proven platform (MSL heritage) allowed the team to isolate and incrementally manage technical risk rather than accepting coupled, system-wide uncertainty.

Interface Definition Under Uncertainty: Invest in standardized physical interfaces decoupled from architecture decisions. The sample caching interfaces remain valid despite multiple MSR architecture redesigns.

V&V for Autonomous Systems: TRN required helicopter field tests over Mars-analog terrain, hardware-in-the-loop testing, and thousands of Monte Carlo simulations. Ingenuity's flight 72 failure demonstrates that even thoroughly verified autonomous systems encounter unanticipated failure modes outside their verification envelope.

Separable Technology Insertion: Ingenuity's decoupled architecture contained risk, ensuring technology demonstration failures could not propagate to primary mission objectives—a broadly applicable pattern for programs maturing new capabilities within operational contexts.

Five years into its mission, Perseverance has traveled over 30 km and climbed onto Jezero Crater's rim. The mission remains a benchmark for integrated systems engineering—and the samples it has cached may yet prove the most consequential payload ever assembled by a robotic explorer.

References:

- NASA Mars 2020 Mission: https://mars.nasa.gov/mars2020
- JPL Landing Press Kit: https://jpl.nasa.gov/news/press_kits/mars_2020/landing
- Johnson et al., "Map Relative Localization for Planetary Landing," JGCD, Vol. 46, No. 4, 2023
- Verma et al., "Autonomous Robotics Is Driving Perseverance's Progress on Mars," Science Robotics, 2023
- NASA Ingenuity Accident Investigation Report, December 2024

This article was drafted with assistance from Claude.ai by Anthropic.
