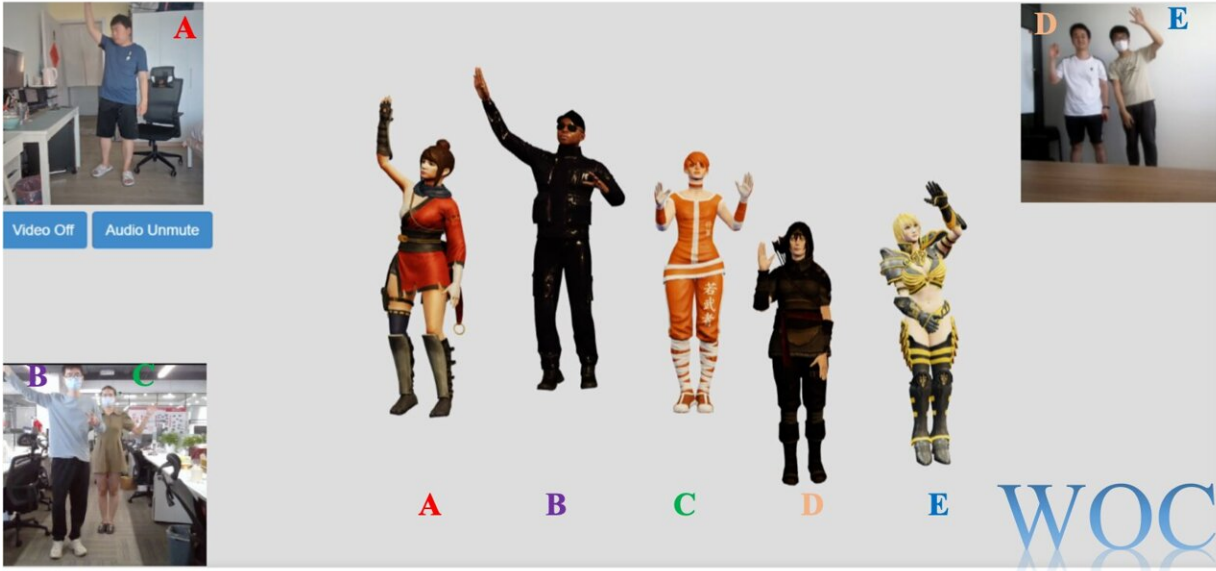


A 3D online chatroom that can be accessed using a phone or PC camera

October 11 2022, by Ingrid Fadelli



People from different parts of the world say hello to each other on WOC. Credit: Yan et al.

In the past few years, a growing number of computer scientists have been exploring the idea of "metaverse," an internet-based space where people would be able to virtually perform various everyday activities. The general idea is that, using virtual reality (VR) headsets or other technologies, people might be able to attend work meetings, meet friends, shop, attend events, or visit places, all within a 3D virtual

environment.

While the metaverse has recently been the topic of much debate, accessing its 3D "virtual environments" often requires the use of expensive gear and devices, which can only be purchased by a relatively small amount of people. This unavoidably limits who might be able to access this virtual space.

Researchers at Beijing Institute of Technology and JD Explore Academy have recently created WOC, a 3D online chatroom that could be accessible to a broader range of people worldwide. To gain access to this chatroom, which was introduced in a paper pre-published on arXiv, users merely need a simple computer webcam or smartphone camera.

"Our previous work focused on ROMP, a deep learning model that can capture multi-person 3D poses in real-time on low-end GPUs," Chuanhang Yan, one of the researchers who carried out the study, told TechXplore. "To allow more people to witness the value of ROMP firsthand, we developed this 3D virtual chatroom."

The primary advantage of WOC, the 3D virtual chatroom created by Yan and his colleagues, is that it is incredibly easy to access. Users can join the [virtual space](#) from anywhere, simply by opening a webpage and personalizing their desired virtual avatar.

"A 3D avatar of your choice appears in the chatroom, and you can simply turn on the webcam to drive it in real-time, allowing you to interact with the 3D avatars of other people in the chatroom," Yan explained. "The biggest advantages of WOC is that it does not require any additional equipment. Users only need a phone or a computer (with a webcam) to join the chatroom."

In initial evaluations, WOC appeared to be highly responsive, as it

efficiently allowed users to move their avatars and interact with avatars of other people simply by moving in front of their camera. The researchers found that the [avatar](#)'s movements and speech were highly synchronized with those of the human users controlling them.

"Our study demonstrates the technical feasibility of monocular camera [motion capture](#) in practical applications," Yan said. "Our chatroom design could have multiple applications for the metaverse, 3D animation production, virtual live broadcast and the creation of other scenes using motion capture. Our work also highlights the potential of monocular camera motion capture as an economic and convenient technical route for creating online experiences."

The 3D online chatroom created by this team of researchers offers a valuable example of how the metaverse and online virtual spaces could ultimately become accessible to all users who own a smart device with a [camera](#). In their next studies, Yan and his colleagues hope to increase the interactivity of the system underpinning WOC, to enable a broader range of more complex interactions between avatars.

More information: Chuanhang Yan, Yu Sun, Qian Bao, Jinhui Pang, Wu Liu, Tao Mei, WOC: A handy webcam-based 3D online chatroom. arXiv:2209.00776v1 [cs.HC], arxiv.org/abs/2209.00776

github.com/Arthur151/ROMP

github.com/yanchxx/CDBA

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