

XR meets AI



MOTIVATE XR

Maintenance, Support & Operation Training using Immersive Virtual and Augmented Technology for Efficiency with XR



VOX Reality

Voice driven
interaction in XR spaces

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The Ultimate Fusion: Extended Reality
Meets Artificial Intelligence

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MOTIVATE XR



- MOTIVATE XR aims to develop a leading XR tool suite for training and assisting in industrial operations like assembly, manufacturing, maintenance, and dismantling

- **Call:** HORIZON-CL4-2023-HUMAN-01-CNECT, Topic HORIZON-CL4-2023-HUMAN-01-22, CNECT/G/02 LUX
- **Type of Action:** HORIZON-IA
- **Acronym:** MOTIVATE XR
- **Number:** 101135963
- **Duration:** 36 months
- **Start Date:** 01 Jun 2024

Motivate XR Partners



MOTIVATEXR



Our Ambitions



Digital Twins Made Easier

Reduce the cost and expertise required to 3D scan equipment and environments, thus contributing to the democratisation of XR applications.



XR Authoring Tool For all

Development of an AI-assisted, ubiquitous toolset that facilitates seamless interoperability and amplifies creative possibility.



AI Knowledge Transfer to XR Experiences

Automatic conversion of technical documentation to knowledge graph to XR training and assistance application.



Collaborative Industrial XR Experiences

AI powered compatibility and integration with headset and cloud-based back-end solution proposal.

- The project will be tested in 5 complementary industrial sectors:



Aerospace



Home Appliances



Aluminium



Energy Distribution



Human-Robot Hybrid Manufacturing

- A user-centric methodology, guided by an SSH expert, will ensure adherence to societal, ethical, and legal standards, including the "Do no significant harm" (DNSH) principles and ethical use of XR and AI per EC guidelines.



Pilot 1 Aerospace Industry

Automating the conversion of aircraft technical documentation using a comprehensive digital mock-up and leveraging existing PDF manuals.

Partners:





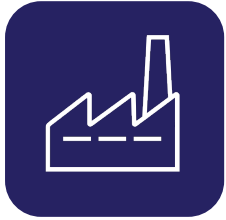
Pilot 2 Home Appliances Industry

Training and assistance of maintenance and self-repair procedures for Hisense Gorenje Europe (HE) appliances such as washing machine.

Partner:



Pilots



Pilot 3 Aluminium Industry

Development of an AI-driven XR remote assembly assistance system for the Architectural Aluminium Academy (AAA)

Partner:





Pilot 4 Energy Distribution Industry

Enhancing the training and upskilling of Hellenic Electricity Distribution Network Operator's (HEDNO) employees for network modernisation and innovation

Partner:





Pilot 5 Human-Robot Hybrid Manufacturing Industry

Training and supporting workers to interact with physical equipment and manufacturing robots through digital twins

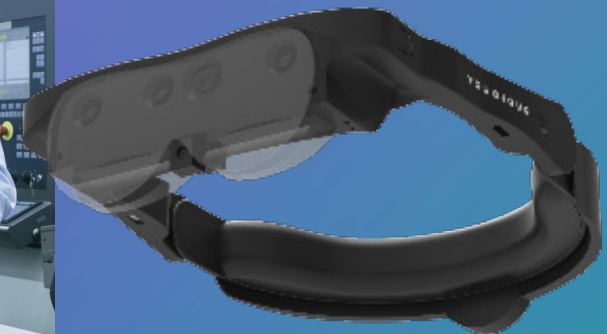
Partner:



Components



- Component 1 : mobile 3D AI-powered videogrammetry scanner
- Component 2: No code Digital Twin Modelling tool, utilizes Maggioli MIRA
- Component 3: AI-powered document conversion assistant based on Sopra Steria
- Component 4: Collaborative no-code XR authoring tool baes on CS Inscape
- Component 5: Ubiquitous no-code XR authoring tool, based on KAYROX
- Component 6: XR AI-powered smart headset, based on YBQ's Leonardo
- Component 7: Remote Training and assistance tool, based on D-CUBE RTXR





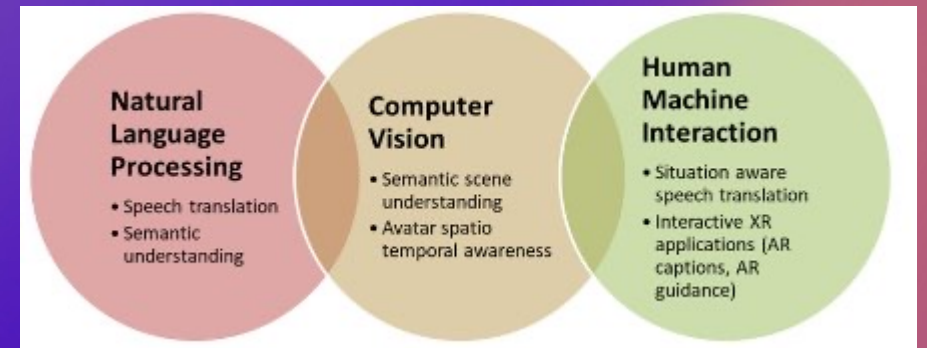
VOXReality

Voice driven
interaction in XR spaces

- **Grant Agreement:** 101070521
Horizon Europe
 - Call: HORIZON-CL4-2021-HUMAN-01
 - Type: Research and Innovation Action (RIA)
- **Start – End:** 01/10/2022 (36 months)

VoxReality Goals

- to facilitate and exploit the convergence of two important technologies, natural language processing (NLP) and computer vision (CV)
- Both technologies are experiencing a huge performance increase due to the emergence of data-driven methods, specifically machine learning (ML) and artificial intelligence (AI)



Project objectives



Improve human-to-machine and human-to-human XR experiences



Widening multilingual translation and adapting it to different contexts



Automating the generation of virtual agents using multimodal information



Extend and improve the visual grounding of language models



Provide accessible pretrained XR models optimized for deployment



Demonstrate clear integration paths for the VOXReality pretrained models

VOXReality: Voice driven interaction in XR spaces



10 partners
5 countries

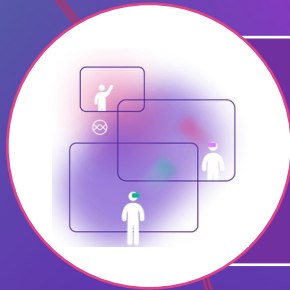


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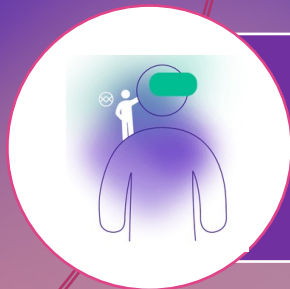
Use cases defined



Virtual Reality Conference



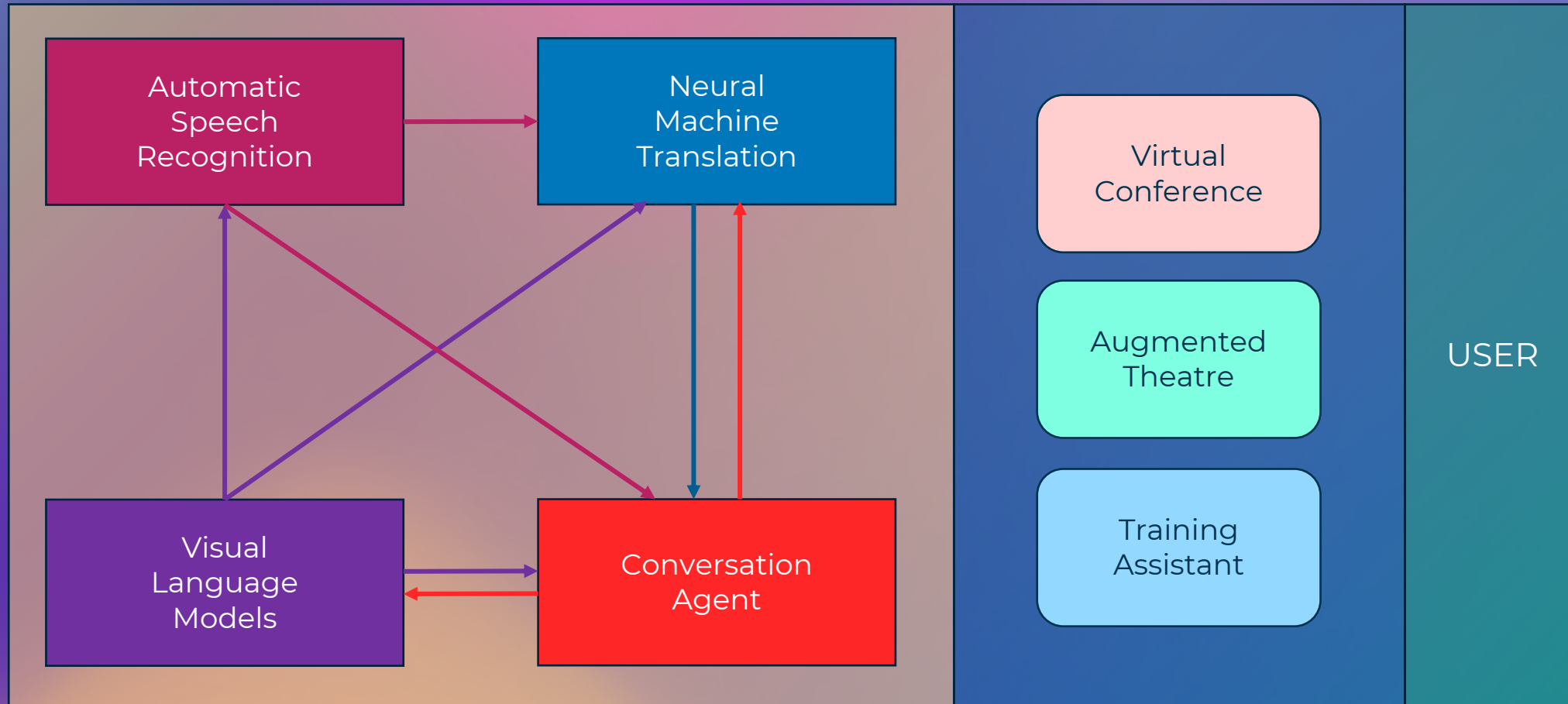
Augmented Reality Theatre



Augmented Reality Training Assistant

**The Ultimate Fusion: Extended Reality
Meets Artificial Intelligence**

AI models



Use Cases



VIRTUAL CONFERENCES

The VR Conferencing case aims to offer a virtual personal assistant that provides conference visitors with venue navigation, programme advice, and instant translation in six languages. The virtual personal assistant will allow seamless venue navigation and multilingual business and social interactions.

NMT - Translation

VLM - Contextual Information

ASR - Transcription

DS - Online Support

THEATERS

The Augmented Theatre use case aims to introduce AR technologies to theatre audiences. Using AR equipment (glasses) theatregoers will experience two different components of AR elements during a theatrical performance: voice activated, AI generated sub or surtitles and visual effects.

VLM - Contextual Information

NMT - Translation

ASR - Transcription

PERSONAL ASSISTANT

This use case of the VOXReality project focuses on advancing the training experience and widening the scope of the training for factory workers in industrial assembly tasks. The primary focus is on incorporating personalized voice assistance during the assembly training in an Augmented Reality (AR) environment.

DS - Online Support

NMT - Translation

ASR - Transcription

Use Cases - Challenges

VIRTUAL CONFERENCES



- *Online conferencing offers limited possibilities for interaction among visitors.*
- *Language barriers reduce the interactions between conference visitors, especially during business meetings and lectures.*
- *Navigation in online/offline conference environments is deficient.*

THEATERS



- Increasing accessibility for international audiences and individuals with disabilities.
- Introducing and integrating emerging XR technologies with the physical aspects of theatre.
- Ethical and artistic integration of AI-based technologies in theatre.

PERSONAL ASSISTANT



- Establishing a user-friendly interface by avoiding tedious hand menu interaction.
- Enabling seamless and stable immersive experiences.
- Replacing the assistance from a human trainer.

Thank you



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