



Call for presentations

“Advances in Artificial Intelligence for Aerospace Engineering” 5th workshop

May 19th to 20th and potentially May 21st 2025, ONERA Toulouse, Toulouse, France

Context

In the scope of an agreement for cooperation in Artificial Intelligence (AI), signed in 2019, DLR and ONERA jointly consider AI research challenges in a number of application fields of particular importance in the aeronautics and space domains such as: robotics and autonomy in aerospace systems, hybrid simulation, digital transformation of aerospace industry, processing of geospatial information for earth observation.

In 2020 the cooperation was launched deciding to hold annual workshops. The 1st and 2nd editions were organized in the form of virtual conferences. Presentations of scientific contributions and cooperation proposals highlighted the interest of joint action of the two research institutions in the field of AI. Permanent researchers, post-docs and doctoral students discussed approaches and ideas forming the framework of the cooperation project and identified areas of common interest for using AI such as: the necessary robustness of AI, its interaction with humans, the use of AI in space robotics, for Earth observation, for improving the efficiency of computational fluid dynamics and for industry.

In 2022, AI-related presentations were encouraged for ODAS. This led to the receipt of 18 presentation proposals on AI. Of these proposals, 7 were directly linked to the collaboration in AI.

During the 3rd edition held in presence in Paris in 2023 a day before ODAS, 20 scientists presented their contributions. 25 contributions were presented during the 4th AI4Aerospace workshop, held in Braunschweig in 2024 two days before ODAS.

Objectives and topics of the workshop

Bellow the general objective of strengthening our collaborative work, the workshop has two sub objectives:

- Networking, the proposed presentation can be either a cooperation proposal from permanent researchers of one research institution or on-going cooperative works from permanent researchers of both institutions.
- Presentation of research results, the expected presenters of current advances of AI research work at DLR or ONERA concerning the use of AI in space and aeronautics, are doctoral students, post-docs and permanent

researchers from the two institutions involved either in the development of techniques or in their application to the various fields targeted within the framework of cooperation.

The workshop encourages exchanges about the use of AI in different areas such as:

- Machine Learning approaches for physics and partial derivative equations,
- Certification of AI in aviation,
- AI for control and monitoring,
- AI engineering methods and approaches,
- AI for engineering and operation and
- AI for sensing and image processing.

Nevertheless, other application topics and fundamental AI topics are also welcome. Moreover, the workshop remains connected to ODAS and a common session is foreseen. This year the theme of ODAS is digital twins. Contributions related to AI and digital twins are encouraged for this common session.

Planned agenda of the workshop

- Monday May 19th: Networking session and scientific presentations
- Tuesday May 20th: Networking session and scientific presentations
- Wednesday May 21st: Common session with ODAS on the topic AI and digital twins subject to a sufficient number of submissions about this topic.

Proposals for presentations

Proposals for presentations should be uploaded to <https://ai4aerospace25.sciencesconf.org/> before April 10th 2025 in the form of a 2 pages abstract following the provided template:

- https://ai4aerospace25.sciencesconf.org/data/pages/Abstract_AI4Aerospace_Workshop.docx for Word and
- https://ai4aerospace25.sciencesconf.org/data/pages/Abstract_AI4Aerospace_Workshop_Latex.zip for Latex.

The organizing committee will consider these for presentation. Abstracts of selected presentations will be published in a booklet. The program of presentations and instructions to presenters will be sent out no later than April 25th 2025.

Organizing Committee

Günther Waxenegger-Wilfing: Guenther.Waxenegger@dlr.de

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Venue & Accommodations

The AI4Aerospace 5th workshop is collocated with ODAS at ONERA Toulouse, 2 avenue Marc Péglerin (former avenue Edouard Belin), 31400 Toulouse. The workshop will begin at 12:00 Monday May 19th and, depending on sufficient number of submissions on AI and digital twins, will finish either at 18:00 Tuesday 20th or at 14:00 Wednesday May 21st. An info-package about venue and accommodation will be provided to participants.

Contact

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