

# HEAT - Hybrid Extended reAliTy

**Descriere:** Proiectul Hybrid Extended reAliTy s-a născut din dorinţa de a aborda provocările majore existente la ora actuală pentru a realiza experienţe de realitate virtuală imersive cum ar fi holo-portarea, spaţii 3D hiperrealiste navigabile şi realitatea virtuală mixtă. Scopul proiectului este de a integra tehnologii media imersive, cum ar fi point-cloud/imaginile holografice, media multi-senzorială şi realitate virtuală socială într-un sistem de comunicare multi-utilizator, pentru a oferi utilizatorilor experienţe contextuale pentru aplicaţii hibride inovatoare XR. Astfel utilizatorii de la distanţă pot experimenta un mediu real capturat prin realitate virtuală imersivă, în timp ce utilizatorii în prezenţă pot vizualiza şi interacţiona cu hologramele utilizatorilor de la distanţă integrate în mediu real prin randare holografică.

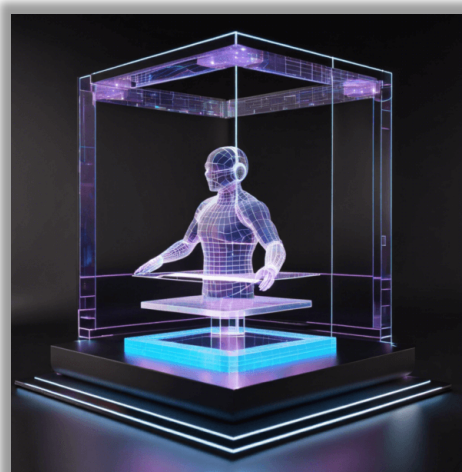
**Implementare:** 4 proiecte pilot: XR-EI (learning), XR-Theatre (teatru), XR-Blues (muzică live), XR-Opera (artele spectacolului)

**Tehnologii:** VR, XR, Pointcloud, Gaussian Splatting, Multisensorial Media, Quality of Experience

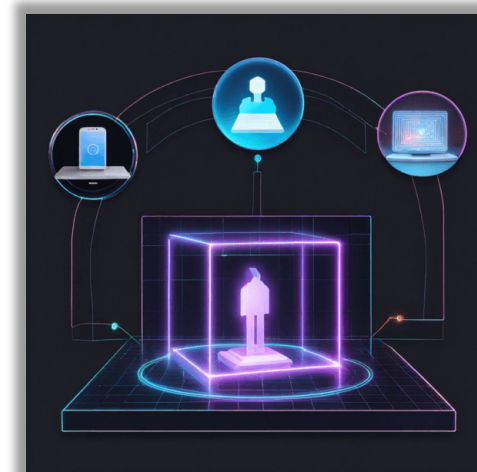
**Durata:** 36 luni (06.2024 – 05.2027) **Finanţator:** UE - Horizon Europe **Buget UTBV:** 625.000 EUR **Coordonator:** conf. dr.-ing. Vlad Popescu



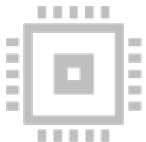
**Capturing and presenting 3D  
holograms**



**Realistically 3D captured & presented  
environments**



**Presence and remote users  
interaction**



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## Publicații:

1. Maurizio Murrone, Gabriel Muntean, Mario Montagud, and Vlad Popescu "Toward Interactive and Distributed Hybrid Extended Reality Experiences". In "Proceedings of the 2024 ACM International Conference on Interactive Media Experiences Workshops" (IMXw '24), June 12, 2024, Stockholm, Sweden. ACM, New York, NY, USA 4 Pages. <https://doi.org/10.1145/3672406.3672424>
2. Mario Montagud, Marc Martos, Álvaro Egea, Sergi Fernández, "Social VR with holographic comms: enablers for new engaging experiences within the TV / video consumption landscape", IEEE Transactions on Broadcasting, 2025
3. Miguel Fernández, Francesc Mas, Sergi Fernández, Josep Paradells, Mario Montagud, "Mass Live and Interactive Multi-Cam VR360 Experiences as an Immersive Parallel Window to TV Broadcast Shows", IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB) 2025
4. Mario Montagud, Marc Martos, Álvaro Egea, Sergi Fernández, "Social Virtual Reality (VR) with multi-user holo-portation: toward a new medium for rich interactive shared media consumption", IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB) 2025
5. Gianluca Fadda, Maurizio Murrone, Marian Alexandru, Nicusor Amarie, Vlad Popescu and Daniele Giusto, " Immersive Application for Real-Time Interactive Music Performances Using Spatial Audio", IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB) 2025