



Editorial: Meeting Remotely—The Challenges of Optimal Avatar Interaction in VR

Katja Zibrek^{1*}, Xueni Pan² and Marko Orel³

¹MimeTIC Team, Inria Rennes—Bretagne Atlantique, Rennes, France, ²Computing Department, Goldsmiths, University of London, London, United Kingdom, ³Centre for Workplace Research, University of Economics, Prague, Czechia

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Editorial on the Research Topic

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INTRODUCTION

As the world shifted into a new mode of working and living due to the Coronavirus 2019 (COVID-19) pandemic, many of the ways in which we communicate and interact with each other have radically altered since 2020. Our everyday life often consists of switching between different applications which connect us in various ways to other people.

Mediated communication is a poor substitute for face-to-face communication and while online video conferencing systems appear almost essential now, we are also constantly inventing new ways to improve virtual interactions. For example, while informative, communication through online videos on a flat-screen may not capture rich 3D social signals that are more readily available to us in the physical world.

Virtual reality offers an answer to this problem, as it can provide the user with a full-body representation (self-avatar) and a unique experience of presence in an environment with other users in the form of avatars (see AltspaceVR, Engage, RecRoom and VRChat). However, there are many open questions about how exactly to create these avatars to enable a successful interaction in VR. The papers featured in this Research Topic explore questions relating to the types of benefits, challenges and novelty virtual representations others bring to mediated communication.

COMMUNICATION AND COLLABORATION IN VIRTUAL REALITY

A few papers have investigated the importance of body motion in social interactions. Wu et al. have shown that interaction benefits from a higher level of non-verbal expressiveness, and similarly, Glémarec et al. investigated how the manipulation of body motions and facial expressions in virtual audiences can successfully create a feeling of interest or disinterest, as perceived by the user. A longitudinal study by Khojasteh and Won investigated people embodied as avatars, who developed new ways of communicating with each other inside VR. They demonstrated that people poses the ability to adapt to a lack of important signals from others by focusing on the cues that are available. For example, a lack of facial expression in avatars in VR has led to a greater reliance on the information coming from voices to recognize the emotional state of the confederate.

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Anthony Steed,
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*Correspondence:

Katja Zibrek
katja.zibrek@inria.fr

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On the other hand, Higgins et al. demonstrated that having an expressive avatar as opposed to only the voice of the participants improved virtual interaction in several ways, for example by facilitating the detection of negative emotions. Similarly, Collingwoode-Williams et al. explored some positive collaborative outcomes when the avatars were consistently present throughout collaboration tasks. Here, however, the increased number of social cues can also reveal when a participant is being misleading or deceiving, leading to less trust. This outcome reminds us that attempting to replicate real-world interaction in VR will result in some real-world problems as well, as the higher amount of beneficial social cues also increases the potential for undesired ones.

ENVIRONMENT AND MEASURES

Two papers in this Research Topic explore questions that are not specifically focussed on virtual humans but raise equally important considerations when conducting studies in VR. Gomes de Siqueira et al. evaluate how the virtual space affects the interaction between students in a virtual reality class. Environment design is often an overlooked element when investigating the perception of virtual humans, but can have significant consequences on interaction. Finally, while many researchers entertain the idea of adding physiological measures to their method, Sterna et al. explore the problem of correct implementation of this type of instrument when researching interaction in VR.

CONCLUSION

Probably one of the most striking messages of this special issue is that imitating reality to some degree when meeting remotely is

beneficial, but it is not always necessary and perhaps even harmful, since they give way to both negative and positive aspects of physical interactions. People continuously adapt to new ways of interacting and communicating, and while there is no replacement for physical meetings, virtual spaces open up exciting new venues for people to express themselves, collaborate and develop. The outcomes presented here are not only relevant to the VR community but also extend to any type of communication that uses virtual characters instead of a video feed to depict the people involved in an interaction.

AUTHOR CONTRIBUTIONS

The guest editor KZ made the main contribution to the text and guest editor XP has done writing and editing of the text, while the guest editor MO also made a review and editing of the text.

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