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

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. The submissions should provide a clear focus on ***cross-reality technologies that enable effective interaction for single or multiple users*** in data analytics and visual exploration tasks. We are interested in the design space and considerations for such technologies, their implementation, and user evaluations with them.

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The workshop solicits submissions of unpublished works on topics including (but not limited to) the following applications and emerging topics in **cross-reality visualization, interaction, and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, 2023

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

SUBMISSION

Authors are invited to submit research or work-in-progress papers:

- **Research paper:** 4-6 pages + references
- **Work-in-progress paper:** 2-3 pages + 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 should be written in English and submitted in PDF format. All IEEE VR Conference Paper submissions should follow the IEEE VR formatting guidelines. LaTeX and Word templates can be found at: https://tc.computer.org/vgtc/publications/conference/. Papers must be submitted through the Precision Conference System (PCS): https://new.precisionconference.com/vr, Society (VR), Conference/Journal (IEEE VR 2023), Track (IEEE VR 2023 Workshop: Mixing Realities: Cross-reality Visualization …).

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.