



## MASTER: A NEW HORIZON EUROPE PROJECT WANTS TO IMPROVE THE EDUCATIONAL ENVIRONMENT FOR XR USAGE IN ROBOTICS

Many industries are rapidly adopting automation and robotic technologies in their processes. In parallel, Extended Reality (XR) technologies have reached sufficient maturity to enter the industrial applications domain, with early success cases often related to training workers, offer remote assistance, access to contextual information, and interaction with digital twins. After a well-consolidated first wave of deploying industrial robots for automation, collaborative robots are now making their way to industries. In the future, these robots will be increasingly enhanced with XR applications to effectively work with the human operators as peers. This would require industrial operators to understand both technologies, and be able to use them and interact with hybrid solutions confidently. Nevertheless, the challenges for human operators are common for both collaborative and non-collaborative robots, since human workers must transfer their skills to the robots. In other words, it should be feasible for the human operators to program the robots, since they already know the production processes and the tasks that the robots must perform with them.

The new European project ***Mixed reality ecosystem for teaching robotics in manufacturing (MASTER)*** aims to boost the XR ecosystem for teaching and training of robotics in manufacturing, by providing an Open XR platform. This platform integrates key functionalities for creating safe robotic environments, gives the possibility to program by demonstration new flexible robotic applications, and provides advanced interaction mechanisms, such as gaze-based interaction. MASTER also aims to deliver rich training content on robotics, using the above functionalities to show their potential, targeting different stakeholders such as vocational or university students, junior engineers, project managers, salesmen etc.

Additionally, the MASTER project will publish two Open Calls to integrate third-party contributions, with the first call aiming at enhancing the platform with additional technologies and functionalities, similarly to the ones described above. The selected companies will have the opportunity to integrate their technologies in the platform and test them with a wide range of end-users. The second Open Call targets beneficiaries from the education sector, offering the possibility to use the platform and the provided tools to create their own educational content. The first call will open in the beginning of 2024, while the second one will open in the beginning of 2025. The exact dates and information will be announced on the [project's website](#) and social media channels ([Twitter](#) and [LinkedIn](#)).

The MASTER project will last for 42 months, and it includes seven partners from three different European countries, Greece, Spain and Germany. The project's kick off meeting took place at the University of Patras, Greece, in January, where the partners met for the first time in person. Besides setting the working principles, they had the chance to experience extended reality applications that LMS has created in other projects. In addition, together with the two other European funded projects XR2Learn and XR4ED, the consortium created the [eXtended Reality Learning cluster](#) to boost the implementation of innovative XR applications for learning and support innovators together.

Participants:

1. [Laboratory for Manufacturing Systems and Automation](#) (LMS) – [University of Patras](#) (GR)
2. [Fundacion Tekniker](#) (ES)
3. [Deutsches Forschungszentrum fur Kunstliche Intelligenz GmbH](#) (DE)
4. [Virtualware 2007 SA](#) (ES)
5. [Teaching Factory Competence Centre Upskilling and Training Development and Implementation of Advanced Technologies for the Manufacturing Industry](#) (GR)
6. [Mondragon Lingua – Alecop, Sociedad Cooperativa](#) (ES)
7. [European Science Communication Institute](#) (DE)

MASTER project coordinator:

Panagiotis Karagiannis

Laboratory for Manufacturing Systems & Automation (University of Patras)

Email: karagiannis@lms.mech.upatras.gr

Media inquiries:

Veronika Collovati

European Science Communication Institute gGmbH (ESCI)

Email: vc@esci.eu



The partners of the MASTER project at the kick off meeting in Patras, January 2023