

IAC 2024 Next Generation Plenary Proposal

75th INTERNATIONAL ASTRONAUTICAL CONGRESS

Milan, Italy

14-18 October 2024

Students and Young Professionals, We Want Your Input!

Apply to be part of one of the NextGen Plenary panels during the International Astronautical Congress (IAC) 2024, in Milan. Come and showcase your ideas and work in front of an audience of senior space leaders in government, industry and academia! The two proposed panels will cover these topics:

- 1. **Space for the UN Sustainable Development Goals: Making the SDGs Real by Harnessing the Power of Space for All People***
- 2. **Intelligent Space: Big Data, Advanced Algorithms, and Autonomous Robotics in Space***

The NextGen Plenary - An Overview

The [International Astronautical Congress \(IAC\)](#), the premiere international space event, displays successes and trends of the sector through its Plenary Programme with proposals selected via competition. The NextGen Plenary (NGP) gives students and young professionals from around the world the opportunity to showcase their work and projects in front of the international space community. The plenary is a moderated conversation between the panelists and the esteemed moderator. This is an exciting opportunity that you do not want to miss!

How does the NGP Process work?

- This current document is a call for **applicants to be selected as panelists for one of the two plenary proposals**, being drafted by the NGP Steering Committee for submission to the IAF.
- Panelists will be selected via a **global competitive process** (see **Application Process** below) by subject matter experts to identify the best candidates and showcase the diversity of successful efforts related to the two proposal topics.
- Though both plenaries are still in the application stage, if approved, one of the proposed panels will be selected by the IAF as the Next Generation Plenary to take place during the week of **14-18 October 2024, in Milan, Italy** at IAC 2024. We will be notified of the selected topic following the IAF Spring Meetings in March 2024.
- The Next Generation Plenary Steering Committee is committed to the success of both our proposed panels and in the event the plenary application process for either is unsuccessful, we will find an appropriate alternative venue for the panels during IAC 2024, as we have done since IAC 2019.

The 2024 NextGen Plenary Topics

TOPIC 1 - Space for the UN Sustainable Development Goals: Making the SDGs Real by Harnessing the Power of Space for All People

The United Nations Sustainable Development Goals (UN SDGs) were first announced in 2015 as a set of 17 goals to support global sustainability by 2030. The SDGs follow up on the UN Millennium Development Goals (UN MDGs) of 2000-2015 to become more trackable, quantifiable, and inclusive of global matters like climate change, education, gender equality, economy, and social justice.

Apart from the wider SDG topics, each topic has been tasked with [SDG indicators](#) that serve as metrics to measure progress and keep stakeholders involved & accountable. Many of these indicators track changes that are measurable from space, or can be enhanced using space-enabled platforms.

This session aims to showcase young professionals and emerging leaders who are actively involved in space initiatives that are aligned with the UN SDGs, or improve the tracking, awareness, or active engagement with the UN SDGs.

This session asks you to share your experiences related to:

- Using UN SDGs as an organizational goal or milestone, either in product/service offerings, improving internal corporate/organizational governance, or supporting interorganizational/international activities
- Being present at UN SDG-related forums to increase awareness of space platforms being used for UN SDGs
- Working on sustainability projects that fall within one of the 17 UN SDG categories

This proposed Next Generation Plenary will especially focus on examples of how space can be an enabler for global sustainability practices. Earth Observation has already enabled companies and governments to track global climate change, carbon emissions, monitor illegal maritime activities and piracy, and support wildlife habitations. Space is becoming a new domain for sustainability as more fields such as space data, communications, security, and space medicine are developed that impacts global governance (goal 16 and 17), urban design and mobility (goal 11 and 12), and health sciences (goal 3 and 6). We would love to share your work with the wider community, showcasing you and your ideas on the 2024 NextGen Plenary stage—please consider applying!

QUALIFICATION FOR TOPIC 1:

The plenary serves to:

- Highlight significant contributions to how young professionals who are involved in sustainability, or who are pushing space companies and organizations to work on sustainability practices
- Showcase unique ways in which space can be used for, or serve as platforms for, or track sustainability metrics, especially those outlined by UN SDGs and UN SDG Indicators
- Provide models in which space can be used to improve the wide areas of sustainability topics of the UN SDGs to keep the international community more informed, and ensure accountability by 2030

Panelists will be selected who demonstrate outstanding existing contributions to one or more of the following categories:

- Researching, studying, or working in fields that are space-related and focused on initiatives that are aligned with the 17 UN Sustainable Development Goals
- Are actively engaged with a project that aims to support one of the 17 UN Sustainable Development Goals
- Demonstrating an impact on improving the lives of all people from within the space sector.

TOPIC 2 - Intelligent Space: Big Data, Advanced Algorithms, and Autonomous Robotics in Space

Intelligent systems refers to the general infrastructure of using data and information to conduct sophisticated and complex operations, which includes big data, automation, artificial intelligence, and machine learning. Intelligent systems are becoming a growing cornerstone of space operations due to its increasing complexity, lack of capacity for real-time human intervention, and the huge amount of variables involved. This topic aims to highlight opportunities for harnessing automation to conduct space operations.

This session aims to showcase young professionals and emerging leaders who are actively involved in space initiatives that utilize intelligent systems, augment space operations with advanced algorithms, or conduct data-based activities in space.

This session asks you to share your experiences related to:

- Use of autonomous robotics to assist or replace human spaceflight, such as autonomous construction robots, robotic arms around space stations for EVAs, or robotic support in zero-g environments
- Creating and curating space-sourced big data systems especially in terms of data storage, data integration, data processing/accessing, and cloud computing
- Developing, managing, or utilizing advanced algorithms for spacecraft operations, such as tracking space debris, stationkeeping, redirecting space assets, and docking/launching spacecrafts in space
- Transitioning existing advanced algorithms for Earth for use in space, such as terrestrial navigation, obstacle avoidance, and object manipulation for lunar/Martian driving or construction applications
- Ensuring space data integrity such as space bandwidth management, curating inter-satellite networks, data traffic with multiple ground stations during downlink, and minimizing data loss or correcting data corruption.

This proposed Next Generation Plenary will especially focus on how intelligent systems can operate in the space environment, where there is less data, greater communication distances, and a more extreme environment for robotics systems. The plenary will also seek to hear voices from those who are interested in data-driven governance, combating data-based biases, artificial intelligence ethics, or laws, regulations, and policies of using automation for space environments. We would love to share your work with the wider community, showcasing you and your ideas on the 2024 NextGen Plenary stage—please consider applying!

QUALIFICATION FOR TOPIC 2:

The plenary serves to:

- Highlight significant contributions to how young professionals who are involved in intelligent systems (data, algorithms, robotics) are conducting projects in space (spacecraft operations, satellite data, beyond-Earth exploration)
- Showcase unique ways in which the next generation of space leaders are integrating different fields of computer science, robotics, and law/policy to make space operations more intelligent
- Identify aspects in which space operations can become safer, more inclusive, and more efficient by using intelligent systems

Panelists will be selected based on the demonstration of outstanding existing contributions to one or more of the following categories:

- Actively using or developing intelligent system components (data, algorithms, robotics) for space operations
- Engaging with various stakeholders in the intelligent systems communities (software engineers, data acquisition firms, etc) and the space domain (space agencies, satellite companies, etc.) to consider key space topics such as space sustainability, space domain awareness, space traffic management, and space exploration
- Identifying novel ways in which space systems and platforms can improve intelligent systems, such as space-based communications, space-proven robotics, or space-based data storage

Application Process

To apply, applicants must be students or young professionals between 18 and 35 years old, as of the 1st of January 2024. Applicants cannot have participated as a panelist in a previous NGP panel.

Round One

To take part in round one:

- Create a 15-second video telling us very briefly the project you are working on that connects to the themes of the panel, and why you should be selected to address the IAC.
- You must be on screen and must speak for the full 15 seconds.
- We will only watch/listen for 15 seconds, so be sure to not exceed this amount of time!
- Post your video to YouTube as an unlisted video (NOT private).

In addition to uploading your video, **you must complete the Plenary Panelist Application by the deadline by filling out one of the two following forms** (you cannot apply to both plenaries). **Deadline for Round 1 submissions: 5th January 2024 (11:59 pm GMT)**

1. ***Topic 1: Space for the UN Sustainable Development Goals: Making the SDGs real by Harnessing the Power of Space for All People - [Apply Here!](#)***
2. ***Topic 2: Intelligent Space: Big Data, Advanced Algorithms, and Autonomous Robotics in Space - [Apply Here!](#)***

Round Two

- We will select the Round Two subset of candidates from the above and notify all entrants by **30th January 2024**.
- Specific details of Round Two requirements will be sent to the candidates in the notification.
- Selected candidates for Round Two will be asked to create and post a three-minute video on YouTube as an unlisted video (NOT private).
- **Deadline for Round 2 submissions: 20th February 2024 (11:59 pm GMT).**

Application Guidelines

Video Details

Please record your video:

- In a high-quality audio and video format with a minimum resolution of 720p
- In a landscape orientation (horizontal)
- With limited special effects and no music: the video is about you, not your video editing skills
- Without copyrighted videos, images or music

If you are selected as a panelist, we will require the rights of your submitted videos: segments of your submissions will be used during the plenary and to promote the plenary in advance. Evaluators are looking for videos that are aligned with the theme of the plenary and that incite curiosity and interest among the viewer. P Make sure to publish your video on YouTube as an unlisted video (NOT private).

Final Selection

We will select the finalists from these entries based on their impact, efficacy of messaging, and relevance to the plenary topics; we also take into consideration the IAF's 3G (Geography, Gender, Generation) diversity criteria.

We will be looking for concrete descriptions of how you are actively engaged with the panel topic, and why this area is vital to your work or studies. The IAF will make the final selection of plenaries for the IAC in Milan by the end of March. If you are selected for a panel, you will be coached on public speaking in preparation for the plenary including monthly meetings with the other panelists and moderator.

We will notify applicants of the final outcome by 1st April 2024.

Application Timeline

- 5th January 2024 Application Deadline
- 30th January 2024 Outcome Notification to Round 1 Applicants
- 20th February 2024 Submission Deadline for Round 2
- End of March 2024 Plenary Proposal Outcome announced by IAF
- 1st April 2024 Final Outcome Notification to Applicants

Funding your IAC2024 attendance

Plenary participants will be responsible for finding their own sponsor(s) to cover for travel, accommodation, and conference tickets to attend IAC2024 in Milan. In addition to the obvious sources of sponsorship – yourself, your family, employer or school, and industry contacts – we want to share with you some programs applicable for students and young professionals (typically awarded through selection processes starting in **January/February 2024**):

- The IAF Emerging Space Leaders Grant Programme. See <http://www.iaf-grant-programme.org/>
- The Space Generation Advisory Committee (SGAC) provides travel scholarship opportunities for students and young professionals to attend the Space Generation Congress (SGC) and International Astronautical Congress (IAC). The SGC event is held prior to the IAC in Milan. Visit spacegeneration.org, and their scholarship page spacegeneration.org/scholarships for more information.
- Your national space agency and its space agency education programme. National Space Agencies provide scholarships to attend events at the IAC. You can check available scholarships here: <https://iseb.space/student-sponsorship-opportunities/> or contact your national space agency. In particular, students from Europe, Japan, Korea, Canada and the United States are encouraged to contact their national space agency: ESA, JAXA, KARI, CSA and NASA respectively.
- The Future Space Leaders Foundation offers grants to students and young professionals in the United States. More information can be found at <https://futurespaceleaders.org/#grant>.

Contact

If you have any questions, please do not hesitate to contact [nextgenplenary.iaf \[at\] gmail.com](mailto:nextgenplenary.iaf@gmail.com)