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Special Session SS_06
Augmented, Virtual and Mixed Reality Systems

Brief description of the specific scientific scope of the Special Session:

Now comes to the fore concept extended reality (XR), which includes the technology of virtual reality, augmented reality, and mixed reality, is beginning to become more widely known. In recent years, XR has made remarkable progress, and usage expectations are very high. There is no doubt about the potential of this technology.

As some basic research has come to fruition, expectations for XR have increased, as have opportunities for it to be applied in different fields. That way, these technologies provide great opportunities for education, medicine, architecture, Industry 4.0, e-commerce, gaming, healthcare, the military, emergency response, entertainment, engineering, advertising, entertainment, retail, etc., and we can consider that we are facing a technological change as big as the massive use of PC, internet or smartphone was at its time.

The applications that we can develop through smartphones, tablets, and new wearable (glasses and headset) devices that free workers and users from having to hold on to devices are more than we can imagine and can help to save time and reduce production costs, improving quality of life.

In the manufacturing field, the use of augmented reality has been the topic of conversation for years, but actual deployment has been slow. This is changing, however, as manufacturers explore the technology in their plants and move beyond pilots and trials to the wider, day-to-day use of AR. Although AR is still at an early stage in manufacturing, there is a lot of innovation going on, and a lot of movement in the industry around AR. On the other hand, XR provides great opportunities in education and training that are not possible with traditional instruction methods and other technologies used in education. VR, AR, and MR allow learners, in a safe way, to experience environments and virtual scenarios that would normally be dangerous to learn in. Even for academic institutions and companies, it is difficult to have some infrastructures to teach or train their learners or workers. Unlike some traditional instruction methods, VR, AR, and MR applications offer consistent education and training that do not vary from instructor to instructor. These virtual technologies also afford the development of psychomotor skills through physical 3D interactions with virtual elements. This is especially important when resources are limited for training purposes.

The purpose of this Special Session is to bring together state-of-the-art achievements on extended reality and its applications. We encourage authors to submit original research articles, case studies, reviews, theoretical and critical perspectives, and viewpoint articles.

List of topics of interest:

1. Augmented Reality
2. Virtual Reality
3. Mixed Reality
4. New interaction design for AR/MR/VR
5. AR/MR/VR applications: manufacturing, healthcare, virtual travel, e-sports, games, cultural heritage, military, e-commerce, military, psychology, medicine, emergency response, entertainment, engineering, advertising, etc.
6. AR/MR/VR technologies and experimentation
7. AR/MR/VR for the Smart Factories of the Future
8. Education with AR/MR/VR
9. Social aspects in AR/MR/VR interaction
10. Interfaces for VR/AR

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