

Editorial

Virtual Worlds: A New Open Access Journal of Virtual Reality, Augmented and Mixed Reality Technologies, and Their Uses

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Books, movies, and performances create virtual worlds. Language, in its everyday use, augments reality with descriptions and interpretations, our thoughts, imagination, and our dreams, adding nonphysical layers to our physical reality. We enter nonexisting worlds in which we or imagined people are involved in imagined activities. Digital technology has allowed for the possibility to enter smart environments with embedded sensors and actuators that communicate with digital smartness embedded in an augmented human's wearables. Returning to 1994, with Milgram and Kishino's reality–virtuality (RV) continuum, we must realize that one extreme of this continuum, “reality”, is undefined. Does reality include digital technology? Well, the industrial revolutions added technology to reality. After a habituation period, steam engines and steam trains became part of our reality. We could see, hear, touch, and smell them.

Digital smart technology has become part of our reality in the same way. The extreme left end of the RV continuum, “reality”, is blurred. This is not the case for the extreme right of the RV continuum, the immersive virtual reality in which real-world multisensorial experiences are fully simulated. However, this extreme is perhaps not the most interesting point of the RV continuum, but in fact, both from a research and application point of view, are the positions on this RV continuum where an extended or mixed reality environment is positioned somewhere close to the “reality” position of this RV continuum. The existing question is how can we align virtual multisensorial objects that are artificially generated and that can be dynamic and even act in an (semi-) autonomous way with what is happening in the real world, a world that, fortunately, we cannot yet fully control by our technological devices.

In the past, virtual and augmented reality research has been driven by fruitful research on vision and image generation. We are now entering an era in which AR (Augmented Reality) and VR (Virtual Reality) research is likely to be integrated into research in the field of ubiquitous computing and its focus on sensors, processors, and actuators embedded and connected in smart environments, things, and wearables. We need to pay more attention to issues such as artificial intelligence for world and user modeling, (user-centered) design, interaction design, user experience, multisensorial and crossmodal aspects of experience and interaction, smart wearables, presence, and societal and ethical questions, all the more true when AR and VR technologies become an essential part of our society and start to dominate our daily activities. Indeed, we would then be entering an era of pervasive AR and VR.

Hence, this is not yet another journal on virtual, augmented, or extended reality, where the research is rather isolated from developments in pervasive or ubiquitous computing. It is about virtual worlds in the RV continuum that can be entered smoothly and naturally, which would allow us to seamlessly switch from one reality to another, and ones that fit into our daily activities, whether domestic, professional, or recreational. Research can focus on being able to no longer distinguish the ‘real’ world from the augmented one. The question is whether we can or want to make that distinction in our future AR and VR worlds we design and allow users to enter.



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I certainly hope that, in addition to many useful and interesting papers on VR and AR technology, this journal also becomes a platform for articles that surpass technology and contribute to our thoughts on how to integrate virtual and augmented worlds into our daily activities to help create “augmented humans”. The diversity of editors and their expertise should certainly facilitate this.

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