



# UNISEC-Global The 50<sup>th</sup> Virtual Meeting

November 16<sup>th</sup>, 2024, 22:00-24:00  
(Standard Japan time GMT +9)

**UNISEC GLOBAL** 50th Virtual UNISEC-Global Meeting Hosted by UNISEC-Global  
Local Chapter Activity Report

**Moderator**  
Mohammed Khalil Ibrahim  
EGYPT-JAPAN University of Science and Technology

**UNISEC-Taiwan**  
Jyh-Ching Juang,  
National Cheng Kung University

**UNISEC-Bulgaria**  
Nikolay Tomov,  
CASTRA

<Video Presentation>

**UNISEC-Italy**  
Paolo Marzioli,  
Sapienza University of Rome

<Video Presentation>

**UNISEC-India**  
K.Gopalakrishnan,  
New Horizon College of Engineering

**UNISEC-Tanzania**  
Joseph Matiko,  
Dar es Salaam Institute of Technology

**UNISEC-Korea**  
Youngho Eun,  
Yonsei University

Host: UNISEC-Global  
Time: 22:00-24:00(JST)  
November 16, 2024

Registration open!

<https://www.unisec-global.org/virtual-meeting.html>

Grid of participants: Mohammed Khalil Ibrahim, Haruka Yasuda, Jyh-Ching Juang, Nikolay Tomov, Rei Kawashima, Anton, Joseph, Eyoas Areda, JoeFONG-san@TASA, HyoChong Bang, Mohamed Lotfy Taha Hassan, Daniel Alejandro Ruben, Inbisat, Florent, Dr. G.P.Ganapathy, Youngho Eun, Mark Angelo Purio, Sidiki ZONGO, Sakshyam Pandey, Mihir Rao S, iPhone, Nikhil R, HASSANI KILANGILO, Jeremy Bajado, AJ Mesa.

The following report was prepared by UNISEC-Global Secretariat  
November 21, 2024  
Japan

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## 1 Opening Remarks

### 1. Mohammed Khalil Ibrahim, EGYPT-JAPAN University of Science and Technology

Prof. Ibrahim is the Professor of Aerospace Engineering Department, EGYPT-JAPAN University of Science and Technology(E-JUST), Egypt. He is also a CLTP1 Graduate. He received his B.Sc. and M.Sc. in Aerospace Engineering from Cairo University in 1991 and 1996, respectively, and his Ph.D. from Nagoya University, Japan, in 2002. During 2002 and 2003, he worked as Research Engineer at Takasago R&D Center, Mitsubishi Heavy Industries, Ltd., Hyogo, Japan. He has published more than 50 articles in international journals and conferences. Dr. Ibrahim's research interests include Nano-satellite Development, Computational Fluid Dynamics (CFD), Experimental Fluid Dynamics (EFD), Aeroacoustics, Flow Induced Sound and Vibration, and Flight Dynamics. He is a senior member of JSASS, JSME, AIAA, and UNISEC.



*Pictured: Prof. Ibrahim while giving the opening remarks*

#### Highlights:

- Extended greetings
- UNISEC Global is inspired by UNISEC Japan (2002)
- UNISEC Global launched on 2015
  - Vision is:  
*"By the end of 2030, let's create a world where university students can participate in practical space projects in all countries."*
- UNISEC Global has
  - 26 Local Chapters
  - 95+ Point of Contacts

## 2 Local Chapter Activity Report (1)

### 2. Jyh-Ching Juang, UNISEC - Taiwan

Prof. Juang is a Professor at the Department of Electrical Engineering, National Cheng Kung University, Taiwan. He received the B.S. and M.S. degrees from National Chiao-Tung University, Hsin-Chu, Taiwan, in 1980 and 1982, respectively, and the Ph.D. degree in electrical engineering from University of Southern California, Los Angeles, in 1987. He was with Lockheed Aeronautical System Company, Burbank before he joined National Cheng Kung University, Taiwan in 1993. His research interests

include satellite navigation and control, sensor networks, GNSS signal processing, and software-based receivers.

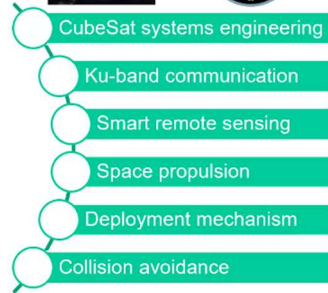


*Pictured: Prof. Juang during his presentation*

### Highlights:

- UNISEC - Taiwan established in 2019
- Active member of UNISEC Global
- Participated in Mission Idea Contest (MIC)
  - Hosted Hepta-Sat in Taiwan
- 6 member universities
- 5 CubeSats launched in 2024
- 16 CubeSats launched till date since 2014
- Is receiving a strong government support
- Lithium-1 Cube Sat
  - 3U CubeSat developed by National Cheng Kung University
- ONGLAISAT CubeSat
  - 12U CubeSat developed by TASA, University of Tokyo, and ArkEdge
- Is also making progress in launching Scientific Sounding Rockets
- A Taiwanese team and two joint Indian Taiwanese teams were finalists in PreMIC9
- Upcoming Events
  - **2<sup>nd</sup> Dec, 2024:** Taiwan International Mission Idea Contest on CubeSat (CubeSat Competition)
  - **30<sup>th</sup> Nov to 4<sup>th</sup> Dec, 2024:** TASTI 2024 (Taiwan International Assembly of Space Science, Technology, and Industry)
  - **7<sup>th</sup> December, 2024:** CubeSat lecture (webinar)
    - Covering CubeSat trends, structure, development, ADCS and IoT over non-terrestrial network in 3GPP
  - Open registration for TASTI and CubeSat lecture
- Plans for 2024-25
  - Additional member universities
  - More CubeSat and sounding rocket launches
  - Further collaborations with UNISEC and international partners

- ◆ Liliium-1 CubeSat
- 3U CubeSat developed by NCKU



Pictured: Prof. Jyh-Ching Juang sharing the picture taken from Liliium-1

**Q/Ans:**

**Q: Rei Kawashima: You mentioned about the idea competition, is it idea competition or design competition?**

*A: Prof. Jyh-Ching Juang: It's related to both idea and design. We try to broaden our subjects. We're looking for communication concepts- for example, how to design a constellation? Or using CubeSats to reach some kind of mission. We're also looking for AI application as well as some deep space exploration. It's a design and idea kind of combination. So, we evaluate from both perspectives.*

**Q: Rei Kawashima: Thank you. That is the concern in Japan too. Recently, the CubeSats and Nano-Satellites are being criticized because we do not have a maneuver function. So, are you planning to implement some maneuver functions in CubeSat?**

*A: Prof. Jyh-Ching Juang: In the CubeSats, we have performed a demonstration for space propulsion, and we also put a differential drag technique, to try to do certain maneuvers to avoid the risk of collision. So, we are looking for technology development from this perspective.*

**Q: Rei Kawashima: Thank you. The last question is, are you also educating high school students?**

*A: Prof. Jyh-Ching Juang: We have certain reach-out activities. So, whenever we have a conference, we invite some high school kids. Doesn't matter if they're just students. In Taiwan we also have a special program for students who are dedicated to science. So, there are some special groups of students. We invite those high school students to attend the conference. I also go to some high schools to give lectures. For example, related to CubeSat or some space activities.*

**Q: Joseph Matiko: We are new, and we are learning from other local chapters across the globe. So, I'd like to know a little bit about the International CubeSat training. I'm just wondering if you have the resources available because we are actually in the very early stages of developing CubeSat. So, we'd like to learn and build capacity using any available resources.**

*A: Prof. Jyh-Ching Juang: Thank you. Actually, we also invite others to Hepta-Sat training in Taiwan to do this kind of education. But now, gradually, when we gain some experience, we also try to promote this. For example, in my presentation, I talked about the webinar about CubeSat. That's essentially us trying to reach out. Not only for*

*Taiwanese students but also for international partners.*

**Joseph Matiko:** *So just a quick follow-up. Maybe it's a bit unclear. So, do you have like the online content? Is it available for anyone to use?*

**Prof. Jyh-Ching Juang:** *For this particular one, that means for the webinar, you are free to register. If you are interested in lecture, then you can email and we can discuss it.*

**Q: UNISEC Meeting Attendee: What is the youngest member in UNISEC Taiwan in terms of age?**

**A: Prof. Jyh-Ching Juang:** *Essential the members will start joining in the graduate level. So, the age is 20+.*

### **3 Local Chapter Activity Report (2)**

#### **3. Nikolay Tomov, UNISEC - Bulgaria**

Mr. Tomov is a Member of the Management Board at the Cluster Aerospace Technologies, Research and Applications (CASTRA) since 2012 and is a PoC at UNISEC-Bulgaria since 2018. In 2010 he initiated the establishment of the Bulgarian Modeling and Simulation Association – BULSIM, a non-profit association for public benefit and since then Mr. Tomov is the Chairman of the Association. From 2016 to 2024 Nikolay was a Board Director at the European Training and Simulation Association (ETSA).

Nicolay Tomov is an entrepreneur with strong business background. He is a shareholder and manager in companies as Synergy Simulation&Training Ltd, Integris Lab ltd., Innovative Maritime Solutions Ltd. Nikolay is also a Co-founder in a start-up developing a mobile application for youths' education. Before starting his own business Nikolay has been holding different managing positions in international and Bulgarian companies.

Nicolay Tomov was a lecturer in Master's Program "Aerospace Engineering and Communications" at the Faculty of Physics in Sofia University where conducted "Software Tools with Applications in Aerospace Engineering" course. Nikolay is the Global Operations Chair at Simulation Exploration Experience Initiative supported by NASA experts, international universities and industry.

Nicolay Tomov received his M.Sc. Degree in Physics and Astronomy from the Faculty of Physics at Sofia University. Then he started his postgraduate study on accretion discs in close binary systems in the Space Research Institute at the Bulgarian Academy of Sciences, where he took part as a young researcher in the conceptual design for the development of a Bulgarian microsatellite for ecological monitoring, astronomical and physical experiments. In his early professional years Nikolay was involved as a young scientist in various activities of the Institute of Mathematics and Informatics and the Institute for Parallel Processing at the Bulgarian Academy of Sciences.

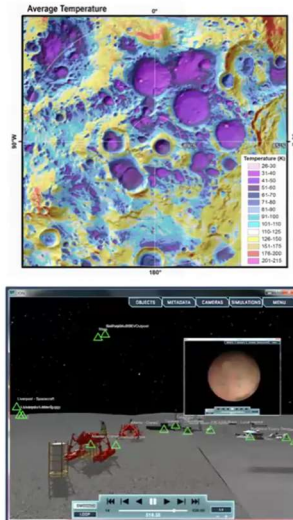


*Pictured: Mr. Tomov during his presentation*

### Highlights:

- Established in 2018
- Adopts Guiding Principles of UNISEC-Global
- Participated in MIC 2102, 2016, 2109; CLTP18
- Attended UNISEC-Global Meeting in 2013, 2016, 2017,2018, 2019, 2021
- Hosted the following in Bulgaria
  - 4<sup>th</sup> UNISEC -Global Meeting in 2016
  - 7<sup>th</sup> Nano-Satellite Symposium in 2016
  - 4<sup>th</sup> Mission Idea Contest for Micro/Nano-Satellite Utilization in 2016
  - 1<sup>st</sup> Deorbit Device Competition in 2016
  - Hepta-Sat Training in 2017
  - Can Sat Training Competition in 2019
- 3 member universities, 1 associate member, and 3 universities in the process of being members
- Plan is to attract more universities as members of UNISEC-Bulgaria
- 2019 - Approved and Established first Aerospace Engineering Program in Bulgaria in Sofia University
- 3 more master's programs in aerospace established in various universities in 2024
- 3 startups initiated by UNISEC Bulgaria former students: S1, SFERA Tech, Space Vision Ltd.
- Active participant in UNISEC Virtual Global Meetings
- Organizes various trainings and company-led internships
- Ongoing space projects
  - Simulation Exploration Experience (SEE)
    - Annual Space Simulations initiative for universities coordinated by NASA experts
    - Locally supported by CASTRA/UNISEC-Bulgaria
    - Modeling and Simulation experience with the best technologies, tools and methods
    - Also provides professional networking opportunities and resources
  - FreeFlyer Training
    - FreeFlyer (astrodynamics software) Training for lecturers
    - Planning, analyzing space missions
    - Designing Mission Plans and Satellite Communications for students
- Plans for 2024-25 and beyond
  - To attract more universities as active members
  - To support the evolution of the Bulgarian National Space Program
  - To support the growth of Aerospace Engineering University Programs
  - To inspire students for scientific work
  - To involve students in practical aerospace projects
  - To attract funding from companies

## SEE Benefits for Students



- Modeling and Simulation **Experience** with the best technologies, tools and methods
- A better **Understanding** of massively distributed, interdisciplinary teams
- A memorable interactive **Problem Solving** experience
- Stronger professional **Networks, Resources, Credibility** and **Visibility** in the job market

*Pictured: Mr. Tomov shares the benefits of Simulation Exploration Experience (SEE) for students*

### Q/Ans:

**Q: Rei Kawashima:** I strongly agree about the financial issues. It's a very big issue for older universities in the university committees. In your case, CASTRA is an industry association, and UNISEC is a University Committee. And you mentioned that you are trying to attract financial resources from the industries. How can you do this? You're going to ask each company?

**A: Nikolay Tomov:** Yes, exactly. So CASTRA is an industry-driven consortia and a non-governmental organization. The members are not only companies but also universities, and individuals. So, we have joint collaboration internally. And asking for each company about the financial support, one of the things are the internship programs. Companies like my company supports the universities by providing simulation software for free. This is not a direct financial contribution. This is an in-kind contribution. Depending on various initiatives of course, money is required for students. So, this is in our future plan on how to involve more companies who can bring not only in-kind contribution but also financial support.

**Q: Mohammed Khalil Iraqi:** Is there any member university, that started to develop their own spacecraft like CubeSats? Or is it done by the industry side?

**A: Nikolay Tomov:** As far as I know, there are some ideas for CubeSats. But it's mainly driven by industries in Bulgaria. Most of the people who are graduating in aerospace programs are attracted as employees in these companies. Only limited Can-Sat and Cube-Sat university-led projects are driven.

**Q: Rei Kawashima:** There is a company called EnduroSat, is it related to UNISEC-Bulgaria?

**A: Nikolay Tomov:** Not yet. As far as I know this company doesn't consider UNISEC-Bulgaria as an interesting community for their business. They are working directly with the universities. And they financially supports the universities. I guess for them it's more important to be focused on real launch projects other than cooperate with us.

**Rei Kawashima:** Well, I think it would be better for you to connect to this company because it would be beneficial



to other universities.

*Nikolay Tomov: There are other reasons why it's difficult to collaborate with them. This is something related internally to the culture of Bulgaria, so I do not wish to discuss it.*

**Q: UNISEC Meeting Attendee: You say that you have many aerospace companies in Bulgaria. And you also mentioned that you started a master's program in aerospace engineering. So how do you get people working in a company when you start national-level education?**

*A: Nikolay Tomov: I didn't mention lots of companies. I just mentioned that we have startups and we have some companies working in this area. So, starting in 2019, the first aerospace engineering program, these students have been attracted to these companies. Some students have established startups that were part of the aerospace engineering program, and other students are internally educated and developed by the companies that employ them. Just as an important detail - Bulgaria doesn't have many space companies. I don't want to make any comparisons with other countries – where we are, what is stopping us, and so on. But as I mentioned, this is part of the political situation in Bulgaria which makes harder any good initiatives in the country. For example, in 3 years we had 7 elections with various governments. So, you can imagine that it's not so easy. I'm not complaining, but we need government support and sustainability. For now, it's a bit challenging. That's why the industry is driving the aerospace sector in this situation.*

**Q: UNISEC Meeting Attendee: I am really curious because EnduroSat is one of the biggest companies in Satellite Industry. So, I'm wondering how they can pull these human resources to operate in Bulgaria.**

*A: Nikolay Tomov: If I'm not wrong, they have 200 employees. And they have 20-30 employees who graduated from the Aerospace engineering program in Bulgaria. It's not a well-checked information.*

## **4 Local Chapter Activity Report (3)**

### **4. Charleston Dale Ambatali, UNISEC - Philippines**

Dr. Ambatali graduated from the University of the Philippines and received his BS and MS degrees in 2016 and 2017, and his PhD from The University of Tokyo in 2024 supported by the Japan International Cooperation Agency (JICA). From 2017 to 2018, he worked in the PHL-Microsatellite Project 1: Bus Development in which he supported the development of the DIWATA-2, a 50-kg class cube satellite. He joined the University of the Philippines as an Assistant Professor at the Electrical and Electronics Engineering Institute in 2018, specializing in Microwave Theory and Wireless Communications. His PhD dissertation topic was space-based solar power satellites looking into microwave wireless power transfer mechanisms.



*Pictured: Dr. Ambatali during his presentation*

### Highlights:

- Established in 2019
- 15 member universities, 15 professors, and 60 students
- UNISEC-Philippines updates
  - **New Point of Contact: Charleston Dale Ambatali, Assistant Professor at the University of Philippines**
  - New member university: Indiana Aerospace University
- Attended/Participated in
  - UNISEC-Global Meeting 2019
  - CLTP (CubeSat/CanSat Leader Training Program) 2022
- Hosted/Organized
  - Local chapter meetings (October 2024)
  - Amateur Radio Trainings and Lectures on small satellites
  - SE4E: Space Education for Educators
- Space Projects
  - Maya-2,3,4,5,6 deployed
  - Maya-7 under development
  - TERESA and TALA rockets
- Is in active collaboration with PhilSA
- Maya-7
  - 2U CubeSat
  - Next in line under the Maya CubeSat heritage
  - Project started from 2022
  - Participants are Scholars of PhilSA AS ASTRA program
  - Participants enrolled in the Nanosatellite Engineering Track of University of Philippines
  - 9 missions, 4 of which are from winners of National Mission Idea Contest
  - PDR (Preliminary Design Review) and Preliminary Design Model (PDM) finished as of Nov 2024
  - Currently PDM review and EM design is underway
- STAR Lab
  - Established by one of the member Universities -Adamson University
  - Supports Space Engineering Education in University and other public engagements
  - Facilities
    - GRS (ongoing development)
    - ArcGRS
    - HeptaSat Training Kits
    - Reflector Telescope
    - GPU Server, etc.
  - Activities
    - Attended conferences and presentations e.g. IAC 2024
    - Ongoing research proposals and multiple publications

- AD ASTRA Lab – another research laboratory in Philippines for advanced research
  - First university in the Philippines to participate in the Spaceport America Cup
    - Competed in the 10k Solid Rocket COTS category
    - Launched SIBOL Rocket in June 2024
- Space activities in IAU (Indiana Aerospace University)
  - Model Rocket Competitions
  - CanSat Drop tests from a weather balloon
  - Space Week
- Plans for 2024-25 and beyond
  - Continue development of Maya-7
  - Continue Space activities in member universities
  - Explore possible collaborations with SGAC Philippines for webinars and space-related events

**Q/Ans:**

**Q: Rei Kawashima: What is the most difficult part in organizing and managing UNISEC Philippines?**

**A: Dr. Charleston Dale Ambatali:** *Currently, we don't have any administrative staff that is supporting us. So, all of the members that are managing local chapters are doing it voluntarily. And part-time. So, we don't have any dedicated staff that help us manage everything. Especially since the step-up project, the one that developed the MAYA-6 and MAYA-5. Their project already ended and there's no more funding. So currently we don't have any administrative staff. That is the biggest challenge right now. So, it's kind of difficult to organize all the members at the moment.*

**Rei Kawashima:** *So, what makes it happen then? What do you need?*

**Dr. Charleston Dale Ambatali:** *I'm hoping to get funding to hire full-time staff. To be able to manage different activities or organize webinars and invite some speakers from training. Or purchase HEPTA sat kits. We'll manage, I guess. Currently, we're busy with organizing rocket competitions. I think we'll be able to have more people help us in the next year. I see that happen.*

**Q: Rei Kawashima: Can you explain about the rocket competitions? How do you choose the winner?**

**A: Dr. Charleston Dale Ambatali:** *So, the rocket competitions are organized by the new member university- IAU. The rocket propellant has already been decided, and provided by the university. So, the participants only need to design the frame of the rocket. The IAU engineers will install the propellant, and the rocket should be able to reach 4 km. I forgot the end result, but I believe the team that reaches the highest altitude wins. There are two categories- CanSat, and CanSat plus rocket. So, the CanSat category will only be launched on a rocket designed by IAU, but for the CanSat plus rocket category, the team will design both the CanSat and the rocket, together. And they will launch the CanSat in their rocket. They will measure whatever they want to measure. So, we want to see if the missions are feasible and if the missions are safe. So that's what we're trying to do right now.*

**Q: UNISEC Meeting Attendee: In the Philippines, is the rocket testing done in military areas or public area? Where do you launch it for 4km?**

**A: Dr. Charleston Dale Ambatali:** *So, in the Philippines, there are many areas where it's open land without any settlements nearby. So, we'll travel from the university to the place where they are authorized to launch rockets. They are identified as sites safe to launch rockets up to 4km. it's a rural area.*

**Q: UNISEC Meeting Attendee: Are there any reviews before the actual launching of rockets?**

**A: Dr. Charleston Dale Ambatali:** *Yes.*

**Q: UNISEC Meeting Attendee: You have a lot of universities participating in UNISEC Philippines.**

## How do you convince universities to join UNIESC Philippines? What is the strategy?

**A: Dr. Charleston Dale Ambatali:** *To be honest with you, the new universities that joined us, approached us out of the blue. We haven't done any recruitment campaigns in the past year. So, this new university just sent me an email asking me to join. That's what happened. I'm not sure about other member universities, as I was not the point of contact then. It could be because, at that time, we went from university to university. Not for recruitment, but for space engineering courses and seminars. Just for lectures. And they contacted us asking if they could join. Creating a local chapter for the Philippines. So, I guess that's what happened. Currently we don't have any recruitment campaigns for UNISEC Philippines.*

**Q: Mohammed Khalil Iraqi: How to sustain the activities? In local chapters, many challenge comes from the financial aspects. How do you tackle these issues in UNISEC Philippines.**

**A: Dr. Charleston Dale Ambatali:** *At the moment, we're also having issues financially. So, these rocket competitions are mostly funded by the Indiana Aerospace University. It's a contribution from member universities. and at the UNISEC Philippines too, we're looking for funding to support the administrative activities at the very least. We currently just manage by doing lectures and seminars mostly. At the moment. To spread the space engineering knowledge in the Philippines. That is, I guess in terms of finance and spending. That is not that much to organize.*

## 5 Local Chapter Activity Report (4)

### 5. Joseph Matiko, UNISEC - Tanzania

Dr. Matiko is currently working as a lecturer at DIT, Tanzania. He is also the central leader of a Regional Flagship ICT Centre, which is being established under the support of the World Bank. He obtained a BEng degree in Electronics and Telecommunication Engineering from the Dar es Salaam Institute of Technology (DIT), his MSc in Wireless Communications at Lund University, Sweden, and his PhD in Electronics and Computer Science at University of Southampton, UK. His current research interests include blockchain technology, mobile computing, embedded electronics for IoT, energy harvesting for low power electronic devices, machine learning, and biomedical signal processing and Space Technology.



*Pictured: Dr. Matiko during his presentation*

Highlights:

- Established in 2024
- Brief information on Tanzania
  - Official Name is United Republic of Tanzania
  - Capital – Dodoma
  - 945087 km<sup>2</sup> area
  - 61.7 million people
  - Home to tallest mountain in South Africa
  - Home to tanzanite - rare gemstone only found in Tanzania
- 8 member universities, and more expected to join
- Plan for 2024-2025 and beyond
  - Officially launch of Tanzania local chapter
  - Capacity building: Conduct training sessions for students and staff
  - Participate in global events like the 10th UNISEC global meeting
  - Continue the development of a 1U CubeSat
  - Collaborate and submit joint space research proposals
  - Work on the 3U CubeSat proposal under J-CUBE program
  - Support space research activities, work with the government and mobilize resources

## Plan for 2024-25 and beyond

1. **Official launch of the UNISEC-Tanzania Local Chapter** - Coordinate and execute the formal launch event.
2. **Participate in Global events** - Attend the 10<sup>th</sup> UNISEC Global Meeting and other relevant international Space and UNISEC events.
3. **CubeSat Development** - Continue the design and development of a 1U CubeSat.
4. **Joint Research Proposals** - Collaborate and submit joint space research proposals, including a 3U Satellite proposal under the "J-CUBE" program.
5. **Develop the Space Engineering Program** - Develop and accredit the Space Engineering Program for space human resource development.
6. **Training and Capacity Building** - Conduct training sessions for students and staff to enhance skills and knowledge in space technology.
7. **Resource Mobilisation** - Mobilise resources for the establishment of satellite development and testing laboratories.
8. **Space Research Activities** - Conduct and support space research activities.
9. **Academic Engagement** - Organise academic forums and conferences focused on space research and engineering.
10. **Support the Government** - Engage and support the Government in the implementation of the newly developed National Space Strategy.

*Pictured: Dr. Matiko presenting the plans for 2025*

### Q/Ans:

**Q: Rei Kawashima: I understand that professors are keen to work with the space projects. What about the university students? Are students also motivated to do this?**

**A: Dr. Joseph Matiko:** *Yes, that's absolutely correct. At the moment, as I said, we have just begun venturing into space-related initiatives. The initiative is mostly driven by the researchers, but we have just started engaging the students. For example, we are developing the CubeSat, and we will need to have LoRa sensors that will measure environment information and send it to the satellite. The LoRa sensors will be in the ground which are developed by the students. But they are mainly based in DIT, so one of the ideas is that because we have the local chapter, we want to engage students from all universities across the country. That's one of the plans that we are planning to implement right after launching. Launching will be like a platform to engage the vice chancellor and the dean of colleges so that they become aware and allow the students to participate in these activities. So that's the plan.*

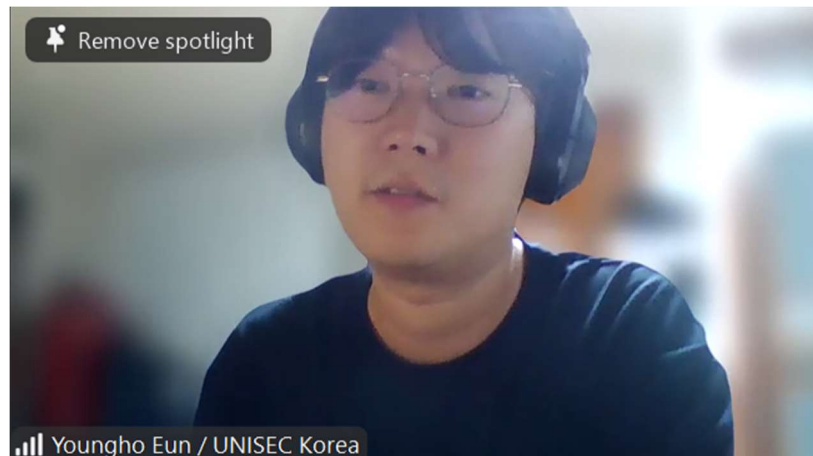
**Q: Mohammed Khalil Iraqi: Do you have a figure on the number of students on UNISEC Tanzania right now? Or are you still in the process of coordinating newly joined universities?**

*A: Dr. Joseph Matiko: I don't currently have the number at the moment, so we are just starting to coordinate to see how many students will be interested in joining UNISEC-Tanzania. But I believe the turnout will be good. That is my expectation.*

## 6 Local Chapter Activity Report (5)

### 6. Youngho Eun, UNISEC - Korea

Dr. Youngho Eun is a Research Professor in the Department of Satellite Systems at Yonsei University. He completed his PhD at Yonsei University in 2018, focusing on hardware experiments for spacecraft proximity operations. Before returning to Yonsei in 2023, he began his academic career at the University of Sydney, where he worked as a Postdoctoral Research Associate and Associate Lecturer at the School of Aerospace, Mechanical, and Mechatronic Engineering and was also affiliated with the ARC Training Centre for CubeSats, UAVs & Their Applications (CUAVA). During this time, he contributed as the chief mechanical engineer to three Australian CubeSat missions—CUAVA-1, CUAVA-2, and Waratah-Seed-1. Now at Yonsei, he leads student teams in building a series of CubeSats, including HYVRID, waiting for launch in Q1 2025, VISION, and so on. His research interests include spacecraft guidance, navigation, and control (GNC), satellite systems, and emerging areas like space situational awareness.



*Pictured: Dr. Eun during his presentation*

### Highlights:

- Established in 2024
- 2 universities are involved currently: KAIST and Yonsei
- Korea Advanced Institute of Science and Technology (KAIST)
  - Research focus is on
    - Space Altitude Determination and Control
    - Spacecraft Guidance and Navigation
    - Spacecraft Systems Engineering
  - Started research and development of CubeSats from 2017
  - Conducted flagship projects like
    - QB50
      - Started in 2017
      - Network 50 CubeSats in a string-of-pearls configuration
      - The main mission objective was to observe the thermosphere/ionosphere
    - LINK (Little Intelligent Nanosatellite of KAIST)
      - Collect scientific data to make an atmospheric model
      - Payloads
        - INMS (ion/neutron mass spectrometer)
        - Langmuir probe (maximize temporal/spatial resolution)

- K2SAT
  - The 3U CubeSat missions included:
    - To improve ground information
    - To collect images of a subject area
    - To enable voice repeating between aircraft and ground station
- RANDEV
  - 3U CubeSat
- Beacons of LINK were received regularly for 90 days
- Beacon malfunction occurred in August 2017
  - I2C Communication was suspected
- Yonsei University
  - Specializes in Astrodynamics and Control Laboratory
  - Established a new department called ‘Satellite Systems’
  - Formation Flying Technical Demonstration Mission for Virtual Telescope Projects
    - CANYVAL-X (2020)
      - CubeSat Astronomy with NASA using Virtual telescope Alignment Experiment
      - 2U, 1U sizes
    - CANYVAL-C (2021), same project continuation
  - Other Projects
    - Monochrome Imaging for Monitoring Aerosol by Nanosatellite (MIMAN)
      - To monitor aerosol on the west sea
      - 3U CubeSat
      - Launched in June 2022, and still operational as of now (Nov 2024)
    - Hanwa-Yonsei Verification for Laser Ranging & Defense (HYVRID)
      - Satellite Laser Ranging Verification
      - Sponsored by Hanwa, a defense company in Korea
      - 3U CubeSat
    - Very high-speed Inter-satellite link System using Infrared Optical terminal & Nanosatellite
    - Shortened for VISION
      - Laser communication satellite
      - Currently under development, has reached EM (Engineering Model)
      - 6U \* 2EA

**Q/Ans:**

**Q: Rei Kawashima: Are there any Korean University that are interested in deep space missions?**

**A: Prof. Youngho Eun:** *In Uni level, I don't there is much we can tell from our situation. As you know, our space agency had established about a year and a half ago. And lunar exploration is the main target. There could be some projects that would open soon.*

**Q: Rei Kawashima: Will the US space agency decision influence the university activities or not?**

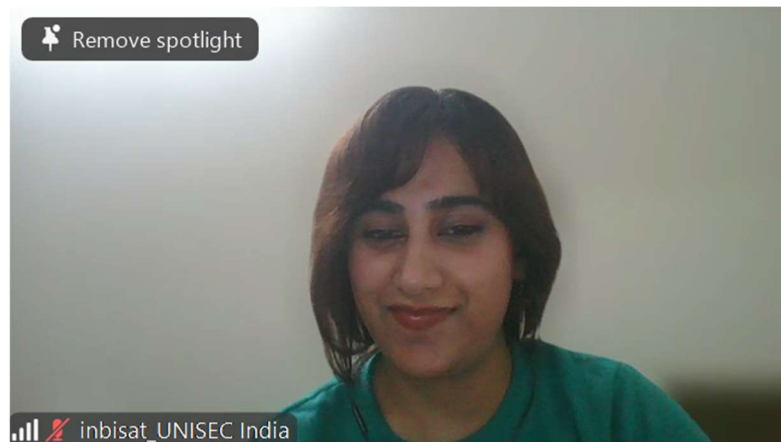
**A: Prof. Youngho Eun:** *If they make a decision, then, I mean, what sort of decision are we talking about. Yes, it would affect, I would say. It would affect us in a good way.*

## 7 Local Chapter Activity Report (6)

7. Inbisat Yousuf Nath, UNISEC - India

Inbisat Yousuf Nath is a PG Scholar of Physics at The Central University of Kashmir. She is also a Student Representative of UNISEC-India. She currently also interns at the Indian Technology Congress Association (ITCA) and has experience serving as the coordinator at the Astronomy Department of ScienceOverse, scholar at Womanium, and intern at Abdus Salam International Centre for Theoretical

Physics (ICTP). She has worked on projects named Python Implementation for Xray Spectral Analysis of Active Galaxies and QuantumSquareWellPy.



*Pictured: Inbisat during her presentation*

### Highlights:

- Mission is to advance space development in India by fostering collaboration, education and innovation
- Vision is to
  - Be a catalyst for space initiatives
  - Nurture a vibrant community of professionals
  - Actively participate in global endeavors
- 5 resolutions were set before 2024
  - Goal 1: Increase Membership by 50%
    - Met with 60% increase in Membership
  - Goal 2: Collaboration and Partnership
    - Met with 3 international collaboration and 2 national collaborations
  - Goal 3: Educational Initiatives
    - Met with 6 workshops and a satellite mentorship program
  - Goal 4: Events, Conferences and Publications
    - Met with 4 events & 15+ Course Materials/Books Published with ISBN
  - Goal 5: Increase social media engagement by 30%
    - Could only reach 27% engagement
- Major Achievements by team India in competitions
  - Reached top 10 in the final round of 9<sup>th</sup> Mission Idea Contest hosted by UNISEC
  - Reached top 3 in Taiwan International Mission Idea Contest (TIMCC 2024)
- National Space Day celebrated at NIT Srinagar
- UNISEC team participated in 8<sup>th</sup> Bangalore Space Expo 2024
- Interactions with Roscosmos, Russia for potential collaborations
- Interactions on 'Kashmir Students Satellite' with Dr. Naseer Iqbal, University of Kashmir
- Inaugurated UNISEC India and WCRC Chapter hosted by Kalvi Group of Institutions
- Kalvi Group preparing to launch its own satellite in the coming year as a part of '75 students satellite mission'
- Achieved Innovative indigenous development of satellite subsystems
- UNISEC India is a supporting partner of 75 Students Satellites Mission
- UNISEC India can offer cost effective solutions to member institutions and universities
  - E.g. CubeSat test beds for testing altitude determination and control system
    - Antenna Deployment Mechanism
- 75 Students' Satellites Consortium Mission
  - **To launch 75 student-made satellites into orbit**
  - Initiated to commemorate the 75 years of India independence
  - The mission is a partnership with national and international institutions
  - Received honorable mention by PM Narendra Modi in 76<sup>th</sup> United Nations General Assembly
- Upcoming Event: Global Summit 2024 in Bangalore, India; Featuring



- Hackathons, Ideations, Competitions
- Presentations, Startups
- Rocketry Championships
- AR-VR-360-degree intelligent imaging solutions
- Innovative prototype presentations
- Essay writing, Quiz, Painting, Poster Design, Logo making competitions



## On Going Noteworthy Projects.....

### 75 Students' Satellites Consortium Mission Indian Technology Congress Association, Bengaluru

ITCA has initiated the ambitious "75 Students' Satellites Mission 2022" to commemorate the "75 Years of Indian Independence" (1947-2022) by launching 75 student-built satellites into orbit in conjunction with national and international tech-space organizations. The Mission is a partnership of institutions that will construct and launch their own student-built satellites by 2022. As everyone of us aware that this unique Indian initiative "75 Students' Satellites Mission" has been mentioned by Honourable Prime Minister of India Shri Narendra Modi Ji during his address to the global leaders at the 76th United Nations General Assembly on Saturday, 25 September 2021.

#### Supported by Space Professional Organisations/Programmes



*Pictured: Inbisat presenting about '75 Students' Satellites Mission'*

### Q/Ans:

**Q: Rei Kawashima: In total how many universities are the member of UNISEC India?**

**A: Dr. K. GopalKrishan:** *Previously we had around 36 institutions. Now there are more than 52. Some old members, we have revived them and we've added some.*

**Q: Mohammed Khalil Iraqi: Regarding the CubeSat kit which UNISEC India is developing. Is it in development stage, or is it already developed and you are using it for training?**

**A: Dr. K. GopalKrishan:** *It is fully developed and we have heritage status. Already 3 satellites we have launched in 2021. And now currently we've developing the engineering model and flight model is also being ready. In the next months we are playing with 12-15 satellites. This can be available for global community. We would like to market in future. But developmental kits and other classroom satellites are also available for training and other hands-on workshop.*

## 8 Announcement and Acknowledgment

8. Haruka Yasuda, UNISEC-Global



*Pictured: Yasuda-San announcing the latest updates from UNISEC-Global*

### Highlights:

- **Introduction of New Point of Contact**
  - United States – Arifur Khan
  - Korea – Youngho Eun
- **The Mission Idea Contest**
  - MIC8 book has been published on the IAA website
    - <https://iaaspace.org/product/the-mic8-report/>
    - Costs 10 Euro
    - Contains full papers of MIC8 finalists and the semi-finalists
  - 9th Mission Idea Contest (Preliminary Workshop)
    - Theme is Lunar Mission
    - 10 finalists were selected
    - Will make an in-person presentation at Preliminary Workshop on November 27
  - Website: <https://www.spacemic.net/>
  - Important Dates:
    - Final Presentation: November 27, 2024 (South Africa)
  - Contact: [info@spacemic.net](mailto:info@spacemic.net)
- **13<sup>th</sup> Nano- Satellite Symposium**
  - Date: November 25-27, 2024
  - Venue: Protea Hotel Technopark, Stellenbosch, South Africa
    - [https://www0.sun.ac.za/UNISEC-SAR/nanosat13/call\\_for\\_papers/](https://www0.sun.ac.za/UNISEC-SAR/nanosat13/call_for_papers/)
  - Registration for 13<sup>th</sup> Nanosatellite Symposium and 10<sup>th</sup> UNISEC-Global Meeting
    - <https://www0.sun.ac.za/UNISEC-SAR/nanosat13/>
  - Deadline: Wednesday 23 October 2024
- **HEPTA-Sat Training in South Africa (UN Workshop)**
  - Date: November 30, 2024
  - Venue: Stellenbosch University, South Africa
  - Capacity: 40 people
  - Tuition: Free of Charge
  - Please let UNISEC-Global know if a UNISEC-Global community member wants to attend
  - [https://www.unoosa.org/oosa/en/ourwork/access2space4all/access2space4all/KiboCUBE\\_Academy\\_Webinars/onsite2024.html](https://www.unoosa.org/oosa/en/ourwork/access2space4all/access2space4all/KiboCUBE_Academy_Webinars/onsite2024.html)
  - Registration Deadline – Nov 20
  - <https://forms.office.com/e/7uYMQu41yK>
- **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](mailto:info-jcube@unisec.jp) , <http://unisec.jp/serviceen/j-cube>

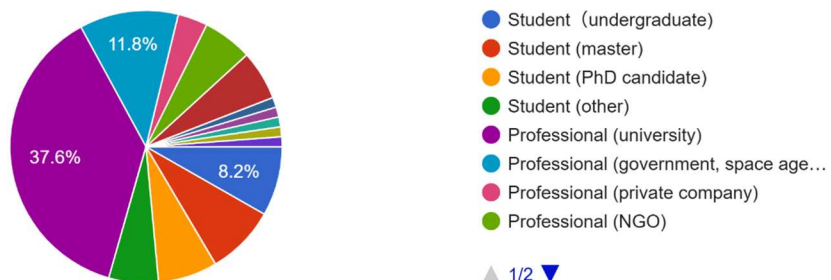
## 9 Participant Statistics

85 registered participants from 25 countries and regions for the 50<sup>th</sup> Virtual UNISEC-Global Meeting.

Participation for 50 <sup>th</sup> Virtual UNISEC-Global Meeting			
Country	Registrants	Country	Registrants
Argentina	1	Namibia	1
Bangladesh	1	Nepal	4
Belarus	1	Norway	1
Bulgaria	4	Paraguay	2
Burkina Faso	4	Philippines	6
Dominican Republic	1	Republic of Korea	2
Egypt	14	Taiwan	7
Germany	2	Tanzania	12
India	5	Thailand	2
Indonesia	1	Turkey	2
Japan	7	UK	2
Mexico	1	US	1
Myanmar	1		

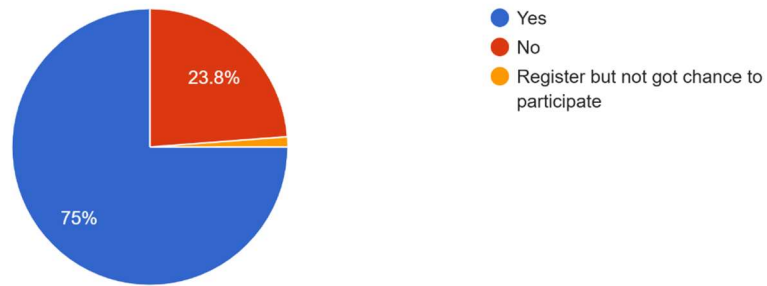
Student or professional?

85 responses



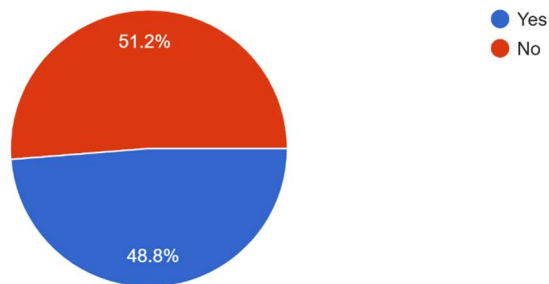
Have you participated in the UNISEC-Global Meeting previously?

84 responses



Have you ever participated in Local Chapter activities in any regions?

80 responses



Talking: Re...

## UNISEC-Global Social network accounts

 @uniseccglobal  
<https://www.facebook.com/uniseccglobal/>

 @unisecc\_global  
[https://www.instagram.com/unisecc\\_japan/](https://www.instagram.com/unisecc_japan/)

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

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Thank you