

UNISEC-Global The 38th Virtual Meeting

October 21, 2023, 22:00-24:00 (Standard Japan time GMT +9)



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1. Opening Remarks

Sinichi Nakasuka, University of Tokyo

Prof. Sinichi Nakasuka was born in Osaka in 1961. After graduating from the Department of Aeronautics and Astronautics at the University of Tokyo in 1983, and receiving a Ph.D. in Aeronautics in 1988, he joined a computer manufacturer and became involved in research around Artificial Intelligence and automated manufacturing. In 1990, he became a lecturer at the University of Tokyo, then subsequently an assistant professor of the Research Center for Advanced Science and Technology, University of Tokyo, and a visiting research fellow in the United States. He has been a professor at the Department of Aeronautics and Astronautics since 2004. His research fields are space engineering and intelligence for space systems.



Pictured: Prof. Nakasuka giving the opening remarks

- Nanosatellite Symposium (NSAT) started an educational project of Hodoyoshi Project (2010-2014)
- First took place in Tokyo in 2010, second took place just after the big earthquake in 2011
- From 6th NSAT, the event took place alongside ISTS in 2015
- ISTS (International Space Technology Symposium) is a very large international conference
- 12th edition took place in Kurume, Japan in 2023
- The Hodoyoshi Project built four satellites with the funding from the government
- Established ground station and ground testing facility for 50kg class satellites
- New reliability concept introduced called the "Hodoyoshi Concept"
- NSAT's agenda aligned with Hodoyoshi for human resource training and outreach
- NSAT covers all aspects of nanosatellite development from architecture to education
- NSAT aims to create a global community for research and know-how exchange
- While starting NSAT, the nanosatellite community was very small and in infant state
- New mission ideas, legal/tech solutions, human resource expansion took place through NSAT
- Such activities lead to "Game Change" where now cutting-edge space tech being developed
- However, the educational and experimental component still remains
- Example: Component technology selection/development for space through Hodoyoshi
- Example: RwandaSat-1 which was a capacity building project led by Nakasuka laboratory
- Example: Cutting-edge technology demonstration by a 6U CubeSat with advanced guidance/navigation
- Others include launch opportunity, interface standard improvements and lesson learnt
- Additional topics of ground station, satellite operation and education
- How to organize NSAT
 - Organize local team, look for funds, discuss with UNIGLO and apply
 - The submissions will be 10 months before where:
 - Period, site, financial plan should already be fixed
 - All the necessary conference aspects should be done concurrently
 - Visa, travel, residence and also IT related infrastructure should be ready
 - Several proposals for 13th NSAT and 10th UNISEC Global meeting venue to be presented today
- Each local chapter will nominate a person and the person shall have one vote
- Final votes will be made in the 9th Annual UNIGLO Meeting

2. UNIGLO Candidate Presentation by UNISEC-SAR

Arno Barnard, University of Stellenbosch

Dr. Arno Barnard received his B. Eng. (Electric and Electronic) in 1999 and MSc Eng. (Computer Systems) in 2001. He completed his PhD in Electronic Engineering in 2020. His PhD was on "Radiation effects on digital electronics: Testing principles and Practices". He served at University of Stellenbosch as Junior Lecturer from 2001-2003, Engineering Manager from 2003-2009, and Lecturer from 2010. Since 2001, he's been involved with several satellite development projects including *Sumbandila* satellite project. He is also the point of contact of the UNISEC Southern Africa Region (UNISEC-SAR).



Pictured: Dr. Barnard stating why UNISEC-SAR should host next UNISEC Global Meeting

- Host 2024 event or later, preferrable for September during spring
- Detailed preparation right after 2023 events have taken place
- T-10 months to T-6 months: finalize host location, dates, committee and reviewers
- T-4 months to T-1 months: call for proposal, selection, notification to authors, final schedule
- T-0 will be the event
- Stellenbosch is almost at the southern tip of South Africa, 30m drive from airport
- 2nd oldest town in South Africa, first choice city for hosting the event
- If the participation is large, then the event would shift to Cape Town
- STIAS conference at Stellenbosch
- Visit to Electronic Systems Laboratory which has had extensive research experience
- Industry visits to satellite, space industry and startups in the area
- Multiple guest houses, hotels and Airbnb in the area
- Gala dinner with added visits to wineries, sunset trip to Cape Town harbor
- Option II would be at Cape Town or Somerset West
 - CTICC: Cape Town International Conference Center
 - Hosted IAC in 2011 with more than 4000 participants
 - Industry visits, sightseeing will be the same as Option I
- Organizing Committee includes
 - Arno Barnard, Willem Jordan and Herman Steyn
- Local sponsor options include 10+ satellite technology companies in the region
- Universities and local government could also chip in
- Conference staff will include trained staff, event managers, day-to-day support from students
- Visa documentation will be issued and help them with their application
- Financial management will be through Stellenbosch University's (SU) system

- Much more accessible for African nations, if done at South Africa
- Established reputation for new space related research and industry
- Good promotion of Stellenbosch University's space education programs
- Prepared to host
 - Nanosatellite Symposium (NSAT)
 - Mission Idea Contest (MIC)
 - UNISEC-Global Meeting (UNIGLO), in person event
- These can be combined with CLTP/HeptaSat training and CubeSat/Space Tech workshops
- Conference costs raised through registration, exhibition slots, government, sponsors, uni.
- Organizer: UNISEC-SAR along with SU's Electrical and Electronics department
- Participant expectation is about 60-80 international and 15-30 national
- Expenses expected in hall, refreshments, kits, transportation, excursions, admin
- Expenses for participants include airfare (EUR 1000+), urban transport, accommodation
- Stellenbosch/Cape Town area promotion areas include
 - Table-mountain and national parks with jungle safaris
 - Botanical gardens, wine cellars, shark cage diving, hot air ballooning
 - All within 1 hour drive from Stellenbosch

How many, How much



- Participants expected (10th Global Meeting / 13th Nano-satellite Symposium)
 - International participants = 60+ / 80+
 - local participants = 15+ / 30+
- Expenses expected
 - Conference hall, rooms = Fixed price plan depending on services rendered, TBD
 - Meals, tea/coffee = Connected to conference venue, €2000
 - Conference Staff = €500 to €1000, for local students
 - Transportation = Excursions €500 to €2000 depending on attendee numbers
 - Web creation and operation = ~ €200 Admin fee gives SU IT support available, local web hosting available
 - Conference kits (bag, program, etc) = €50 to €100, depending on sponsorships
- Expenses for participants/attendees
 - Accommodation €100 per night (economy) €400+ per night (5* high-end!)
 - Transportation Airport (Uber ~ €20), in town most areas are walking distance
 - Airfare = €1000+ if outside Africa

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UNISEC GLOBAL

Pictured: Calculated costs as shown by UNISEC-SAR to organize UNISEC Global Meeting in South Africa

3. UNIGLO Candidate Presentation by UNISEC-Taiwan

Jyh-Ching Juang, National Cheng Kung University

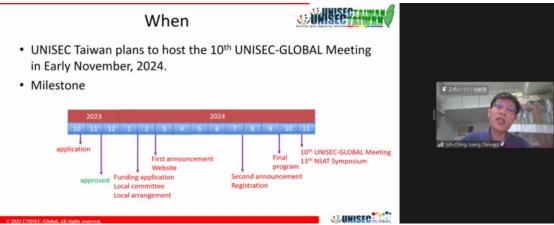
Professor Jyh-Ching Juang received the B. S. and M. S. degrees from National Chiao-Tung University, Hsin-Chu, Taiwan, in 1980 and 1982, respectively, and the Ph. D. degree in electrical engineering from University of Southern California, Los Angeles, in 1987. He was with Lockheed Aeronautical System Company, Burbank before he joined the faculty of the Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan in 1993. His research interests include satellite navigation and control, sensor networks, GNSS signal processing, and software-based receivers. He is coordinating a nano/micro-satellite development team at National Cheng Kung University.



Pictured: Prof. Juang's bid for UNISEC-Taiwan to host the next UNISEC Global Meeting

<u>Highlights:</u>

- UNISEC-Taiwan plans to host 10th UNISEC global meeting early November 2024
- Milestones include
 - Q1 2024: fund applications and website announcement
 - Q2 2024: preparations
 - Q3 2024: second announcement registration and final program
 - Q4 2024: final program(s)
- Two options for Tainan city or Taipei city, most likely in Tainan city
- South of Japan, 3-4 hours travel from Japan
- Local organizing committee will consist of members of UNISEC-Taiwan
- Local sponsors could include National Science and Technology and Taiwan Space Agency (TASA)
- Conference staffs will be employees, university staff, volunteers and students
- Visa support will be provided
- Taiwan has implemented space enabling programs for space
- Taiwan has implemented several programs to simulate space business
 - Local and international companies (big and small) are involved
- FUTEX recently took place in Taiwan where emphasis was placed on space tech
- UNISEC-Taiwan meeting will provide opportunities for networking, discussions
- Will host UNISEC-Global Meeting and Nano-satellite Symposium
- Can also host HEPTA-Sat training as a side event
- Taiwan International Assembly of Space Science, Technology and Industry (TASTI)
- TASTI is an annual program and can be held together
- Conference expenses through registration fees, government support, donation
- Conference initiation and lead will be done by UNISEC-Taiwan
- Expected expenditure for the conference is about 10k+ USD
- For participants, expenses include daily expense (\$40), accommodation (\$150)
- Additional expenses include Transport (\$200) and registration (\$250)
- Compared to Tokyo, the expenses are cheaper in Taiwan



Pictured: Timeline for UNISEC-Taiwan to host the next UNISEC Global Meeting

4. UNIGLO Candidate Presentation by UNISEC-New Zealand

Jim Hefkey, University of Auckland

Mr. Jim Hefkey is the director of the Auckland Program for Space Systems – an undergraduate program that challenges students from all disciplines to identify and solve a problem using satellites. CubeSat's being built from this program will be launched into orbit through New Zealand's own launch provider. With a life-long interest in space, Jims' goal is to establish space education programs throughout New Zealand. He is a graduate of the CLTP in Japan, NZ contact for UNISEC Global, active in the New Zealand Rocketry Association, and a foundation member of the KiwiSpace Foundation. He currently holds the position of Professional Teaching Fellow at the University of Auckland and has been part of a team working with University and Government to establish the Space Systems Institute for NZ. As well as his space related activities he lectures in Engineering Systems, Technology Management and Engineering Management.



Pictured: Jim Hefkey presents UNISEC-New Zealand's bid for UNISEC Global Meeting

- Host city is Auckland, New Zealand in mid to late November 2024, University of Auckland
- Remarkable track record of hosting large events
- Temperate climate, 8000 hotel room capacity, safe destination
- Easily accessible from oversees from 29 international airlines flying direct
- Visa exemption for 60 countries world wide
- The University of Auckland (UA) is located at heart of the city
- Owen G Glen Building has multi-purpose facilities, 9 theatres with max 570 pax
- All rooms are equipped with state of art audio-visual equipment
- UA professional event management teams
- Why host:
 - Inaugural event for UNISEC-NZ
 - Aerospace degree first time in 2 universities
 - Dr. Sarah Kessins from University of Canberra and Jim Hefkey (UA) involved
 - Catalyze cooperation between all universities
 - Showcase research and development from NZ to the world and vice versa
 - Demonstrate programs from UA
 - The aerospace industry in NZ is ready for Nano-Satellite Symposium
 - Can host Mission Idea Contest, UNISEC-Global Meeting and Nano-satellite Symposium
- Budget is estimated to be close to 67k USD, the Nano-satellite Symposium est. cost around 104k USD
- Open to special topics and themes
- UA has experience in solving issues before and has the experience to host such events
- Auckland offers rich cultural and nature-based experiences for participants
- Top class dining experience paired up with world class wine, great food
- Waiheke island is nearby and is a popular destination
- UA has a vineyard in the it's vicinity and can be an attractive destination for participants
- Group tour to Rocket Lab facilities and National Satellite Testing facility at UA
- Can visit Hamilton, Rotorua, Canterburry and Queenstown

Social Event Venues



Pictured: Social event venue for participants to visit in New Zealand

5. Question and Answer (Q&A) Session

Q by Rei: My question is we need to choose one venue this time, if you cannot organize it this time but you want to organize it in different time, maybe 2026? Is there any reason to do it in 2024. In case of New Zealand, they want to take this opportunity to kick-off UNISEC-NZ. How about Taiwan or South Africa?

Arno Bernard: Like I had mentioned in my presentation, there is quite a lot African countries entering the space arena and now next week we will be doing HEPTA sat workshop where we will have participants from Botswana and Zambia. So, market is growing in southern Africa and the rest of Africa. I know from previous experience that it is very difficult for most of these countries to travel far. It will make it lot more open and easier to do the UNISEC activity here.

Jyh-Ching Juang: This year and last year, the government has put in lot of resources in the space industry. In the upcoming TASTI, they talk about space, science, technology and industry. I think the timing is right for UNISEC-Taiwan if we could host the event next year. A lot of local industry is looking for international scholar and also lots of students are thinking about going abroad to learn space technology. I think meeting next year will be a good activity for this kind of interaction

Comment by Nakasuka Sensei: All the proposal are very attractive so it is very difficult to decide. I like to consider but it's very difficult. One of the important objectives of the symposium and the meeting is to promote this kind of activity within the country and now I heard that every country has that kind of unique objective to host his UNISEC global meeting. Which makes it even more difficult, thank you for your presentations.

Q by Rei: Have you already talked to the government or space agency in your country?

Jyh-Ching Juang: We have not formally talked but we have discussed with our local UNISEC-Taiwan government to form the government. I have not talked directly to the government but if we get the green light, we should be able to get the funding from TAST and also local government.

Arno Bernard: Similar scenario here as we have not formally approached but the space agency is very supportive of local space efforts as you might have seen during IAC. They support local industries including start-ups as well. Government is supporting them so that they can stand on to compete internationally. Overall, the government is positive.

6. Local Chapter Student Presentation by UNISEC-Burkina Faso

André Zoungrana, Zerbo University



Pictured: André presenting about UNISEC-Burkina Faso

<u>Highlights:</u>

- Burkina Faso located in West Africa, 274,400 km sq, 22.7 million population, 60 ethic groups
- Capital city is Ouagadougou with French as their official language
- Tropical climate with 3 zones, 2 seasons of rainy and dry
- Mineral resources include gold, zinc, copper, diamond (not explored)
- Joseph Ki Zerbo and Burkina Institute of Technology members of UNISEC-Burkina Faso
- POC is Dr. Siddhi Zongo of Joseph ki Zerbo University

7. Local Chapter Student Presentation by UNISEC-India

Inbisat Yousuf Nath, Central University of Kashmir



Pictured: Inbisat highlighting some of the work done by UNISEC-India

- In the last one year, UNISEC-India has established 24 local chapters across India
- India chapter was introduced in 2018 at UNISEC-Global Meeting held at ISU, France
- Actively involved in publishing materials for students to learn about space technology
- Hands-on training including CanSat trainings
- Met Rei at IAU 2023 Azerbaijan
- Attended UNOOSA Meeting at Vienna

- UNISEC-India has close ties with Serbia, collaborations in space tech and health care
 - Through UNISEC-India's initiative, 35 ground stations are being established in India
 - Currently 36 satellite student satellites are being made, FM ready by 5-6 months
 - UNISEC-India signed historic MoU to launch 75 student satellites presence of Prime Minister
 - IN-Space and ISRO are involved, free launch by the entity
- Southeast European Space Association established through India Serbia collaboration
- UNISEC-India team actively participated at Bangalore Space Expo 2022
- Record number of students attended the regular event in 2022, good exposure and networking
- Coordinated with ISRO to watch rocket launches including recent Chandrayan-3
- Rei presented at UNISEC-India's attended event at Cambridge Institute of Tech
 - Rei highlighted the triple helix model to improve space tech and education
- Participated at the World Cansat/Rocket Championship (WCRC) and opened local chapter
- MoU signed with ISRO for capacity building activities with UNISEC-India
- 75 Student's Satellite Consortium to commemorate "75 Years of Indian Independence"
- Launch 75 student built satellites in Low Earth Orbit (LEO)
- In the process, collaborated with local space industries to make the consortium possible
- "Cubes in Space" program, UNISEC-India support to school students for NASA event
- Sponsoring students and professors to attend international seminars and conferences
- 1U, 2U and 3U educational satellite systems have been developed successfully
- SpaceLab on Wheels; a mobile ground station that can go anywhere in India for outreach
- Government school student's satellite called Puneet Satellite sponsored by Gov of Karnataka
- 3 more satellites to be built through UNISEC-India through Karnataka Gov support
- Successfully launched UNITY-Sat (3 in 1 satellite), celebrated 3rd anniversary recently
- Attended seminars in Japan, Russia, Germany including UNISEC-Global meeting in Japan
- Hackathon/CanSat Workshop organized by UNITYsat students team in Bangalore
- Provided internship opportunities for IIT Kanpur students
- Created coworking spaces in respective UNISEC-India universities for students to build and learn
- All information will be available at the website: https://www.unisec-india.in/

8. Local Chapter Student Presentation by UNISEC-Italy

Michela Boscia, Sapienza University of Rome



Pictured: Michela presenting some of the unique programs being implemented by UNISEC-Italy

- La Sapienza, University of Bologna, Polytechnic of Turin, Tor Vergata
- MIC participation by La Sapienza and Polytechnic of Turin in 2019
- MIC participation by La Sapienza and Federico II University of Naples in 2023
- UNISEC-Italy organized 33rd UNISEC-Global Virtual Meeting in June 2023
- Student activities include stratospheric balloon launches, launched in 24 Sep 2023

- Experiment was successful, explored use of SDR for GNSS Radio Occultation
- 12 students from UNISEC-Italy participated
- LEDSat-2 through the Fly Your Satellite! (FYS!) program, currently in development phase
- Team composed of 40 students from BSc and MSc courses, led by three MSc students
- So far 6 satellites have been developed and launched (1 in process) by La Sapienza
- La Sapienza's satellite development work is being done by Sapienza S5Lab
- New concept of Analog Astronaut Missions being conducted
- Concept is to use caves as a habitat for extra-terrestrial missions to other planets
- Recently conducted 24-hour analog mission organized in Pozzo Comune's Cave, Italy
- 50% representation by women, scientific and telecommunication mission conducted
- Mission name is GEA and is a speleology Analog Mission conducted in caves

Q by Rei: Can you explain more about this Analog Astronaut Project?

This time it's the second course for Italian students to start this project. The first one ended in June and all of the students were invited to join. The next step for us is to do another 72-hour analog mission in Italy to start to understand what kind of environments caves represent.

Q by Rei: Is it possible for me to join?

Yes of course, you can join. This is one of the first things that the students in the course do.

9. Local Chapter Student Presentation by UNISON-Japan

Keigo Mutsuo, Nihon University



Pictured: Keigo presenting about UNISON's activities in Japan

- UNISON Japan consists of 50 groups with total of 800 students
- Celebrated 20th anniversary in 2023
- CanSat, hybrid rocket and satellite development, all have working groups
- Largest group in Japan for such kind of educational satellite development
- Active participation in UNISEC's General Assembly and Workshop
- Noshiro Space Event held at Noshiro city with 500 students participating
- ARLISS at Black Rock Desert in US is annual event since 1999
- ARLISS is Amateur rocket competition also includes CanSat launches
- UNISEC-Japan participates every year, multi-national competition with bring back missions
- Kada Space Event held at Kada, Wakayama City with hybrid rocket launches
- Izu Island Space Event at Oshima, Tokyo with hybrid rockets, CanSats and model rockets
- UNISEC Rover challenge replicates actual lunar conditions for tech and student tech demo

10. Recommendation to host Symposium and Meeting

Alim Rüstem Aslan, Istanbul Technical University

Prof. Alim Rustem Aslan and UNISEC-Turkey had organized the previous version of UNISEC Global Meeting in Istanbul, Turkey.



Pictured: Prof. Aslan giving words of advice to future organizers

<u>Highlights:</u>

- Impressed with India's progress
- Organizing the symposium and meeting is preferable to do it together
- Preparing such an event in Istanbul was simple as the Uni. provided transport, venue
- (Prime) location and facilities at the venue is important
- Metro station at the campus that allowed proper local transport (in Istanbul)
- Proper website necessary with collection of papers
- Very large network of industry and helps when local gov has support for small satellites (in Istanbul)
- Funding through registration, exhibition, support from your budget
- If you have questions, please let me know, support of UNISEC-Global is strong

11. Announcement and Acknowledgement

Haruka Yasuda, UNISEC-Global



Pictured: Yasuda-san announcing the latest updates from UNISEC

- Change of Point-of-Contact of Romania (Announcement)

- Prof. Daniel-Eugeniu Crunteanu
 - Director General of the Romanian Space Agency (ROSA)
 - 20+ extensive experience in teaching experience
 - PhD from Aerospace Engineering from Polytechnica University of Bucharest

- Mission Idea Contest (MIC8)

- 10 finalists and 2 semi-finalists selected
- Final presentation will be held on Nov 29, 2023 during UNISEC Global Meeting
- Broadcasted online, offline venue will be Muromachi Mitsu Hall
- Register here: http://www.spacemic.net/application.html, contact info: info@spacemic.net

- 9th UNISEC-Global Meeting

- Venue: X-Nihonbashi Tokyo, Japan, in-person event
- November 27 December 1, 2023
- Collaboration with Nihonbashi Space Week 2023
- Deadline of "Early Bird" registration postponed to October 26, 2023
- Complete Program
 - Nov 27: HEPTA- Sat Training (1-day course)
 - Nov 28: Space Job Fair, International Space Job Party
 - Nov 29: Keynote Speech, MIC8, Reception for 10th UNISEC-Global Anniversary
 - Nov 30: Regional Report, Company Presentation, Earth Observation Data Workshop
 - Nov 30: Student session
 - Dec 01: Regional Report, Student Activity Report, J-Cube Workshop
 - Link: <u>http://www.unisec-global.org/meeting9.html</u>

- J-Cube Launch Opportunity

- Special discounted launch opportunity for 1U, 2U and 3U
- Deployment from International Space Station
- Collaborate with a UNISEC-Japan University
- Technical support will be provided
- J-Cube Session will be held on Nov. 30, 2023 at the 9th UNISEC-Global Meeting
- Link: <u>http://unisec.jp/serviceen/j-cube</u>
- Contact: <u>info-jcube@unisec.jp</u>

12. Participant Statistics

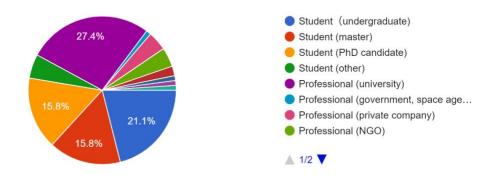
95 registered participants from 33 countries and regions for the 38th Virtual UNISEC-Global Meeting.

Country/Region	Number of registrations	Country/Region	Number of registrations
Argentina	1	Pakistan	2
Bangladesh	3	Paraguay	2
Bulgaria	1	Peru	2
Burkina Faso	20	Philippines	1
Colombia	1	Romania	3
Dominican Republic	2	Russia	1
Egypt	2	Rwanda	1
Ethiopia	1	South Africa	2

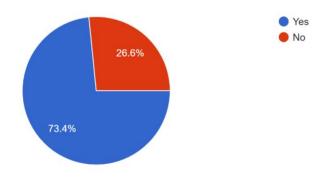
Country/Region	Number of registrations	Country/Region	Number of registrations
Germany	1	South Sudan	1
India	5	Taiwan	5
Indonesia	1	Thailand	3
Italy	3	Tunisia	2
Japan	15	Turkey	3
Kazakhstan	1	UK	1
Kenya	1	Zimbabwe	1
Namibia	1	New Zealand	1
Nepal	5		

Student or professional?

95 responses



Have you participated in the UNISEC-Global Meeting previously? 94 responses



UNISEC-Global Social network accounts

Talking: Rei



Thank you