## Call for Contributions: PhD Workshop on AI and Space

**Dates:** June 3-4, 2025 (online)

**Organizers:** UNIVERSEH – European Space University for Earth and Humanity

The primary goal of this workshop is to **train PhD students in new skills** that are increasingly critical for their future professional integration and success in the evolving landscape of space research and innovation. In today's interdisciplinary and fast-paced environment, researchers must not only excel in their respective domains but also develop complementary skills to adapt to complex challenges and work collaboratively across disciplines.

**Key skills** emphasized in this workshop include:

1. **Interdisciplinary Collaboration**: Participants will learn to work effectively with professionals from diverse fields such as AI, space technology, business, and ethics, mirroring real-world project environments.
2. **Knowledge in AI and Space Applications**: sessions will familiarize students with cutting-edge tools and methodologies in AI, Earth Observation (EO), and satellite data analysis, preparing them to leverage AI for space-related innovations.
3. **Communication and Networking Skills**: Opportunities to interact with industry professionals and academic experts will enhance participants' ability to articulate their research and build lasting professional connections.
4. **Entrepreneurial and Business Insights**: Sessions on entrepreneurship and space economy will expose participants to the commercial aspects of space technology, equipping them to navigate the broader implications of their work.

The workshop is essential for fostering a generation of researchers who are not only technically proficient but also adaptable, innovative, and ready to address global challenges. By focusing on these critical competencies, **the training will empower participants to**:

- **Navigate multidisciplinary environments** with ease and confidence.
- **Address pressing global issues through AI-driven solutions** in the space sector.

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- Contribute to shaping the future of space exploration and technology with a broader societal impact.

By combining lectures, presentations, networking sessions, and roundtables, the workshop aims to equip participants with knowledge, insights, and connections to advance their research and professional endeavors in this dynamic and impactful field.

*See the preliminary agenda below for more details.*

**We invite companies, experts, and researchers to submit proposals to participate in the PhD Workshop on AI and Space, a unique opportunity to discuss the impact of Artificial Intelligence (AI) in the space sector and beyond.** Researchers from various disciplines whose focus is on space-related topics and who wish to incorporate AI technologies and methods into their projects are particularly welcome. The workshop is aimed at AI beginners and intermediate levels.

### 1. Day 1 – Afternoon: Company Presentations on AI and Space

Companies working in the space sector and leveraging AI technologies are invited to showcase their experiences and innovations.

Objective:

- Share concrete examples of AI applications in space projects (e.g., satellite data analysis, autonomous navigation, spatial modeling).
- Inspire PhD students and researchers by illustrating how AI is transforming the space industry.

Expected Format:

- 15–20 minute presentations followed by a Q&A session.
- Suggested topics: Challenges and opportunities of AI in space, success stories, future applications.

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### 2. Day 2 – Morning: Presentations on Earth Observation (EO)

Researchers working on Earth Observation (EO) are invited to propose presentations in the following areas:

- **EO for climate change and weather forecasting**: Current applications and innovations.



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- **EO for humanities (archaeology, geography, etc.)**: Leveraging spatial data to explore and preserve human heritage.

Objective:

- Explore how AI and EO data are transforming research approaches in these disciplines.

Expected Format:

- Short 30-minute presentations followed by discussions.

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**3. Day 2 – Afternoon: Interdisciplinary Roundtable**

We are looking for researchers from various fields (especially **AI ethics and Open data specialists**) to participate in a roundtable discussion on the use of satellite data and AI in their work.

Objectives:

- Discuss current applications of AI and satellite data in diverse disciplines.
- Address ethical issues related to AI and open data.
- Envision future applications.

Expected Format:

- Participation in a moderated discussion.
- Short presentations (5–10 minutes) on your research and reflections.

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**Submission of Proposals:**
**Please send your application by March 16, 2025 to universeh@univ-tlse2.fr. Include:**

- A brief description of your presentation or experience.
- Your professional bio or a link a website presenting it.

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Join us to contribute to this unique exploration of the intersections between AI and space and to inspire the next generation of researchers and professionals in the space domain.



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## Preliminary agenda

**Day One: Introduction & Networking - 5 h**

- **Morning: Introduction – 3h**
  - General introduction to AI (HeiCAD HHU) 1h30
  - Introduction to AI & Space (Josiane Mothe, UT2J) 1h30
- **Afternoon: Networking event - 2h**
  - Presentations of PhD students of their work – 1h
  - Introduction into entrepreneurship: Space & AI – 1h (start-ups & companies)

**Day Two: Earth Observation and it's applications in different research domains – 4h**

- **Morning: Short lectures – 2h**
  - Introduction to EO data: Presentation of Earth Observation today (F. Del Frate, Tor Vergata) 30'
  - EO for Agriculture (F. Del Frate, Tor Vergata) 30'
  - EO for… (climate change/ weather) or Air quality/ air pollution (Tor Vergata)30'
  - EO for… (humanities: archeology, geography?) 30'
- **Afternoon: Roundtable & Future applications – 2h**
  - Roundtable discussion with researchers from the morning session + AI ethics + open data – 1h
  - Discussion about the future applications and other examples of projects (AI4Agri) – 1h



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