



**XR 2020:
News & Events**
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Testing the automatic
creation of my avatar
in VR collaborative
space.



WITH XR TECHNOLOGIES, NEXT TREND IN THE WORLD OF WORK: WILL BE AVATARS AND DIGITAL TWINS

The social context redefined by the pandemic that has characterized our last months, has certainly allowed the development of new ways of remote social interaction, mainly for professional, work purposes.

But this has been re-defined not only in business contexts, but also in those oriented towards training and leisure.

Technology with its interactive potential has certainly allowed many structures to survive and many people to communicate. However, most people have adopted elementary platforms based essentially on video streams shared by multiple users, as they are cheap, and certainly intuitive to use and above all decidedly widespread globally. But these new practices are only the first steps in a development path in the field of distance communications, which will increasingly feature XR technologies.

Recent advances in augmented and virtual reality will allow a progressive revolution in modus operandi in work contexts. We can already see the concrete possibility of using real avatars and digital twins prepared and configured to allow more complete and humanized perceptual experiences for remote work and it is highly likely the adoption of a hybrid model of work in business contexts.

The next generation of wireless, 5G and 6G technologies will certainly substantially facilitate the massive spread of these technologies, therefore destined to define immersive spaces for

work and collaboration at a distance, very similar to those proposed to date in some science fiction films.

With these assumptions there will be a substantial revolution inherent in the modes of digital interaction, therefore limited no longer only to the view and mouse paradigm keyboard screen.

Several companies of interplanetary relevance are facing industry research to develop and market transformative wireless technologies.

On the other hand, new pandemics can certainly be ruled out in the near future and in the light of what has happened, for reasons of a pre-event nature and for economic reasons, it seems absolutely advantageous for companies to reconfigure operations, to structure themselves by sectoralising the tasks of their resources and adopting hybrid models in which only part of the workforce will be required on site.

Spatial visual interaction technologies will improve how you can interact between colleagues and collaborators virtually, amplifying the humanization of the interactive experience.

The fact that the need is felt and that it is a magmatic sector of increasing interest is demonstrated by the fact that already today many users are very much wondering about the possibility of optimizing the experience that has become classic on the zoom platform.

With the use of XR technologies, in fact this sensory

overshoot is already possible, using its own digital twin and being able to define scenarios and objects that can be shared spaces. Participatory design, based on interactively inspectable objects, lived remotely will be the new paradigm of the near future.

At the state of the art, this kind of shared spatial experiences are already possible, it remains to be wondered how socially acceptable they are and how effective user experiences are from a qualitative point of view.

The available wearable devices have certainly become affordable, but they are still too invasive and heavy to guarantee smooth and captivating experiences. As far as fully immersive experiences are concerned, the best performing headsets are able to process one gigabit/sec, while in order to solve the above critical issues, much more advanced performance, of the order of hundreds of megabits/sec, would be required.

With this in mind, it is possible to define this a period of experimentation, metabolization and learning that offers a real revolution in social customs and collaborative models over the next ten years.

The consequences of the pandemic crisis are a driver of diffusion and familiarization with digital tools and it is highly likely that this development trend can continue and develop more intensively over the next decade. Accenture, a multinational professional services company, is using virtual reality exercises for new recruitment techniques. Some data related specifically to virtual reality According to ARtillery Intelligence:

- The capital invested by companies will grow considerably from \$829 million in 2018 to



\$4.26 billion in 2023, exceeding \$24.5 billion in revenue by 2024.

- The use will be verticalized for training, meetings or to optimize customer services during the pandemic.
- Facebook recently released an Oculus for Business platform specifically for commercial use.
- Legal experts have spoken out about the danger of potential possible crimes in the digital world and possible data privacy breaches.

Apple and Google as well as multiple other companies are particularly attentive to the

phenomenon and active in development and research.

The American giants are facing each other, and it is not yet clear who will succeed in establishing themselves at the mainstream level. Both have multiple possibilities for action, Apple began its research several years ago by acquiring Metaio's sophisticated AR technology and in May bought the Californian start-up NextVR, whose core business focuses on live broadcasting of sporting events or concerts, made in virtual reality.

It is expected that between the different areas, health care will be the area most affected by immersive technologies in the





coming year: medical staff will be able to view medical statistics superimposed directly on the patient's body in MR or AR, training and protocols can be conveyed in VR, interventions can be remotely participated by more distinguished professionals etc.

Also because of the large spread envisaged, it will be absolutely necessary to define in advance an ad hoc body of legislation, considering that all possible crimes in physical reality are in fact feasible even in virtual contests. Land social norms are perceived quite quickly in the virtual space and, in an immersive context observing

other people, one really perceives the feeling of interacting with natural people, and it is therefore relevant to prepare in the development of application, interpersonal spaces of respect, reflecting the behavioral codes proper to reality.

Particular attention should be paid to the protection of privacy, an extremely sensitive issue considering that there are legitimate reasons why companies must record the eye movement or heart rate of their users, perhaps in order to protect the same from VR motion sickness, but such data could also be aimed at outlining physiological responses and evaluating beha-

vioral forecasting models, such as the propensity to violence or the degree of empathy.

Data acquired for legitimate technical reasons by the companies dispensing the applications, but objectively of inestimable value in the world of e-commerce and not only, therefore sensitive to the risk of misuse.

It is therefore important to define a new line of development, capable of politically contemplating the different aspects that distinguish the massive penetration of disruptive technologies from a social point of view.

It is therefore important not to be caught unprepared, to train legal staff in depth on the subject and to adopt in good time criteria for regulating virtual spaces.

(Imagines of three different wearable mixed-reality holographic computing).

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ABSTRACT

The article critically investigates the possibilities offered by new interactive visual technologies for remote professional collaboration, highlighting the legal aspects yet to be defined.

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GeoMax Zenith40

Direttamente al punto

Zenith40 rappresenta il vero fiore all'occhiello dei ricevitori GNSS GeoMax. Equipaggiata con il motore di misurazione di ultima generazione NovAtel e supportando il Precise Point Positioning (PPP) a convergenza rapida, questa antenna offre il più elevato livello di tecnologia e soddisfa i più severi standard

militari. Zenith40 garantisce un flusso di lavoro su misura per le vostre esigenze grazie al software da campo X-PAD Ultimate incentrato sull'utente o alla flessibilità di eseguire il vostro software su qualsiasi controller da campo. La combinazione di tutto questo in una smart antenna GNSS crea una soluzione che non ha rivali.



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