University of Messina, Italy
Department of Mathematical and Computer Sciences,
Physical Sciences and Earth Sciences

Subject: Internship Proposal

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Project details

Title	XR4Internship+: University Training and Internship in Extended Reality and Adaptive Systems

Detailed description: XR4Internship+ is an educational project aimed at university students, designed to integrate
curricular internships with the use of Extended Reality (XR) technologies and Intelligent Adaptive Systems. The initiative provides a practical and innovative learning experience by combining theoretical knowledge with immersive simulations and digital environments that dynamically adapt to the user's characteristics and progress. The project is structured into three main phases:
1. Initial Training
Students acquire foundational knowledge of XR technologies and the principles of adaptive
systems, learning how to design virtual environments that evolve according to user behavior,
objectives, and operational context.
2. Immersive and Adaptive Internship
During the internship, students develop XR applications integrated with adaptive mechanisms such as machine learning, personalization models, and real-time feedback systems.
Example applications include:
- An adaptive fire safety training simulator that adjusts difficulty based on user performance;
- A Mixed Reality (MR) system for the Zoological Museum that personalizes content according to visitor profiles;
- A Virtual Reality (VR) surgical training environment providing adaptive feedback on precision and response times.

3. Performance Evaluation and Analysis Applications will be tested using performance analysis tools (Unity Profiler, WPA) and specific metrics for XR and adaptive systems (System Usability Scale, Cybersickness Test, User Adaptivity Index). The system includes continuous monitoring, behavioral analysis, and automatic generation of learning reports. Project Objectives • Integrate immersive technologies and adaptive systems to create personalized learning experiences; • Promote the acquisition of skills in machine learning, user modeling, and the adaptability of interactive systems; • Encourage innovation and creativity in the design of intelligent XR environments; • Prepare professionals capable of meeting the challenges of the digital world.

Duration (month – max 12)	8
Duration (hours)	45-100
Open positions	5

Internship Skills

Technical requirements: Basic knowledge of programming, networks, iOS and Android systems. Introductory knowledge of adaptive systems and machine learning.

Other skills	