**IEEE VR 2023 Workshop on Multi-modal Affective and Social Behavior Analysis and Synthesis in Extended Reality (MASSXR)**

**Location and date**

The workshop IEEE-MASSXR will take place during the 30th IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR 2023) conference, which will be held from March 25-29, 2023, in Shanghai, China.

IEEE-MASSXR is a half-day workshop, and it will be held online. For more information, please visit the workshop's website:

https://sites.google.com/view/massxrworkshop2023

**Description**

With the recent advances in immersive technologies such as realistic digital humans, off-the-shelf XR devices with capabilities to capture users' speech, faces, hands, and bodies, and the development of sophisticated data-driven AI algorithms, there is a great potential for automatic analysis and synthesis of social and affective cues in XR. Although affective and social signal understanding and synthesis are studied in other fields (e.g., for human-robot interaction, intelligent virtual agents, or computer vision), it has not yet been explored adequately in Virtual and Augmented Reality. This demands extended-reality-specific theoretical and methodological foundations. Particularly, this workshop focuses on the following research questions:

- How can we sense the user's affective and social states using sensors available in XR?
- How can we collect users' interaction data in immersive situations?
- How can we generate affective and social cues for digital humans/avatars in immersive interactions enabled by dialogue, voice, and non-verbal behaviors?
- How can we develop systematic methodologies and techniques to develop plausible, trustable, personalized behaviors for social and affective interaction in XR?

The objective of this workshop on **Multi-modal Affective and Social Behavior Analysis and Synthesis in Extended Reality** is to bring together researchers and practitioners working in the field of social and affective computing with the ones on 3D computer vision and computer graphics/animation and discuss the current state and future directions, opportunities, and challenges. The workshop aims to establish a new platform for the development of immersive embodied intelligence at the intersection of Artificial intelligence (AI) and Extended Reality (XR). We expect that the workshop will provide an opportunity for researchers to develop new techniques and will lead to new collaboration among the participants.

**Scope**

This workshop invites researchers to submit original, high-quality research papers related to multi-modal affective and social behavior analysis and synthesis in XR. Relevant topics include, but are not limited to:

- Analysis and synthesis of multi-modal social and affective cues in XR
- Data-driven expressive character animation (e.g., face, gaze, gestures, ...)
- AI algorithms for modeling social interactions with human- and AI-driven virtual humans
- Machine learning for dyadic and multi-party interactions
- Generating diverse, personalized, and style-based body motions
- Music-driven animation (e.g., dance, instrument playing)
- Multi-modal data collection and annotation in and for XR (e.g., using VR/AR headsets, microphones, motion capture devices, and 4D scanners)
- Efficient and novel machine learning methods (e.g., transfer learning, self-supervised and few-shot learning, generative and graph models)
- Subjective and objective analysis of data-driven algorithms for XR
- Applications in healthcare, education, and entertainment (e.g., sign language)

**Important Dates (tentative)**

- Submission deadline: January 15, 2023 (Anywhere on Earth)
- Notifications: January 24, 2023
- Camera-ready deadline: Feb 3, 2023
- Conference date: March 25-29, 2023
- Workshop date: March 27, 2023 (Shanghai time morning or afternoon TBD)

**Keynote speakers (confirmed)**

- Taku Komura (Edinburgh University, UK)
- Carlos Busso (University of Texas at Dallas, USA)

**Instructions for Submission**

Authors are invited to submit a

- Research paper: 4-6 pages + references
- Work-in-progress paper: 2-3 pages + references

Papers will be included in the IEEE Xplore library. Authors are encouraged to submit videos to aid the program committee in reviewing their submissions. Please **anonymize** your submissions, as the workshop uses a double-blind review process. Authors of accepted papers are expected to register and present their papers at the workshop.

Papers should use the IEEE VR formatting guidelines https://tc.computer.org/vgtc/publications/conference/ and should be submitted through the IEEE VR 2023 Precision Conference System (PCS): https://new.precisionconference.com/~vr

When starting your submission, please make sure to select the relevant track for the workshop *"IEEE VR 2023* - Multi-modal Affective and Social Behavior Analysis and Synthesis in Extended Reality*"*.

**Workshop Format**

The workshop will have two keynote speakers, 3-4 research papers, and a panel discussion including the keynote speakers, organizers, and the audience in an interactive manner.

**Organizers:**

- Zerrin Yumak (Utrecht University, The Netherlands)
- Funda Durupinar (University of Massachusetts Boston, USA)
- Oya Celiktutan (King's College London, UK)
- Pablo Cesar (CWI and TU Delft, The Netherlands)
- Aniket Bera (Purdue University, USA)
- Mar Gonzalez-Franco (Google Labs, USA)

**International Program Committee (tentative):**

- Abdallah El Ali (CWI, The Netherlands)
- Uttaran Bhattacharya (Adobe Research, USA)
- Darren Cosker (Microsoft Research Cambridge, UK)
- Claudia Esteves (Universidad de Guanajuato, Mexico)
- Ylva Ferstyl (UbiSoft, La Forge, CA)
- Marco Gillies (Goldsmiths' College, UK)
- Ugur Gudukbay (Bilkent University, Turkey)
- Andrés Monroy-Hernández (Princeton University, USA)
- Ludovic Hoyet (Inria Rennes, France)
- Hayley Hung (TU Delft, The Netherlands)
- Mubbasir Kapadia (Rutgers University, USA)
- Sameer Kishore (Middlesex University, Dubai)
- Wan-Chun Alex Ma (ByteDance, USA)
- Dinesh Manocha (University of Maryland, USA)
- Stacy Marsella (Northeastern University, USA)
- Rachel McDonnell (Trinity College Dublin, Ireland)
- Louis P. Morency (Carnegie Mellon University, USA)
- Michael Neff (University of California Davis, USA)
- Aline Normoyle (Bryn Mawr College, USA)
- Sylvia Xueni Pan (Goldsmiths' College, UK)

- Catherine Pelachaud (CNRS, France)
- Voicu Popescu (Purdue University, USA)
- Tiago Ribeiro (Soul Machine, New Zealand)
- Albert Ali Salah (Utrecht University, The Netherlands)
- Metin Sezgin (Koc University, Turkey)
- Sarah Taylor (Epic Games, UK)
- Nguyen Tan Viet Tuyen (King’s College London, UK)
- Ana Tajadura-Jiménez (UCL, UK)
- Vinoba Vinayagamoorthy (Samsung, UK)
- Irene Viola (CWI, The Netherlands)
- Julie R. Williamson (University of Glasgow, UK)
- Jungdam Won (Meta AI, USA)
- Katja Zibrek (Inria Rennes, France)