

2024 PACE Future Innovators Awards in eXtended Reality Training in Aviation

Regulation

1. Motivation

PACE Aerospace & IT, a leading aerospace engineering software development company, values innovation, quality, and passion in aviation. For more than 20 years, the company has promoted these values around the world at exhibitions, conferences, and corporate events.

PACE has also promoted these values at universities, research institutes, and government institutions. These promotional activities have been centered around the unique capabilities of the company's software solutions, which include aircraft preliminary design, aircraft interior configuration, flight profile optimization, and extended reality training.

Through these activities, PACE has realized that the future software developers and aerospace engineers of the world are a great source of inspiration not only for the company, but for the rest of the industry as well as the world. PACE would like to facilitate the empowerment of these future innovators by providing them with a stage upon which they can showcase their skills, talents, and dedication to the values they share with the company.

To that end, PACE has created the Future Innovators Awards program, and is proud to herein announce the *2024 PACE Future Innovators Awards in eXtended Reality Training in Aviation*, organized in collaboration with *EUROAVIA - the European Association of Aerospace Students*.

2. Vision

2024 PACE Future Innovators Awards in eXtended Reality Training in Aviation (hereinafter *PACE Contst*) is a competition in which Teams composed of university students confront each other on the development of an eXtended Reality training that better fulfils the requirements defined in the PACE Contest *Project Topic*.

Such XR training development (the *XR Project*) shall be carried out by teams using PACELAB WEAVR, PACE proprietary platform designed to create, manage, and play XR content experiences with no prior coding skills required and scale seamlessly.

A fully featured PACELAB WEAVR software suite will be made available to every team member for the whole duration of the contest.

3. Teams

3.1. Composition

Teams shall be composed of minimum 2 (two) and maximum 3 (three) students regularly enrolled in the same University at application time.

3.2. Eligible students

Only B Sc and M Sc students are eligible to join a team. PhD candidates are excluded.

3.3. Leader

Every team shall appoint its Team Leader and communicate their name.

Team Leaders will be the one and only contact point with PACE Contest organisation.

3.4. Member substitution

Teams' composition shall not change throughout the duration of the competition. Therefore, no team member substitution will be accepted after the finalisation of the application procedure.

3.5. Minimum number of members per team

Any team member can withdraw their membership from a team but, should the number of active team members fall below 2 (two), the team will be decommissioned.

3.6. Maximum number of participating teams

A maximum number of seven (7) participating teams is established.

4. XR Project Topic

4.1. Background

In the ever-evolving aerospace and aviation industry, training procedures play a pivotal role in ensuring safety, efficiency, and innovation. The emergence of eXtended Reality (XR) technologies has opened new horizons for immersive and effective training experiences.

To harness the potential of XR in this sector, PACE is thrilled to introduce the XR Contest. This competition encourages students to leverage 3D software and our XR platform, Pacelab WEAVR, to craft cutting-edge aerospace and aviation training procedures in XR.

4.2. XR Project Topic definition

The topic of the XR project to be developed by each team is **Equipment Location, Check, Aircraft Visit, and Differences in Cabin Configurations for cabin crew training.**

Teams are tasked with pushing the boundaries of creativity in cabin crew training. The primary objectives include:

- Creating XR simulations that focus on efficient equipment location, inventory management, and safety protocols within the aircraft
- Developing realistic AC Visit scenarios to familiarize cabin crew with the aircraft
- Designing training modules for handling different cabin configurations and emergency equipment placements
- Encouraging teamwork, communication, and emergency response skill development through XR elements
- Leveraging Unity and Pacelab WEAVR to offer innovative and immersive training experiences for cabin crew members.

4.3. XR Project requirements for evaluation

4.3.1. Technical Requirements

- Using Unity and Pacelab WEAVR as the primary platforms for developing XR simulations
- Ensure compatibility with VR headsets
- Optimize the XR experience for seamless interactions and performance
- Incorporate the provided 3D assets and into the XR project.

4.3.2. Realism and Accuracy

- Strive for a high level of realism in XR environments, replicating systems and procedures with precision
- Adhere to real-world aviation regulations, safety standards, and best practices

4.3.3. Provide detailed documentation that explains how the XR training modules maintain accuracy and authenticity and improve the learning process.

4.3.4. Innovation and Creativity

- Showcase innovation and creativity in design, user experience, and XR integration
- Demonstrate how XR technologies can elevate training beyond conventional methods.

4.3.5. Practicality and Usability

- Ensure that the XR training modules are practical and user-friendly for aviation professionals
- Consider the needs of both novice and experienced aerospace personnel
- Make the XR projects accessible to users, with clear instructions for navigation and interaction.

4.3.6. Documentation

Prepare comprehensive documentation outlining the development process and rationale behind the UX design choices. If necessary, include a user guide that explains how to effectively utilize and navigate the XR training. PDF/ Finalists Powerpoint

The PACE Contest encourages students to explore the limitless potential of XR in aerospace and

aviation training. By focusing on the XR Project Topic, teams will contribute to the advancement of training methodologies while showcasing their skills and innovative spirit.

5. Application

5.1. Application window

For information on application window opening and closing dates, please refer to section 14.

5.2. Method

Once the application window opens, Teams can apply by filing out the form available on the contest page https://pace.txtgroup.com/student_contest_2024

5.3. Acceptance policy

Teams will be accepted applying a first-come, first-served policy. Also, within the application form, teams are asked to state their motivation for participating in the competition, which will be taken in due consideration.

Additionally, variety of participating universities will be privileged, so the available places will first be assigned to the first applying team of every university. Should any place remain available, it will be granted to the second team(s) from already accepted university(ies), and so forth.

5.4. Acceptance notification

Teams will be notified whether they have been accepted by email, sent to the Team Leader.

6. Participation fee

6.1. Amount

The participation fee amount for every team shall be calculated taking into consideration the number of team members and their affiliation to EUROAVIA according to the following scheme:

- EUROAVIA members: €25 per person
- Non-EUROAVIA members: €35 per person.

The amount shall be paid by the Team Leader for the whole team. Important remarks:

- EUROAVIA International will verify the membership status for every member in every team and reserves the right to issue extra-fee to each non-EUROAVIA or inactive EUROAVIA member.
- Participation fee is non-refundable. Shall – for whatever reason – any team member resign, the participation fee will not be reimbursed.

6.2. Due date

Participation fee is due by every accepted team within 72 hours from acceptance notification. Failure to obey this deadline will cause the team to be excluded from the contest.

6.3. Payment method

All details about the payment method will be provided in the acceptance notification email.

7. XR Project submission

7.1. Submission window

For information on submission window opening and closing dates, please refer to section 14.

7.2. Procedure

XR Project should be sent by the Team Leader to the official address of the organization of the contest: pace-contest@euroavia.eu.

A confirmation email will be received by the team within 24h from the submission.

7.3. Submission content

Teams' XR Project submission shall contain the following items:

- The WEAVR project file.

- A pdf report file. Maximum length: 25 pages.
- A ppt presentation of the XR procedure, using official template. Maximum length: 20 slides.

Detailed instructions on what to upload and report/ppt templates will be given at proper time.

7.4. Participation fee reimbursement

All Teams that will submit a valid proposal will be reimbursed their participation fees.

8. Commission

8.1. Composition

The evaluation commission will be nominated by PACE.

Its members will be selected from eXtended Reality and training experts among PACE specialist(s) and Pacelab WEAVR professional users' community.

A Commission observer member will be designated by EUROAVIA.

9. Evaluation

Teams' projects will be graded by the commission with respect to the following criteria:

- Requirements capture – 25%
- Technological feasibility – 25%
- Innovation introduced – 25%
- Report quality – 25%

10. Prizes

Besides international recognition and access to industry networking in the aerospace and aviation field, PACE Contest provides prizes for the three shortlisted teams as well as additional prizes for the winning team.

10.1. For all three shortlisted teams

- Teams' design projects and members' bio will be published on PACE and EUROAVIA websites and social media channels.
- Up to a total of €600 per team for reimbursement of travel + accommodation costs to come to Berlin for the final event. Reimbursement will be granted upon submission of all relevant receipts.

10.2. For the winning team

In addition to what mentioned above, for the winning team:

- Up to a total of €1000 (for the whole team) for reimbursement of travel + accommodation + entry ticket costs for visiting a main aviation event during 2024. Reimbursement will be granted upon submission of all relevant receipts.

11. Intellectual Property

Each team guarantees that the project developed is original and entirely conceived and studied by the team during the contest, is not protected by industrial property rights or copyright owned by third parties, does not violate applicable laws and rights of third parties, is not the subject of a contract with third parties and releases PACE Aerospace Engineering and Information Technology GmbH ("**PACE**") from any and all responsibility, liability or request for compensations, damages that could be made by any third party.

At termination of the event, PACE shall be the exclusive owner of all transferrable intellectual property rights or industrial property rights relating to, underlying and/or in any way connected with the competition and the projects submitted and/or developed during such competition. As the exclusive owner of the mentioned intellectual property rights, PACE shall be free to enjoy them, directly or indirectly, as well as to use, exploit or dispose of them in any and all ways.

The aforesaid rights, as well as any other rights of use and economic exploitation relating to the activity rendered within the competition, shall therefore be automatically acquired definitively and exclusively by PACE, without any participant being entitled to claim any further

compensation, payment, remuneration, indemnification, fee from the company in connection therewith, other than the prize (in case of award according to this Regulation).

The participants undertakes to provide all the cooperation requested by PACE in order to obtain the registration, protection, assignment, access, maintenance and consolidation of the intellectual property rights, as well as to protect such right against third-party disputes of any nature whatsoever before any competent authority, including the courts.

Should any patent be deposited, teams' contribution will be rewarded recognising them as inventors.

Should any part of the teams' projects be included in any of the PACE products, authors' names will be explicitly recognised within the software's accompanying documentation.

12. Fair use of software license and headsets

Every team will receive a license that will unlock a fully featured version of Pacelab WEAVR, as well as a library of 3D assets. Such license will be time-limited until the end of the contest/final event.

Every team will also receive an all-in-one VR headset.

By applying to the Contest, team members commit to fair usage of the Pacelab WEAVR software and the VR headset.

Fair usage implies that Pacelab WEAVR and the received VR headsets shall exclusively be used for developing the XR project for PACE Contest. Any other use, including but not limited to use for any other academic purposes, in third party contracts, in research activities, is considered to be NOT fair.

Also, the correct usage and maintenance of the VR headset, as well as its timely restitution after the final development of the XR Project is the full responsibility of the team members. In case of any damage to the headsets, teams will be required to reimburse PACE for the cost of the damaged headset.

13. Organisation

For the sake of clarity, in the following paragraphs a recap of the whole PACE Contest organisation is presented.

The entire initiative will be constituted of the following phases:

- Prologue
- Application
- XR project development
- Evaluation
- Final event

13.1. Prologue

This phase will start with the publication of the PACE Contest regulation and the associated promotion.

Prospective team members shall read thoroughly the regulation. Should any clarification be needed, questions may be directed to the email pace-contest@euroavia.eu.

13.2. Application

Teams shall apply as specified on the contest page on PACE website - https://pace.txtgroup.com/student_contest_2024 - within the application window timeframe.

The mere application does not grant the right to participate in the competition, as provided in section 5.3 - Acceptance policy.

Once a team receives the acceptance notification, it shall proceed with the payment of the participation fee within 72 hours, as described in paragraph 6, otherwise the acceptance will be voided and a new team will be accepted.

13.3. XR project development

All participating team members will receive a time-limited license for Pacelab WEAVR that will unlock the fully featured development environment that shall be used for the XR project development.

All participants will have access to Pacelab WEAVR initial training.

For the entire duration of the XR project development phase, technical support from PACE will be available via:

- A Kick-off meeting, held via Microsoft Teams, during which teams will receive an initial training on Pacelab WEAVR
- Two mandatory 30-minutes follow-up and training meetings per team, held in the b2match Platform managed by EUROAVIA, during which teams will be able to ask and receive technical support and show the progress of their developments.
- Two optional 30-minutes follow-up and training meetings per team, held in the b2match Platform managed by EUROAVIA, for further technical support (to be booked in advance).

No further technical support by email will be provided.

XR project development phase will be concluded by the submission of the XR project by each team, that shall be performed according to the instructions given in paragraph 7.

13.4. Evaluation

Submitted design projects will be evaluated by the commission according to the metrics specified in paragraph 9, and the teams that developed the three top graded design projects will be admitted to the final event.

13.5. Final event

The final event will be held during the 2024 edition of PACEdays.

PACEdays is the yearly event held in Berlin, during which PACE customers get together to share experiences, network and be informed on the company products roadmaps. 2024 edition will be held from April 24th to April 25th, 2024.

As far as PACE Contest is concerned, the final phase will consist of two different moments that will take place during the second day of PACEdays 2024.

First, the three shortlisted teams will give a 15-minute presentation of their work in front of the audience and the commission.

After the three presentations, the commission will decide on the teams' final ranking. During a dedicated moment within a plenary session, the winning team will be announced and awarded.

14. Schedule

DATE	MILESTONE
16/10/2023	OPENING OF APPLICATION WINDOW
22/10/2023	CLOSING OF APPLICATION WINDOW
26/10/2023	NOTIFICATION OF ACCEPTANCE
31/10/2023	CONFIRMATION OF ACCEPTANCE
03/11/2023	KICK-OFF EVENT
15/02/2024	OPENING OF SUBMISSION WINDOW
28/02/2024	CLOSING OF SUBMISSION WINDOW
29/03/2024	NOTIFICATION OF THE THREE SHORTLISTED TEAMS
25/04/2024	FINAL EVENT

15. Amendments

The present regulation may be subject to amendments, that will be promptly notified to all participants.