

# Workshop on "Mixing Realities: Cross-reality Visualization, Interaction, and Collaboration"

in conjunction with IEEE VR 2023: the 30th IEEE Conference on Virtual Reality and 3D User Interfaces

## ABSTRACT

The metaverse is a new construct that links the virtual world with the physical world. Within this development, cross-reality (CR) systems offer different levels of virtuality/physicality to users and enable them to move back and forth between the reality-virtuality continuums in a seamless way. Immersive augmented and virtual reality (AR/VR) head-mounted displays (HMDs) have become the main tools that enable cross-reality interaction.

Immersive analytics has become a significant research field with applications in natural sciences in contexts that require users' understanding, exploration, and communication about high-dimensional data. However, working with high-dimensional data is challenging due to complex data structures and its dimensionality. Cross-reality provides users with the possibility of switching visual representations between systems using different degrees of virtuality and allows users to interact with data across multiple technologies (such as AR/VR).

Cross-reality systems have the following four main characteristics: (1) enable multiple realities (virtual, reality); (2) smooth transition between realities; (3) multiple interaction techniques (touch, gesture); (4) collaboration between users using systems with multiple realities. However, research on cross-reality systems is still preliminary, and many questions remain to be explored. For instance, to design a cross-reality system, we may need to know users' tasks, requirements, and their mental model (what is expected to show in different realities, and in which form).

The goal of the workshop is to provide an opportunity for researchers from VR/MR/AR, HCI and Visualization fields to submit their original ideas, work-in-progress contribution, and position papers on the design of interactive techniques and systems for effective cross-reality visualization, interaction, and collaboration. We are interested in the design space and considerations focused on cross-reality transitions, interaction design, and collaborative analytics.

## TOPICS OF INTERESTS

The workshop solicits submissions of unpublished works on topics including (but not limited to) the following applications and emerging topics in cross-reality visualization, interaction, and collaboration, such as:

- Design space for cross-reality visualization
- Visual representations in cross-reality systems
- Cross-reality transitions across multiple technologies
- Cross-reality environment design: virtuality and reality
- Cross-reality interaction
- Multimodal/cross-modal interaction, perception, and cognition
- Collaborative cross-reality immersive analytics
- Cross-reality applications and productivities
- Cross-reality user experience

## IMPORTANT DATE

- Papers submission: January 15, 2023
- Notification of acceptance: January 20, 2023
- Camera-ready papers due: February 3, 2023
- Workshop date: March 25-26, 2023

Each deadline expires at 23:59:59 UTC-12 (AoE)

## SUBMISSION

Papers should be written in English and follow the IEEE VR formatting guidelines. LaTeX and Word templates can be found at: <https://tc.computer.org/vgvc/publications/conference/>. We welcome paper submissions from 4-6 pages excluding references. Paper quality versus length will be assessed according to a contribution-per-page judgment. All submissions will be accepted or rejected as workshop papers. Papers must be submitted in PDF format electronically, by the deadline above, through the Precision Conference System (PCS): <https://new.precisionconference.com/>

All accepted papers will be archived in the IEEE Xplore digital library. We are discussing with some journals to host a special issue related to the workshop's theme. Selected and revised papers will be recommended for the special issue and reviewed under a fast review process.

IEEE VR Workshops proceedings will be published electronically through the IEEE Digital Library, depending on the on-time submission of the proceedings by the workshop organizers before the mandatory IEEE deadline of Saturday, January 29, 2023.