



UNISEC-Global The 67th Virtual Meeting

April 18th, 2026, 22:00-24:00
(Standard Japan time GMT +9)

67th Virtual UNISEC-Global Meeting Hosted by

Guest Lecture: "Decision-focused Engineering in an AI-Accelerated World"
Date: April 18, 2026 Time: 22:00-24:00(JST)



Opening Remarks
Hiraku Sakamoto,
Institute of Science
Tokyo



Moderator
Fatimah Zaharah Ali
Universiti Teknologi MARA
(UiTM)

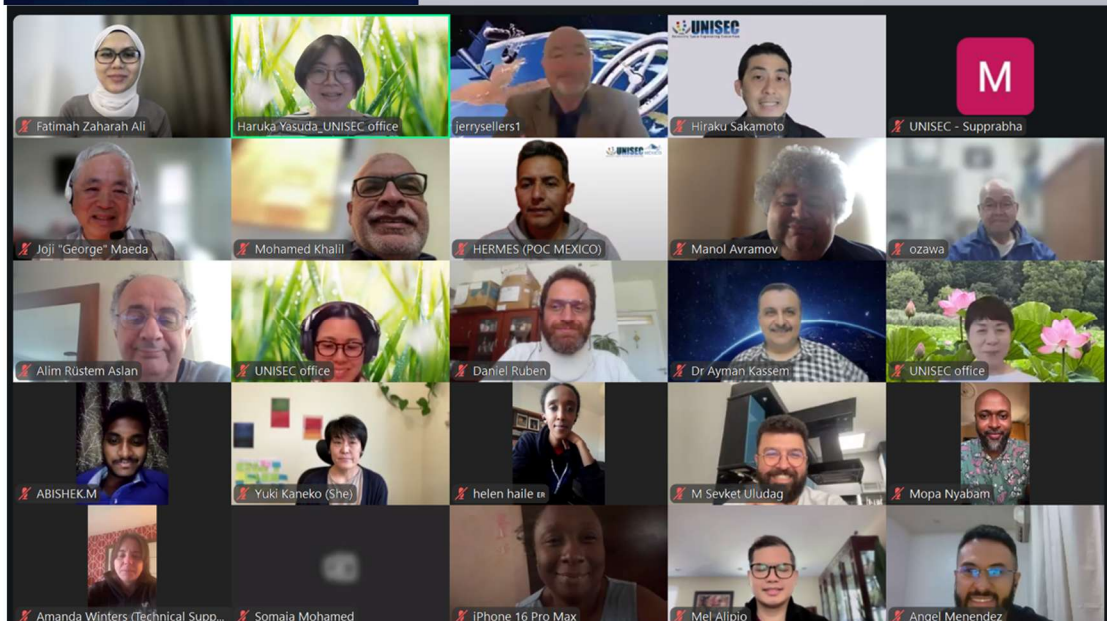


Guest Lecture
Dr. Jerry Jon Sellers
Teaching Science & Technology Inc.
Implications for Systems Engineers, Chief Engineers, and Program Teams

Lecture Theme
"Decision-focused Engineering in an AI-Accelerated World"

- ◆ Artificial intelligence is now part of everyday engineering work.
- ◆ Across the space and aerospace sector, teams are already using AI.
- ◆ The pace of engineering work is increasing.
- ◆ The number of options available to teams is increasing.
- ◆ But the fundamental responsibility for program outcomes has not changed.
 - There's no escaping the "systems engineering universe" that must balance cost, schedule, performance and risk

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The following report was prepared by UNISEC-Global Secretariat
April 18, 2026
Japan

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1 Opening Remarks on “CanSat Development and Systems Engineering”

Hiraku Sakamoto, Institute of Science Tokyo

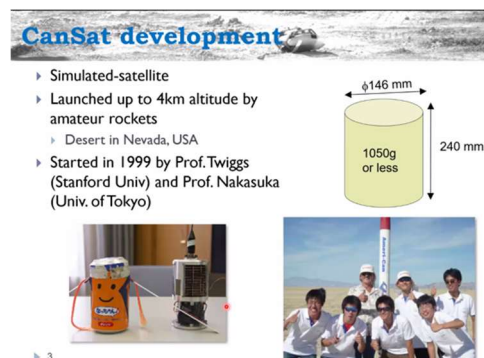
Prof. Hiraku Sakamoto received a Bachelor of Science degree in Mechanical Engineering in 1999, a Master of Science degree in Aeronautics and Astronautics Engineering from the University of Tokyo in 2001, and a PhD in Aerospace Engineering Sciences from the University of Colorado Boulder in 2004. He is a professor at the Institute of Science Tokyo in the Department of Mechanical and Aerospace Engineering, Structural Dynamics Design Laboratory (SSDL). His research focuses on space deployable structures and small satellite development. He currently serves as the Chairperson of UNISEC Japan.



Pictured: Prof. Sakamoto during his presentation

Highlights:

- CanSats act as excellent foundational material for space education
 - Students use them to deeply study systems engineering principles
- Recent developments in Japan have shifted focus
 - Transitioning from lighter systems to 1-kilogram open-class CanSats
- Nearly 100 Japanese students participate annually in ARLISS
 - They launch comeback CanSats with parafoils and crawlers in the Nevada desert
- System development follows a standard system engineering V-model
 - Prototyping starts with a breadboard model to create visual flowcharts
 - Students define success levels and conduct end-to-end trial testing early on
 - The Engineering Model integrates subsystems based on initial breadboard designs
 - Teams conduct component, subsystems, and system-level vibration and communication tests
 - Final Flight Model testing builds confidence and identifies human errors prior to launch
- Systems engineering remains a powerful, iterative tool for any aerospace engineer
- Integrating AI into this traditional workflow requires serious thought and consideration



Pictured: Prof. Sakamoto showing CanSat dimensions

2 Presentation on "Decision-Focused Engineering in an AI-Accelerated World"

Jerry Jon Sellers, Teaching Science and Technology Inc.

Dr. Jerry Jon Sellers is the President of Teaching Science and Technology Inc. He is the author of *Understanding Space: An Introduction to Astronautics*, and is a contributing author and editor of *Applied Space Systems Engineering*. He was the director of the U.S. Air Force Academy's Space Systems Research Center. He has over 40 years of space systems experience including Guidance & On-board Navigation Officer in Space Shuttle Mission Control; Assistant Professor of Astronautics at the U.S. Air Force Academy; and Chief of Astronautics for the Air Force European Office of Aerospace Research & Development. Jerry was selected to be an Associate Fellow at AIAA and was former Chairman of the AIAA Space Systems Technical Committee. He is also an adjunct professor at Stevens Institute of Technology. Jerry is an elected member of the International Academy of Astronautics. He earned his doctorate in satellite engineering from the University of Surrey, UK.



Pictured: Dr. Sellers during his main presentation

Highlights:

- AI is a highly powerful collaborator for modern aerospace engineers
 - Accelerates the creation of concept developments and trade studies
 - Speeds up the overall engineering artifact generation pace significantly
 - Helps in exploring alternatives and supporting proposal development
- AI does not assume responsibility for project outcomes or final decisions
 - The core purpose of systems engineering remains completely unchanged today
 - Engineers must make informed decisions balancing cost, schedule, performance, and risk
 - Progress is measured by the quality, maturity of thinking, not volume of artifacts produced
- Impacts on key engineering roles are significant
 - Chief Engineers must shift focus to framing the exact decision space
 - They must set precise constraints and rigorously validate AI output
 - Program Managers retain ultimate accountability for the entire project
 - Program Managers cannot blame AI for poor data, bad logic, or mission failures
- Primary AI risks include false confidence and poor tracking
 - Relying on shallow or incomplete trade studies can provide false confidence
 - Teams risk losing track of data ownership across multiple AI models
 - Teams might hastily change requirements before full human vetting occurs
- Ground rules must be established before teams use AI tools
 - Determine constraints and intent beforehand
 - Avoid converging too quickly on decisions before they are independently evaluated
- Education must pivot from teaching rote calculation to critical problem framing
 - AI acts like a modern slide rule for the next generation of engineers
 - Engineers must know the approximate correct answer to catch AI hallucinations
- Systems engineering matters more now than ever
 - Human responsibility for project consequences increased in an AI-accelerated world

Q&A Session:

UNISEC Participant: *Is it scary to use AI for system engineering jobs on a day-to-day basis? Where is the boundary between using AI and using human intellect?*

Dr. Sellers: Human intellect is required to frame the specific question and validate the output. The boundary is validation—if you don't know what kind of answer you are looking for, you won't spot AI's bad math or nonsense.

...

UNISEC Participant: *Could you comment on the role of AI in autonomy for spacecraft operations?*

Dr. Sellers: There is a strong distinction between automation (repetitive tasks) and autonomy (decision-making branches). Using AI for autonomy, especially for deep space missions without human-in-the-loop, requires incredible rigor and strictly validated guardrails. A hallucinated AI decision could result in a lost mission.

...

UNISEC Participant: *What are the biggest limitations of AI models when dealing with radiation-constrained systems or novel space environments?*

Dr. Sellers: Validation requires test data. Novel environments lack this real-world test data, creating a difficult loop where AI is trained on simulations. The primary challenge is verifying the baseline simulation before trusting the AI's conclusions.

...

UNISEC Participant: *Should we stop teaching student's rote calculations (like Kepler's equations) since AI can do it?*

Dr. Sellers: No, fundamentals are still crucial. If students do not understand the underlying physics (like the rocket equation), they cannot frame proper questions or validate the AI's answers. Evaluation should shift toward testing their critical thinking and validation skills rather than just manual calculation.

...

UNISEC Participant: *Are we trusting AI too much by skipping the validation step?*

Dr. Sellers: Yes. Organizations that skip validation will simply make bad decisions much faster. AI carries zero accountability; project failure still falls on the engineers and managers.

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3 Announcement and Acknowledgment

Haruka Yasuda, UNISEC-Global



Pictured: Haruka Yasuda announcing the latest updates from UNISEC-Global

Highlights:

- **The Mission Idea Contest**
 - The 10th Mission Idea Contest Preliminary Workshop
 - **Theme: Orbit Change Without Using a Propulsion System**
 - <https://www.spacemic.net/>
 - **Important Dates**
 - Abstract Submission due: **June 18, 2026**
 - Notification: **September 3, 2026**
 - Software submission deadline: **End of September**
 - Presentation at PreMIC10: **November 9, 2026**
 - Contact: info@spacemic.net
 - The 9th Mission Idea Contest: to the Moon
 - Recording of final presentation is available
 - MIC9 e-book will be published soon

- **Next Venue Announcement**
 - **The 12th UNISEC-Global Meeting**
 - To be held online
 - To facilitate all POC and students from all local chapters to participate
 - Date: **November 4, 2026**
 - Details will be announced later

 - In person **POC** gathering at Antalya, Turkey in the afternoon
 - **October 4, 2026**, in conjunction with IAC (T.B.D)

 - **15th Nano Satellite Symposium to be held at Tainan, Taiwan**
 - November 9 – 11, 2026, with
 - PreMIC10 (Nov 9)
 - 2nd IoT Workshop (Nov 8)
 - 3rd Deep Space Workshop (Nov 8)

- **Nano-satellite IoT Constellation Program**
 - A new program launched by UNISEC-Global
 - Jointly design satellite bus (3-6U) with online guidance
 - Each satellite will be developed by each country with its own funding
 - Can also jointly search for international funds
 - All the satellites have the **same mission payload** to contribute to solving global problems
 - Or local problems as a constellation
 - Each country can have **one specific mission payload** for its own interest
 - Web: <https://unisec-global.org/iot.html>
 - **Next Step: Experiment IoT Transmission to ArkEdge Satellite**
 - For enquiry about experiment contact: iot-support@unisec-global.org
 - Contact: iot@unisec-global.org

- **CLTP15 (CanSat/ CubeSat Leader Training Program)**
 - Completed: August 18 – 28, 2026
 - Venue: Nihon University, Chiba, Japan
 - CLTP15 website: <https://cltp.info/cltp15.html>
 - Application deadline: April 22, 2026
 - Contact : secretariat@cltp.info

- **Launch Opportunity: J-Cube**
 - Special Discounted opportunities
 - 1U, 2U, 3U, deployment from International Space Station
 - Collaborate with UNISEC-Japan's University
 - Technical support will be provided
 - Contact: info-jcube@unisec.jp
 - Website: <http://unisec.jp/serviceen/j-cube>

- **Next Virtual Meeting**
 - Date: May16, 2026
 - Theme: T.B.D
 - Host: UNISEC-Global

- **UNISEC Global Supporting Companies**
 - **Platinum: Ark Edge Space**
 - Silver: GOMSpace, Mitsubishi Electric, CUBESPACE, Teaching Science and Technology Inc, NEW, Yokogawa, Axelspace, ispace, SpaceData, NEC and HEPHAX

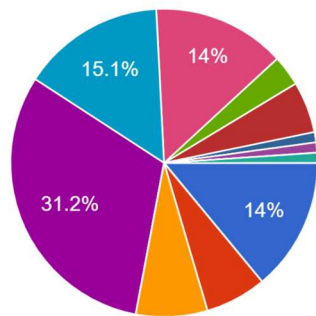
4 Participant Statistics

93 registered participants from 36 countries and regions for the 67th Virtual UNISEC-Global Meeting.

Country/Region	Registrants	Country/Region	Registrants
Argentina	1	Netherlands	1
Bulgaria	5	Nigeria	12
Burkina Faso	2	Peru	1
Burundi	1	Philippines	4
Chile	1	Portugal	1
Colombia	1	Slovenia	1
Côte d'Ivoire	2	Somalia	1
Dominican Republic	1	Taiwan	3
Egypt	6	Tunisia	1
France	1	Turkey	2
Guatemala	2	Uganda	1
India	11	UK	1
Indonesia	2	Ukraine	1
Japan	11	Uruguay	1
Kazakhstan	1	USA	7
Kenya	1	Zambia	1
Malaysia	3	Zimbabwe	1
Mexico	1		

Student or professional?

93 responses

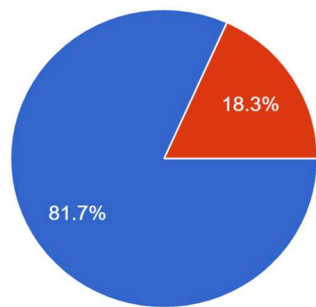


- Student (undergraduate)
- Student (master)
- Student (PhD candidate)
- Student (other)
- Professional (university)
- Professional (government, space age...)
- Professional (private company)
- Professional (NGO)

▲ 1/2 ▼

Have you participated in the UNISEC-Global Meeting previously?

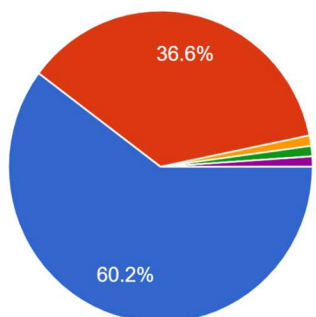
93 responses



- Yes
- No

Are you utilizing AI in your project?

93 responses



- Yes
- No
- Not yet, but planning
- I'm not involved any project at the moment.
- partly

UNISEC-Global Social network accounts



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https://www.instagram.com/unisec_japan/



<https://www.linkedin.com/groups/8982613/>

Thank you