



CASSINI
Hackathons & Mentoring

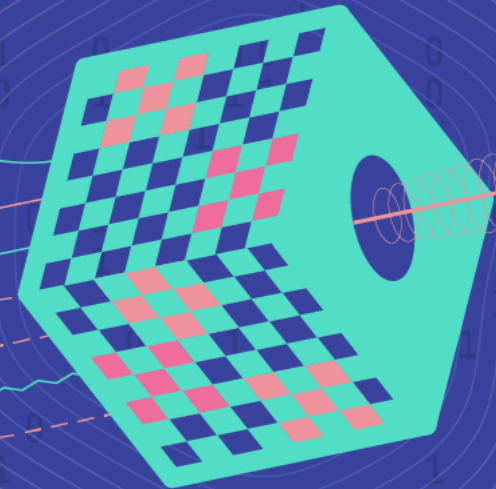
Participant Playbook

International Development
& Humanitarian Aid
3-5 November 2023

Implemented by

VERHAERT | MASTERS IN INNOVATION

 **space-tec**
PARTNERS





The participant playbook is intended to guide you through the **most important information** about the **6th CASSINI Hackathon & Mentoring**.

Inside you will find information about the **tools, platforms, and communication channels** you need to make the most of the weekend.

We can't wait to see how you use EU space technologies to **support international development & humanitarian activities!**



What you will find in this playbook



1. Core information

- Overview of the 6th CASSINI Hackathon
- The theme and challenges
- Connecting with the EU Space programme
- EU Space programme
- Tools & resources
- Accessing help & support

2. The Hackathon

- The Hackathon events
- The 10 local organisers
- Accessing the data
- The hackathon agenda & rules
- Overview of the hackathon platforms
- The Demo Day & Awards Ceremony

3. Mentoring programme

- Introduction to the programme
- How it will work
- Meet some of our seasoned mentors





The 6th CASSINI Hackathon & Mentoring | 3-5 November

Connecting with issues that are **important for our future**

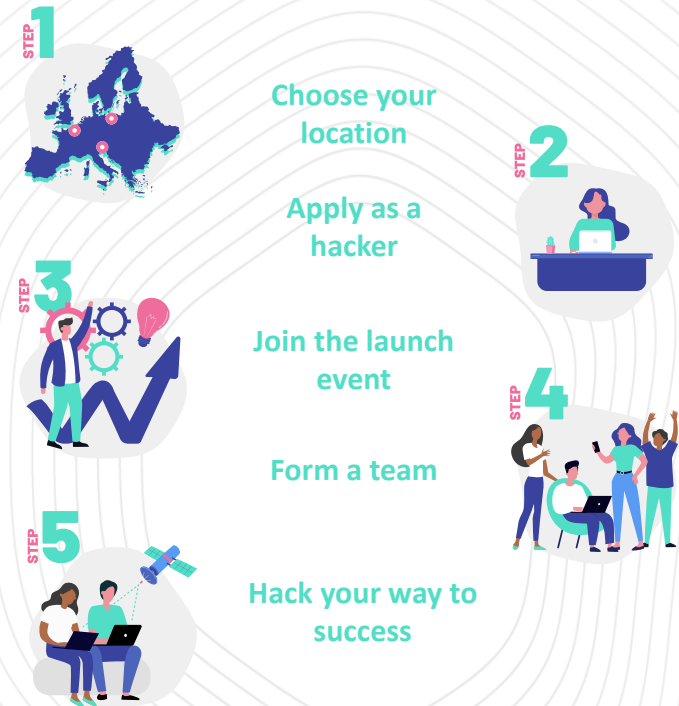
What **resonates with the next generation** of coders?

In the 6th CASSINI Hackathon, participants are challenged to create solutions that use European space technologies to support sustainable international development and help people in need.

Despite progress made in recent years, millions of people around the world still lack access to basic life necessities, hindering their ability to lead healthy lives. Better infrastructure, access to clean water and secure food supplies, as well as assistance in times of emergency are important to ensure vulnerable communities have the chance to thrive and grow. A deeper understanding of the effects of climate change will also contribute to a more resilient future.

By utilising Earth observation data from **Copernicus**, satellite positioning and navigation services from **Galileo & EGNOS**, the hackathon aims to bring about real change that improves the design and delivery of humanitarian assistance and international development support around the world.

Applying is easy!



Space for International Development & Humanitarian Aid

#1

Supporting sustainable infrastructure development

#2

Strengthening food security & access to clean water

#3

Understanding and forecasting forced migration



Challenge #1: Supporting sustainable infrastructure development

A country's infrastructure is critical to guarantee access to essential services. It drives economic and social growth, creating more job opportunities and better quality of life. Energy, communication and transportation are examples of basic infrastructure that are often taken for granted but that many people worldwide still lack. Space technologies can help us further explore, plan and maintain infrastructure developments, such as solar and wind power generation. Space-based timing and communication technologies can support improved systems coordination and control, and in the case of energy, enable more efficient and reliable transmission and distribution of electricity.

This challenge calls on tomorrow's innovators to **develop products, devices, or services that leverage European space data, information and signals** from Copernicus and Galileo or future services using IRIS² to enable sustainable and impactful solutions. We encourage participants to dive into the areas of:

- Spatial planning & site selection for infrastructure development
- Renewable energy production forecasting
- Future-proofing transportation & mobility infrastructure
- Critical infrastructure monitoring and planning for remote communities
- Assess damages to infrastructure caused by natural disasters or conflict



Challenge #2: Strengthening food security & access to clean water

Access to food and water is a basic human right that remains a significant challenge for many populations around the world. Climate change, unsustainable land-use practices, and global supply chain disruptions further aggravate these challenges. Anticipating humanitarian crises and managing often-scarce resources are critical to strengthening overall access to food and water. Space technologies can contribute to improving food security by optimising land use, supporting accurate yield forecasting, and increasing supply chain resilience. They can improve access to clean water by identifying groundwater sites, understanding global water cycles, and monitoring and mitigating the effects of floods and droughts. Overall, space technologies have the power to enable humanitarian actors to better anticipate and prepare for future crises.

This challenge tasks participants to **develop products, devices, or services that leverage European space data, information and signals** from Copernicus and Galileo or future services using IRIS² to enable sustainable and impactful solutions. We encourage participants to dive into the areas of:

- Anticipatory action for extreme weather events, including impact-based assessments to the food value chain, water supplies, infrastructure and communities
- Agricultural yield forecasts and optimisation
- Logistics & resource allocation for emergency humanitarian assistance
- Land cover & land use monitoring
- Access and management of groundwater
- Monitor water quality parameters like algal bloom, cyanobacteria, suspended matter



2 ZERO HUNGER



6 CLEAN WATER AND SANITATION



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Challenge #3: Understanding and forecasting forced migration

Natural and man-made crises threaten the livelihoods of millions of vulnerable people worldwide every day. Rising sea levels erode shorelines, contributing to coastal flooding and increasing groundwater salinity, while changes in rainfall patterns affect water supplies and the availability of arable land in rural communities. War and conflict cause massive disruption to food and water supplies, personal security and property ownership. As a result, residents in these vulnerable areas are often forced to migrate in search of work or to ensure their safety. Space technologies can help us understand the impact of climate change on coastal and rural regions of less developed countries with insights on population movement and land use/land change. They can also support the design and delivery of humanitarian assistance to people in need.

This challenge tasks participants to **develop products, devices, or services that leverage European space data, information and signals** from Copernicus and Galileo or future services using IRIS² to enable sustainable and impactful solutions. We encourage participants to dive into the areas of:

- Digital tools and big data in migratory processes and population movements
- Planning, decision-making and resource allocation due to natural and man-made disasters
- Transportation and logistics to support displaced communities
- Impact of desertification in rural communities
- Monitoring coastal communities and erosion



13 CLIMATE ACTION



15 LIFE ON LAND

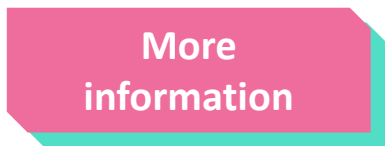


Connecting you with the EU Space programme

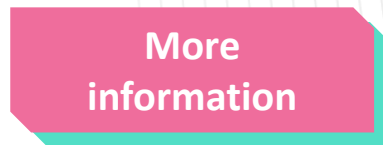
The EU Space programme consists of several flagship programmes including Europe's Earth observation, satellite navigation, secure communications and space situational awareness programmes. The hackathon challenges participants to use data and signals from Copernicus, Galileo & EGNOS or future services using IRIS2.



Copernicus is the European Union's Earth observation programme, looking at our planet and its environment to benefit all European citizens. It offers information services that draw from satellite Earth Observation and in-situ (non-space) data.



Galileo is Europe's Global Navigation Satellite System (GNSS), providing improved positioning and timing information with significant positive implications for many European services and users.



The European Geostationary Navigation Overlay Service (EGNOS) is Europe's regional satellite-based augmentation system (SBAS) that is used to improve the performance of global navigation satellite systems (GNSSs).



The EU Space programme continued

The CASSINI Hackathons & Mentoring will look to engage participants with secure communications and space situational awareness in future editions.

GOVSATCOM

The European Union Governmental Satellite Communications (GOVSATCOM) programme provides secure and cost-efficient communications capabilities to security and safety critical missions.

[More information](#)



The Space Situational Awareness initiative will provide Europe and its citizens with complete and accurate information on objects orbiting Earth, on the space environment and on threats coming from space.

[More information](#)



The IRIS2 Satellite Constellation will offer enhanced communication capacities to governmental users and businesses, while ensuring high-speed internet broadband to cope with connectivity dead zones.

[More information](#)



Spotlight on Copernicus data & information

Never worked with Copernicus Earth observation data & information? No problem!

We have put together some important resources to get you started:

- [What is the Copernicus programme?](#)
- [Overview of the programme](#)
- [Introducing the Copernicus Sentinel missions](#)
- [The Copernicus services](#)



Spotlight on Galileo & EGNOS

Just getting started using satellite positioning technologies? We have collected some important resources for you to get started:

- [What is Galileo?](#)
- [EGNOS and Galileo: Programme Reference Documents](#)
- [GNSS raw measurements white paper](#)
- [Database of GNSS raw measurements](#)
- [Glossary for GPS test](#)
- [GNSS market report](#)
- [Galileo-enabled devices](#)



All the tools you need to succeed!

As participants you have access to invaluable tools, training, and support to help you with your hacking. We provide everything you need, so you can give everything you got!



Data access

We want to minimise the time you need to spend processing data. That's why we've created a dedicated data cube for each hackathon. The data cube contains pre-processed Copernicus data and information about a specific geographical region and time period, focusing on the hackathon theme at hand. We are working with the Copernicus Data Space Ecosystem platform for the upcoming hackathon.

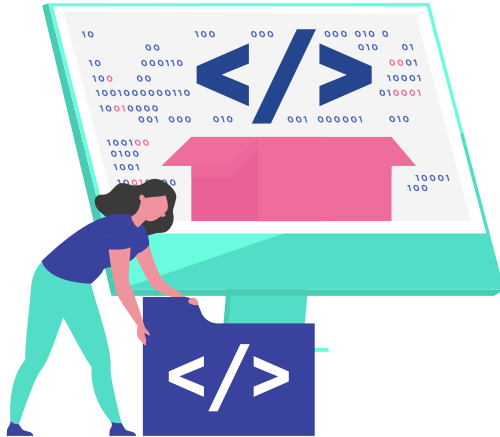
[Go to Copernicus](#)

Cloud infrastructure

Access virtual storage and computational resources for the duration of the hackathon. The Copernicus Data Space Ecosystem supports this hackathon edition and will enable you to discover, manipulate and download Copernicus data and information. You will also have all the processing power and storage you need to hack your way to success.



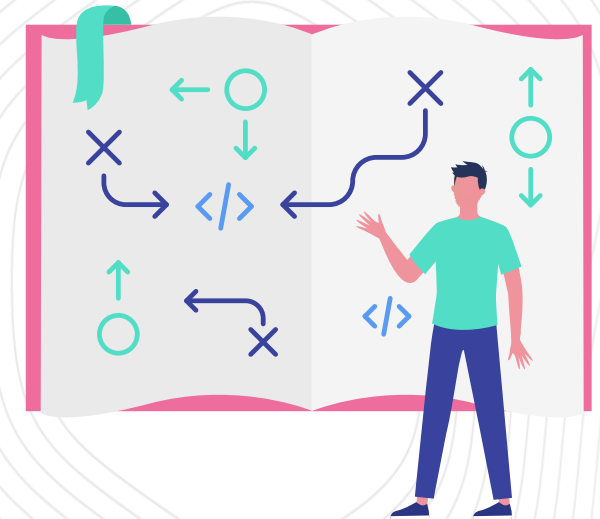
Some of our other tools...



Code repository

Still missing crucial data? We've got you! You will have access to our code repository for space-data sources. Hackers are invited to share their code with the CASSINI Hackathon community as open source on Github.

github.com



Playbook

New to hackathons? No problem. We've prepared two playbooks that will allow you to make the most of your first hackathon experience. Access helpful tips on how to face challenges, where to go if you need support, and what tools you'll be required to use throughout the event in the Participant Playbook. The Business Design Playbook guides you to discover, build and tap into business opportunities with your ideas.

[Business Design Playbook](#)

[Participant Playbook](#)



Looking for additional resources?

Here are a collection of publicly available trainings:



► **The Copernicus MOOC addresses 3 key topics:**

- **Chapter 1** - Understanding Copernicus data and services— what they are, and how they can be accessed and used
- **Chapter 2** - Learning from success stories – understanding how existing Copernicus-enabled services and applications have been developed and deployed
- **Chapter 3** - Doing it yourself – acquiring the key skills and knowledge to develop and deploy Copernicus-enabled products and services and to navigate the Copernicus ecosystem.

[Copernicus MOOC](#)



► **Attend Point.MOOC's 14 on-demand training sessions that will steer the technical and business development of your Galileo-enabled IoT product.**

In the first part of our Point.MOOC, you'll **learn all about the basics of creating an IoT business** by journeying through the customer problem, product concept design, business model creation and launching your product.

Not sure where to start with Galileo integration? The second part of Point.MOOC examines positioning in our connected world, and dives deep into Global Navigation Satellite Systems and the European system, Galileo.

[Point.MOOC](#)



Looking for additional resources?

Here are a collection of publicly available trainings:



▶ Access 18 webinars about entrepreneurship in the space industry by **Astropreneurs Training**.

From the potential for space data and funding sources, through to pitching and business plans, a wealth of knowledge and expertise awaits.

Astropreneurs is a **three-month acceleration programme** that includes **business and technical mentorship**, support to fund your business idea and access to our "SPACE Economy "Astropreneurs" network".

[Astropreneurs](#)



Space Academy



▶ The **EUSPA Space Academy** offers entrepreneurs a free and customisable online development programme. What's in it for you?

- Tailor your learning path with 7 topics & 18 modules spanning **business and technical** Copernicus & Galileo know-how
- Access **Q&A and workshop sessions with seasoned trainers** ready to guide you in the space entrepreneurship world
- **Book online mentoring sessions with +25 experts** from diverse backgrounds open to help you start or scale up your business.

[EUSPA Space Academy](#)



CASSINI
Hackathons & Mentoring



Meet the core team behind the hackathons & mentoring

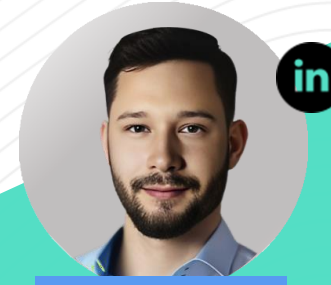
Got questions? One of us will get back to you with the answer.



Dany Robberecht



Florentyna Smith



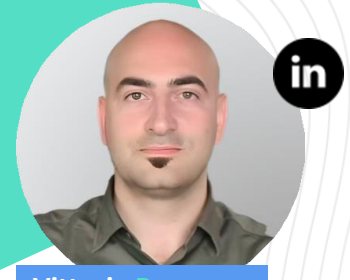
Mate Berke



Thomas Tanghe



Benoit De Vrieze



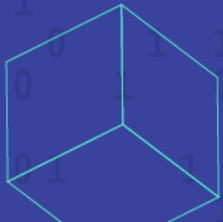
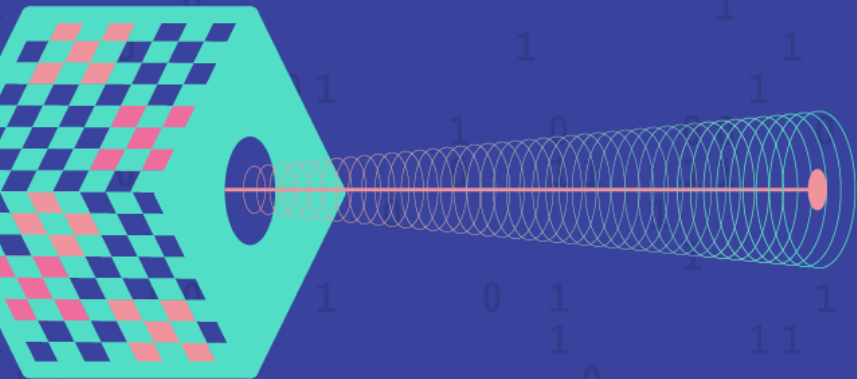
Vittorio Bava

Reach us at: hello@hackathons.cassini.eu





CASSINI
Hackathons & Mentoring



The Hackathon

In this section, you will find all the information you need to participate in the hackathon.

The CASSINI Hackathon event

Hackathon activities are split across three main events:



1. **Big ideas campaign**

9th – 19th October

2. **THE HACKATHON**

3rd – 5th
November

3. **Demo day + Awards**

9th November



The 6th CASSINI Hackathon takes place simultaneously in 10 different locations around Europe

All students residing in Europe, entrepreneurs, engineers, designers, researchers, policy makers, professionals, and others are welcome to participate. **No previous experience is required!**

On-site at one of the hackathon locations or remotely

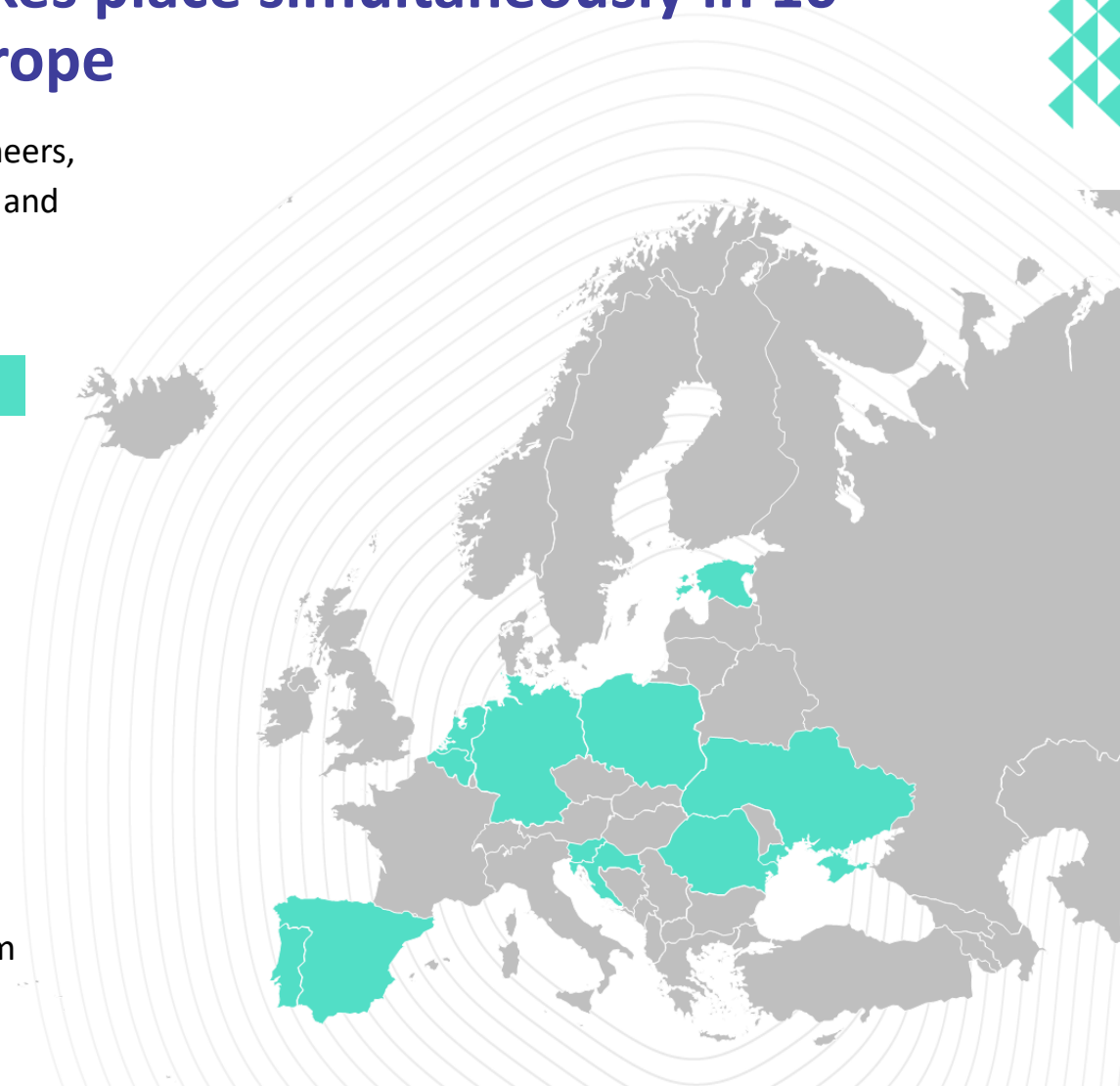
No previous space experience is required!

Check out our 10 locations:

- [Croatia](#)
- [Estonia](#)
- [Germany](#)
- [Netherlands](#)
- [Poland](#)
- [Portugal](#)
- [Romania](#)
- [Slovenia](#)
- [Spain](#)

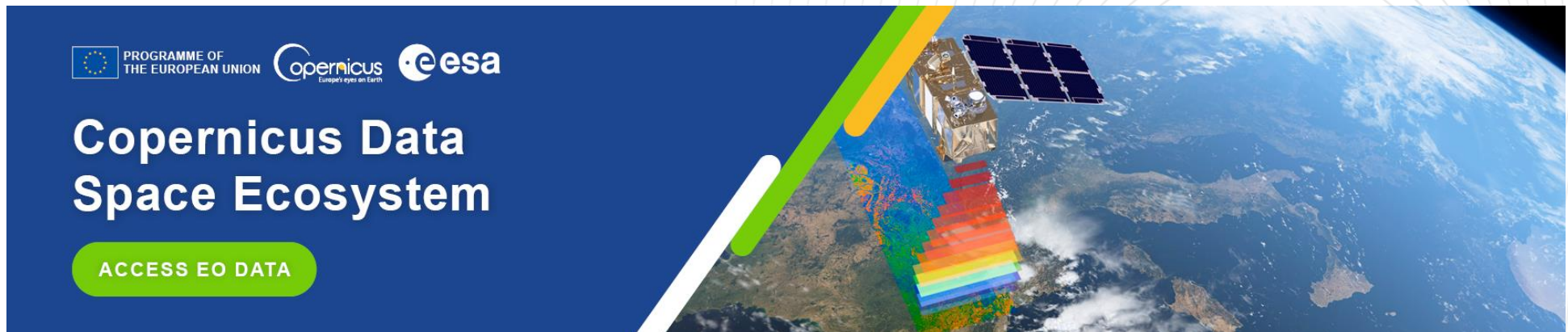
With an additional special organiser joining us from

- [Ukraine](#)



The Copernicus Data Space Ecosystem

- We are working with Copernicus Data Space Ecosystem to give you free access to cloud processing infrastructure and data storage for the duration of the event.
- The package includes:
 - **Processing tools:** Access APIs, versatile tools and web-based environments
 - **Data access:** Data & information at your fingertips
 - **Training & support:** Training sessions and technical support during the Hackathon Weekend



The Copernicus Data Space Ecosystem

- You can find tailored on-demand training videos on the Copernicus Data Space Ecosystem by visiting our [Tools page](#). This includes trainings on:
 - Introduction to Copernicus, the Data Space Ecosystem, and browser
 - How to use the Copernicus Data Space Ecosystem APIs
 - Introduction to Galileo & EGNOS
- Alternatively, you can also visit dataspace.copernicus.eu for further features, tutorials and highlights demonstrating the use of the Ecosystem, including:
 - Exploring the Copernicus Data Space Ecosystem
 - Sentinel data
 - Copernicus Browser
 - openEO

Other useful links:

- [Documentation Site](#)
- [Custom Scripts Repository](#)
- [Jupyter Lab](#)
- [Request Builder](#)
- [Sentinel Hub API Documentations](#)
- [openEO Algorithm Plaza](#)
- [Service Desk](#)
- [Copernicus Browser](#)
- [Github Notebook Samples Repository](#)
- [openEO web editor](#)



Getting started with Copernicus Earth Observation satellite data

- EUSPA has created a **simple guide on how to access Copernicus data** for people who hear about it for the first time.
- This file is not exhaustive, and it is meant to be used as a simple guide on how to access various Copernicus data. It is a good starting point if you want to learn more about Copernicus!

[Download the Guide](#)



The thumbnail shows a document with the EUSPA and Copernicus logos at the top left. The title is 'Getting started with Copernicus Earth Observation satellite data.' Below the title, there is a paragraph of text, followed by a numbered list of steps. The first step is '1. Find out what data on air quality is available. I review the list of Copernicus services and select the appropriate among Land, Atmosphere, Marine and others.' The second step is '2. Select Copernicus Atmosphere monitoring service (CAMS) and click on data in top right corner'. The third step is '3. Under Daily analyses and forecast click on European air quality'. There are two small screenshots of the Copernicus website interface, one showing a map of Europe and another showing a detailed view of the European air quality data.

Get to know the hackathon rules

General rules

- No development may start before the actual date and time of the Hackathon Weekend. Please do not begin hacking before **Friday 3rd November 2023 at 18:00 CET**.
- To ensure a level field for all contestants, all code must be created by the team, during the Hackathon Weekend.
- You are permitted to use publicly available or openly licensed APIs, SDKs, frameworks and other software libraries for your project.
- Any software development tools and/or programming language can be used.
- Teams that violate these rules will be automatically disqualified.

Hacker eligibility criteria

- Apply as an individual
- 18 years or older
- Reside in an EU member state, Norway, Iceland or Switzerland

Team criteria

- Minimum 3 & maximum 8 team members
- At least 1 with a technical profile and 1 with a business profile
- Have an idea to work on

For full information about participating the CASSINI Hackathons, read the [Terms & Conditions](#)



The Hackathon Weekend & Demo Day Agenda

Over the weekend, you can join the live stream via:



In addition, there will be sessions led by local hackathon organisers that you can access.

All times are in Central European Timezone.

November 3

Friday

19:00 Welcome to the Space for the Int Development & Humanitarian Aid hackathon

- Welcome & Introduction
- A word from the EU Agency for the Space Programme
- The theme & challenges
- Practical information
- Overview of the hackathon locations
- Last words

20:30 Ask Copernicus Data Space [Discord]

November 4

Saturday

9:30 Kick-off Session & What's Ahead

9:35 Meet our locations - Part 1

10:30 Ask Copernicus Data Space [Discord]

11:05 Meet our locations - Part 2

13:00 Interview Session with David Jelinek

13:15 Meet our Locations - Part 3

16:20 Check-in with the Teams

16:55 Round-up of the day!



The Hackathon Weekend & Demo Day Agenda

Over the weekend,
you can join the
live stream via:



In addition, there
will be sessions led
by local hackathon
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can access.

All times are in
Central European
Timezone.

November 5

Sunday

10:00 Kick-off Session & What's Ahead

10:05 Inspiration for your pitch

- Pitching Crash Course
- Interview with Official Visitor

14:30 **Submission deadline**

14:30 Local pitch show

17:45 Closing Ceremony

- Wrap up of the Hackathon Weekend
- Thanks from the European Commission
- Announcing the 10 local winners
- Info about the Demo Day

November 9

Thursday

18:00 Introduction to the Demo Day &
Awards Ceremony

18:12 Local winner pitches for jury

19:25 Awards Ceremony



Participating in the virtual hackathon

Click the register button on our website cassini.eu/hackathons/ and engage with us across these platforms:

Hackathon platform

Want to register as a participant? Great! Head to the hackathon platform, register, and join/form a team.

[To hackathon platform](#)

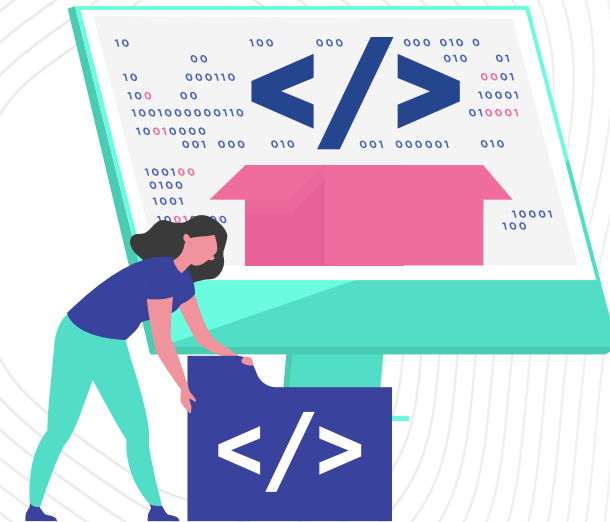
Community platform

Keep up to date with the latest hackathon information, find team mates and ask questions on our community platform.

[To community platform](#)



TAIKAI



Form or join a team on the hackathon platform

Sign into your TAIKAI account [here](#) and follow the steps to create or join a team and submit your hackathon project.

1. Create or join a team

Already know who your team members are? Create a team and share a link.

Looking to join a team? Head to [Discord](#) to meet fellow participants. Check out the #find-your-team channel

2. Select a challenge

Choose from one of the three challenges:

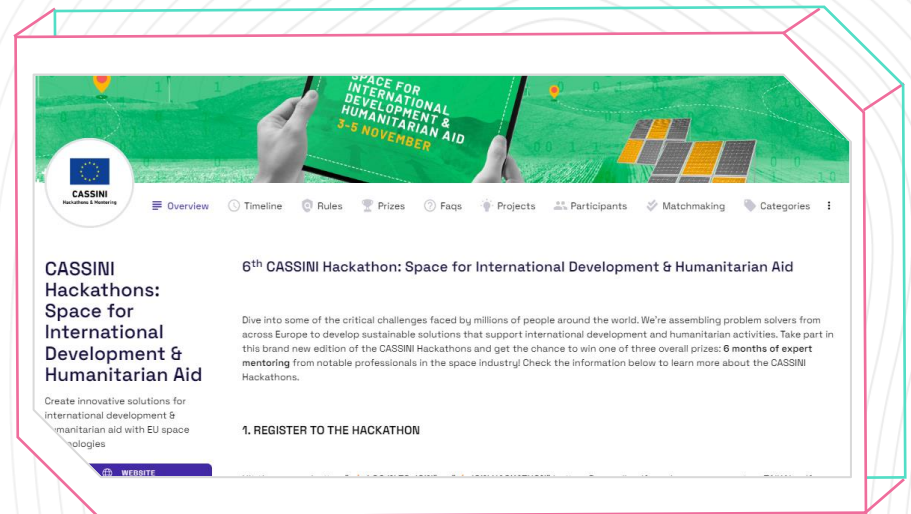
- Supporting sustainable infrastructure development
- Strengthening food security & access to clean water
- Understanding and forecasting forced migration

3. Submit your project

Make sure to submit before the deadline:

14:30 CET, Sunday 5th November 2022

TAIKAI



TAKAI's participants journey – Forming a team

If you are a team leader and already have a project in mind, but don't yet have a full team, follow these steps to create your dream team:

1. Go to the matchmaking tab

Visit TAIKAI, go on to the ['participants' tab](#) and take the first steps to create a dream team!

2. Scout for participants

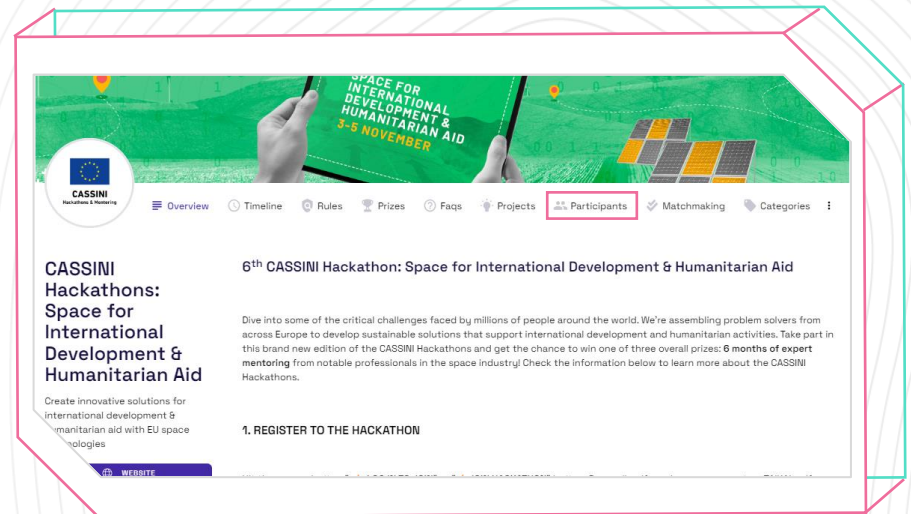
Find your ideal team member:

- Search for participants from your hackathon location
- Check 'Looking for a team' tag
- Filter by skillset

3. Contact future team members

Message the person, introduce yourself and your project.

TAIKAI



TAKAI's participants journey – **Joining a team**

If you are an innovator looking for a team, follow these steps to find your dream team:

1. **Go to the matchmaking tab**

Visit **TAIKAI**, go on to the [‘matchmaking’ tab](#) and take the first steps to join a dream team!

2. **Scout for projects**

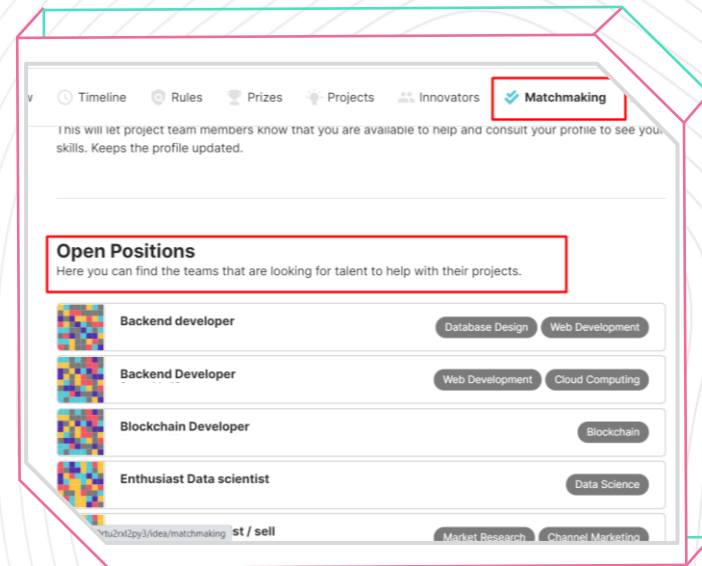
Find your ideal project:

- Search for projects from your hackathon location
- Check the skills needed for the project
- Choose your ideal team

3. **Contact project owner**

Message the person and introduce yourself.

TAIKAI



TAKAI's participants journey – Changing location

Interested in trying out a new location? You can do so by editing your registration on TAKAI!

1. Go to our platform page

Log in to your TAKAI account and visit the Hackathon's [platform page](#). Click on 'Preferences'

2. Edit your registration

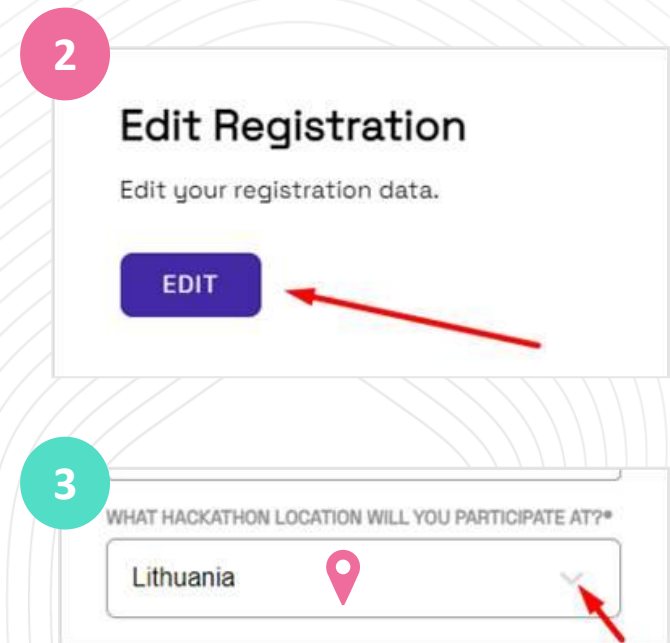
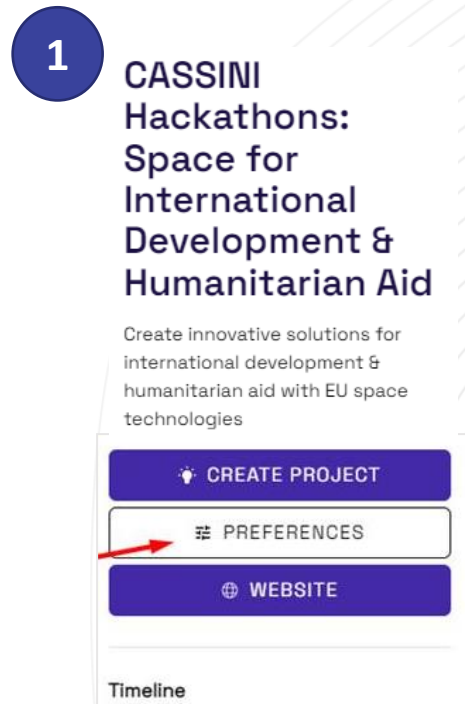
Click the 'Edit' button on 'Edit Registration'

3. Choose a new location

Select the hackathon you wish to participate in from the **local organiser list** and save your preferences.

Note:

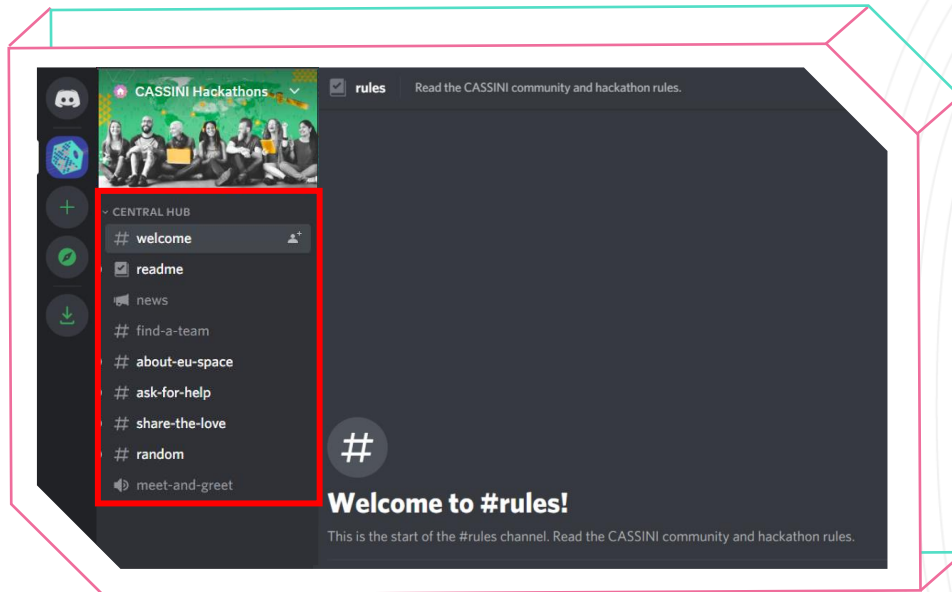
- The whole team has to be enlisted for the **same hackathon location** to which you want to attend.
- The project has to have the **same tag** as the hackathon location where you participate. You can change the tag of the project as well in TAKAI.



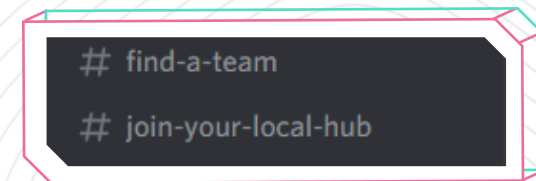
Engage with the hackathon community on discord

Interact with your local organisers and fellow participants on [Discord](#). This is where the main hackathon communication will take place throughout the weekend. You can use the different channels to ask questions, have a chat, and hear the latest information about your local hackathon.

Central Hub



Local Hackathon

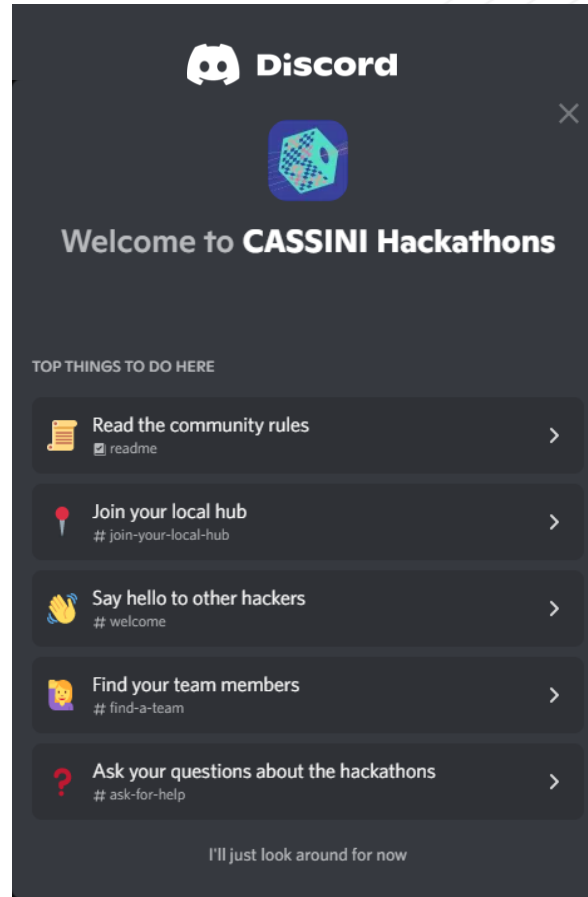


Check out the top 5 to do on Discord!

Familiarise yourself with the platform prior to the start of the hackathon and make the most out of your communication tool!



- 1 Read the community rules
readme
- 2 Join your local hub
join-your-local-hub
- 3 Say hello to other hackers
welcome
- 4 Find your team members
find-a-team
- 5 Ask your questions about the hackathons
ask-for-help



Demo Day & Award Ceremony

During the Demo Day & Award Ceremony the 10 winners of the local hackathons will pitch their projects. A jury of experts will evaluate the projects and select the three overall winners who will win 100 hours of expert mentoring.



Join the demo day to...

Meet the top teams from the 10 local hackathons

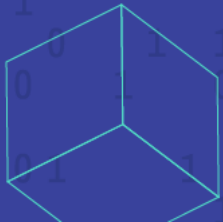
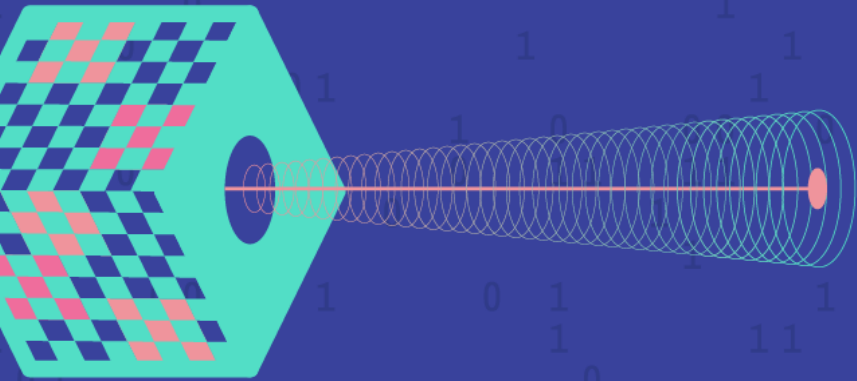
Watch 10 innovative project pitches

Discover the 3 overall winners of the hackathon





CASSINI
Hackathons & Mentoring



Mentoring Programme

In this section, you will learn about the mentoring programme available to the top 3 teams selected in the hackathon.

Each winner has access to our mentoring programme

Three winning teams can benefit from **100 hours of mentoring** spread across the six months following the event.

How does it work?



Each team will have a lead mentor who will guide them through the mentoring programme.



The lead mentor will connect the teams with different expert mentors who are available in 5-hour blocks.



Teams will monitor their progress over the six months on their path to creating a sustainable and commercially viable solution!



Meet some of our mentors

Each of the three overall winners will work with our expert mentors. Their backgrounds range from product development, Earth observation and GNSS through to business development, marketing, design and more. Here are a small selection:



Carlos Bello Marcos
INNOVA4EU



Dimitris Matsakis
P.L.A.N.



Dr. Johanna Braun
Owner, Innovation, Venture &
Sustainability Advisory



Dennis Kibirev
Mesh Ai, FrontierFunder



Floriano Bonfigli
AC75



Pablo Garrido
EIT Urban Mobility



Alexandre Mencik
Space Platform



Pedro Branco
Virtual Angle B.V.





CASSINI
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Thank you

