



Immersive Technologies for Cultural Heritage Categories and Examples for REVIVE Co-Creators

This document presents five categories of immersive experiences - XR, enhanced objects, enhanced physical sites, audio, film - each illustrated through real-world examples that demonstrate their application in cultural heritage contexts.

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1. XR (Extended Reality)

1.1 Augmented Reality (AR)

Overlays digital elements on the real world. Delivered on a mobile device with a camera, on AR glasses, or on a VR headset with a passthrough camera.

ALIPH AR

ALIPH AR is a mobile augmented reality application that complements a touring physical installation about protecting cultural heritage in areas of conflict. The project conceived together with the international NGO ALIPH and is aimed at raising awareness and funding for protection of cultural heritage.

Project Link: <https://www.nowheremedia.net/aliph-ar/more>

1.2 Virtual Reality (VR)

Immerses the user fully in a digitally generated world. Delivered on a VR headset.

Kusunda

KUSUNDA is a voice-driven virtual reality (VR) experience about the sleeping Kusunda language in western Nepal. Co-created by Kusunda shaman Lil Bahadur and his granddaughter Hima, this intergenerational story invites you to support the challenging task of revitalising a dormant indigenous language. Every two weeks a language falls asleep. Most languages at threat belong to indigenous communities such as Kusunda in Nepal. The Kusunda language has been categorised by linguists as a language isolate, meaning it's unrelated to any other language family of the world. Due to their nomadic way of life, the Kusunda call themselves "Kings of the Forest." Currently there are only about 150 people in Nepal who identify as Kusunda.

Project Link: <https://www.nowheremedia.net/kusundavr>



Immersive Antarctica

Immersive Antarctica: A Frozen Night is a roomscale, interactive VR experience, telling a historical narrative based on audio from the archives of the British Antarctic Survey. The research station Base E on Stonington Island is brought back to life as users walk in the footsteps of explorer Niel Marsden and relive his memories of his time in Antarctica in the 1960s through his own voice. The application was developed as an output from a Knowledge Transfer Partnership (KTP) funded by UK Research and Innovation (UKRI), in partnership with the UK Antarctic Heritage Trust (UKAHT) and British Antarctic Survey Archives.

Project Link: <https://storylabresearch.com/projects/immersive-antarctica/>

1.3 Mixed Reality (MR)

Crossover of AR and VR where real and digital words interact. Delivered on a VR headset with a passthrough camera.

SHAN – Among humans, saints and snow leopards

SHAN is a mixed reality experience set in the high Himalayas, where the lives of Tsering Palmo, a resilient shepherdess, and Tsewang Norbu, a wildlife spotter, are interwoven with the elusive snow leopard. Through augmented and virtual reality, participants journey into the heart of Ladakh, navigating the challenges of this fragile ecosystem where human survival, wildlife conservation, and climate change intersect.

Project Link: <https://www.nowheremedia.net/shan-among-humans-saints-and-snow-leopards>



2. Enhanced digital objects

2.1 Tangible Interface

Touchscreen or desktop-based system which enables to interact directly with digital replicas of physical objects.

Fistula Plumbea

Story of the Roman fistula linked to the submerged villa of Baiae, near Bacoli. Through four narrative units, the history and anecdotes of the Pisones family, who once owned the villa, are revealed. Interactive interface and Augmented Reality installation accessible via a PC station equipped with AR software called zSpace. This allows for a virtual experience of an object, architecture, or three-dimensional scene, visually overlaid onto the real world through a special PC monitor and the use of a handheld tracking device, similar to a laser pointer or pen. It's an interactive 3D journey through four case studies, which can be explored using the tracker pen and an intuitive interface on the zSpace screen.

Project Link: <https://aton.ispc.cnr.it/s/mdininno/20240618-eiczo6wwt>

3. Enhanced Physical Spaces

3.1 Immersive experiences in heritage sites

Multimodal installations which promote immersive experiences in heritage sites.

Florio Tuna Fishery in Favignana

A video installation based on a collection of oral testimonies from retired workers of the Florio factory in Favignana. The installation features 18 narrative voices, each contributing a personal micro-story captured in short, emotionally rich video portraits. A key element of the experience is the use of sound showers, which create an intimate sonic environment where visitors can listen to these voices in isolation.

Video/Trailer: <https://youtu.be/Z53h3RtLTn8?si=37NPN00ms964E8L1>



3.2 Heritage Walks

Headphones-mediated walking itineraries through heritage sites which immerse participants in the hidden stories of places.

Silent Play

A performative soundwalk and site-specific audio narrative supported by the Silent Disco headphones, a wireless audio system which promote the synchronic listening of pre-recorded audio-tracks and live conversations via whisper microphone. The format was by the Piccionaia Theatre (Vicenza, Italy) to encourage embodied exploration of heritage sites as a shared group experience.

Video/Trailer: <https://youtu.be/sboU6R0RSv4?si=8epKV8lZu7kEfNH>

Silent Play Valresia (ENG): <https://www.smart-museums.eu/en/silentplay-barmann>

3.3 Linguistic Tours

Audio-guided experiences that combine language learning with cultural exploration

Venezia between earth and water

This linguistic tour of Venice was developed by 30 French university students as part of their Italian language course within the Master Mabac programme at the Ca' Foscari Challenge School. Hosted on izi.TRAVEL - a free, open-access platform for creating city tours and cultural heritage narratives - the project features a series of 'points of interest', each accompanied by an audio description and image. The tour explores themes ranging from the city's rich cultural heritage to broader global issues such as climate change and environmental sustainability.

Project Link: <https://izi.travel/en/browse/b4453bb1-796f-45e1-8c2f-b4d2c1a983e9/it>



4. Audio

4.1 Immersive audio piece

High-fidelity, interactive sound experiences designed for headphone listening, often delivered via web platforms, where users can explore, manipulate, or co-create spatial soundscapes in real time.

Resonance Kernow Demo

This demo uses binaural audio rendering (high fidelity immersive audio designed for headphone users) to create an interactive audio experience of the Cornish coast. Created with the Google Resonance Audio package, this responsive soundscape can be fully experience online. By dragging different audio sources (eg. Sea sounds, wind noises, footsteps, singing...), the user can recreate and record bespoke scenes. The user can drag the squares around to change the sources positions in their listening environment.

Project Link: <https://thecodingchoir.com/resonancekernow/index.html>

4.2 Community Podcast

Collaborative creation of audio content – streamed and released in episodes – with members of a community, designed to tell stories from their own heritage and lived experiences.

Let's go fly the kite (The Navigator)

Let's go fly the kite is short pilot project with a UK local urban group focused on preserving the history of an area of Cambridge (the Kite). The purpose of the project was to create an online platform (the navigator) that featured community led podcasts. The stories represented were stories that were relevant and important to the community involved, and the archival material used in the “enhanced” player came from the partner community group. The aim was to create a collage of purpose-recorded oral histories to illustrate and tell stories from people living in the Kite area.

Project Link: <https://thecodingchoir.com/tc/index.html>



5. Film

Italia Terremotata

Immersive documentary to tell the story of the town of Senerchia hit by the earthquake that devastated the Irpinia region (Italy) in 1980. This film integrates 3D visualisation and multimodal storytelling to recount the story of the resilient community of Senerchia, combining video-interviews about post-earthquake community resilience, a 3D-replica of the old town created using laser-scanner technology, as well as 360° panoramas of both the old and new Senerchia.

Video: <https://vimeo.com/431903262>