HCI International 2025
22 - 27 June • Gothenburg, Sweden

Call for Participation
Generative AI for Collaborative Experiences and Enhanced User Interactions in Mixed Reality

Sunday, 22 June 2025 - 13:30 - 17:30

Organizer(s):

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Aim of the Workshop

The "Generative AI for Collaborative Experiences" Workshop invites submissions that explore the integration of generative AI with mixed reality (MR) technologies to enhance and transform collaborative interactions. We welcome academics, industry professionals, and practitioners to present their research, case studies, and technological solutions. This workshop will serve as a platform for discussing the potential of generative AI to create adaptive, personalized, and immersive experiences across various domains, including education, entertainment, and professional development. We encourage submissions that not only address current technologies but also propose future directions for responsible and innovative use of generative AI in MR.

Expected Workshop outcome

Participants will gain a deeper understanding of how generative AI can be integrated into mixed reality environments to improve collaboration and user interaction. This includes insights into the latest algorithms, techniques, technologies, methodologies, and theoretical perspectives in the field.

The workshop aims to foster networking opportunities that encourage collaborations between academia and industry. It is expected that new partnerships will be formed, leading to collaborative projects and research initiatives that continue beyond the duration of the workshop.

Furthermore, participating authors will have the option of publishing the outcomes of the workshop in a chapter of a book that will be edited by the Workshop organizers.

Workshop topics

Topics of interest include but are not limited to:

- **Foundations of Generative AI in MR**: Theoretical underpinnings, latest advancements, and foundational technologies enabling generative AI within MR environments.
- **AI-driven Content Creation**: Techniques and tools for using generative AI to create dynamic, immersive content for MR applications, including real-time adaptation to user inputs and environmental changes.
- **Collaborative Interfaces in MR**: Design and implementation of user interfaces that utilize AI to enhance collaborative efforts in MR settings, focusing on workflow optimization and interaction efficiency.
- **Personalization and Adaptation in MR**: How AI algorithms can personalize user experiences in MR, adapting to individual behaviors, preferences, and learning patterns to improve engagement and effectiveness.
- **Ethical Considerations in Generative AI**: Discussion of ethical, privacy, and security issues related to the use of generative AI in collaborative environments, including data protection, bias mitigation, and transparency.
- **Interactive AI Agents**: Development and deployment of AI agents that can interact naturally with users in MR, including negotiation, cooperation, and assistance in complex tasks.
- **Multi-User MR and MR Systems**: Challenges and solutions for developing MR systems that support multiple users simultaneously, facilitated by AI technologies to manage interactions and data synchronization.
- **AI for MR in Education and Training**: Innovative applications of AI in educational and training scenarios using MR technologies, with case studies and effectiveness analysis.

- **Emerging Trends in AI and MR**: Exploration of new and emerging trends in MR and AI technologies, including the convergence of AI with other emerging technologies such as blockchain and IoT in MR settings.
- **Performance Metrics and Evaluation in AI-Enhanced MR**: Metrics and methods for evaluating the performance of AI-driven systems in MR, including user satisfaction, system responsiveness, and accuracy of AI-generated responses.
- **Regulatory and Legal Aspects of AI in MR**: Examination of the current regulatory landscape affecting the deployment of AI technologies in MR, with a focus on compliance challenges and future legal considerations.

Workshop agenda

The following is a framework for the program of the Workshop:

Time	Program event
13:30 – 13:45	Welcome and introductions
13:45 – 15:30	Position talks by participants
15:30 – 16:00	Refreshment break
16:00 – 16:45	Breakout sessions on workshop topics
16:45 – 17:15	'share out' of the breakouts
17:15 – 17:30	Workshop wrap up

Guidelines to prospective authors

Submission for the Workshop

Prospective authors should submit their proposals in PDF format through the HCII Conference Management System (CMS). You are welcome to submit your ideas exploring the workshop topics in the form of short papers, research in progress whitepapers, and abstracts.

Submission for the Conference Proceedings

The contributions to be presented in the context of Workshops will not be automatically included in the Conference proceedings.

However, after consultation with the Workshop organizer(s), authors of accepted Workshop proposals who are registered for the Conference are welcome to submit, through the Conference Management System (CMS), an extended version of their

Workshop contribution to be considered, following further peer review, for presentation at the Conference and inclusion in the "Late Breaking" volumes of the Conference proceedings, either in the LNCS as a long paper (typically 12 pages, but no less than 10 and no more than 20 pages), or in the CCIS as a short paper/extended poster abstract (typically 6 pages, but no less than 4 and no more than 11).

Workshop deadlines

Submission of Workshop contributions	4 April 2025
Authors notified of decisions on acceptance	25 April 2025
Finalization of Workshop organization and registration of participants	2 May 2025

Workshop Organizer(s)

Elham Mohammadrezaei

Elham Mohammadrezaei is a PhD student of Computer Science at Virginia Tech, where she explores the convergence of artificial intelligence and extended reality (XR) technologies. Her research is focused on the development of AI-enhanced interfaces that facilitate more intuitive and effective user interactions within mixed reality environments. Elham's work aims to bridge technological advances with practical applications, enhancing the accessibility and usability of XR tools across various sectors including education and professional training. Her scholarly contributions underscore her commitment to advancing the field of interactive technology.

Majid Behravan

Majid Behravan is a dedicated researcher in computer science with a focus on artificial intelligence, natural language processing, and human-computer interaction. His recent work explores innovative approaches to AI, including advancing generative multi-modal AI for augmented reality applications, enhancing e-learning experiences with embodied AI tutors in virtual environments and integrating physiological data to develop empathetic AI systems. Behravan's research contributes to personalized education, empathetic AI systems, and dynamic content generation in augmented reality.

Pinar Yarandag

Pinar Yanardag is a tenure-track assistant professor at Virginia Tech's Department of Computer Science and leads the Generative Models Lab (GEMLAB). With a Ph.D. from Purdue University and a postdoctoral fellowship at MIT, her research focuses on generative AI, emphasizing interpretability, collaboration, and fairness. Pinar's work has been published at prestigious conferences like NeurIPS and ICCV and featured in outlets such as The Washington Post and CNN. She co-founded GLITCH, the first generative AI clothing line, and is passionate about public education on AI's potential and challenges.

Brendan David-John

Dr. Brendan David-John is an Assistant Professor of Computer Science at Virginia Tech. David-John was the first Native male to graduate with a doctorate in Computer Science from the University of Florida in 2022, and received his BS and MS from the Rochester Institute of Technology in 2017. He is from Salamanca NY, which is located on the Allegany reservation of the Seneca Nation of Indians. His personal goals include increasing the representation of Native Americans in STEM and higher education, specifically in computing. His research interests include mixed reality and eye tracking, with a primary focus on privacy and security for the future of virtual and mixed reality.

Denis Gracanin

Denis Gračanin received the BS and MS degrees in Electrical Engineering from the University of Zagreb, Croatia, in 1985 and 1988, respectively, and the MS and PhD degrees in Computer Science from the University of Louisiana at Lafayette in 1992 and 1994, respectively. He is an Associate Professor in the Department of Computer Science at Virginia Tech. His research interests include virtual reality and distributed simulation. He is a senior member of ACM and IEEE and a member of AAAI, APS, ASEE, and SIAM.

Useful links and References

Grubert, J., Chen, J., & Kristensson, P. O. (2024). Generative AI for Accessible and Inclusive Extended Reality. *arXiv preprint arXiv:2410.23803*.

Bussell, C., Ehab, A., Hartle-Ryan, D., & Kapsalis, T. (2023, July). Generative ai for immersive experiences: Integrating text-to-image models in vr-mediated co-design workflows. In *International Conference on Human-Computer Interaction* (pp. 380-388). Cham: Springer Nature Switzerland.

Nishihara, R., Moritz, P., Wang, S., Tumanov, A., Paul, W., Schleier-Smith, J., ... & Stoica, I. (2017, May). Real-time machine learning: The missing pieces. In *Proceedings of the 16th workshop on hot topics in operating systems* (pp. 106-110).

Chamola, V., Bansal, G., Das, T. K., Hassija, V., Sai, S., Wang, J., ... & Niyato, D. (2024). Beyond reality: The pivotal role of generative ai in the metaverse. *IEEE Internet of Things Magazine*, *7*(4), 126-135.

Chheang, V., Sharmin, S., Márquez-Hernández, R., Patel, M., Rajasekaran, D., Caulfield, G., ... & Barmaki, R. L. (2024, January). Towards anatomy education with generative AI-based virtual assistants in immersive virtual reality environments. In *2024 IEEE International Conference on Artificial Intelligence and eXtended and Virtual Reality (AIxVR)* (pp. 21-30). IEEE.

Segura Anaya, L. H., Alsadoon, A., Costadopoulos, N., & Prasad, P. W. C. (2018). Ethical implications of user perceptions of wearable devices. *Science and engineering ethics*, *24*, 1-28.

Agrawal, R., Kadadi, A., Dai, X., & Andres, F. (2015, October). Challenges and opportunities with big data visualization. In *Proceedings of the 7th International Conference on Management of computational and collective intElligence in Digital EcoSystems* (pp. 169-173).

Registration regulation

Workshops will run as 'hybrid' events. Organizers are themselves expected to attend 'on-site', while participants will have the option to attend either 'on-site' or 'on-line'. The total number of participants per Workshop cannot be less than 8 or exceed 25.

Workshops are 'closed' events, i.e. only authors of accepted submissions for a Workshop will be able to register to attend the specific Workshop, complimentary with their Conference registration.