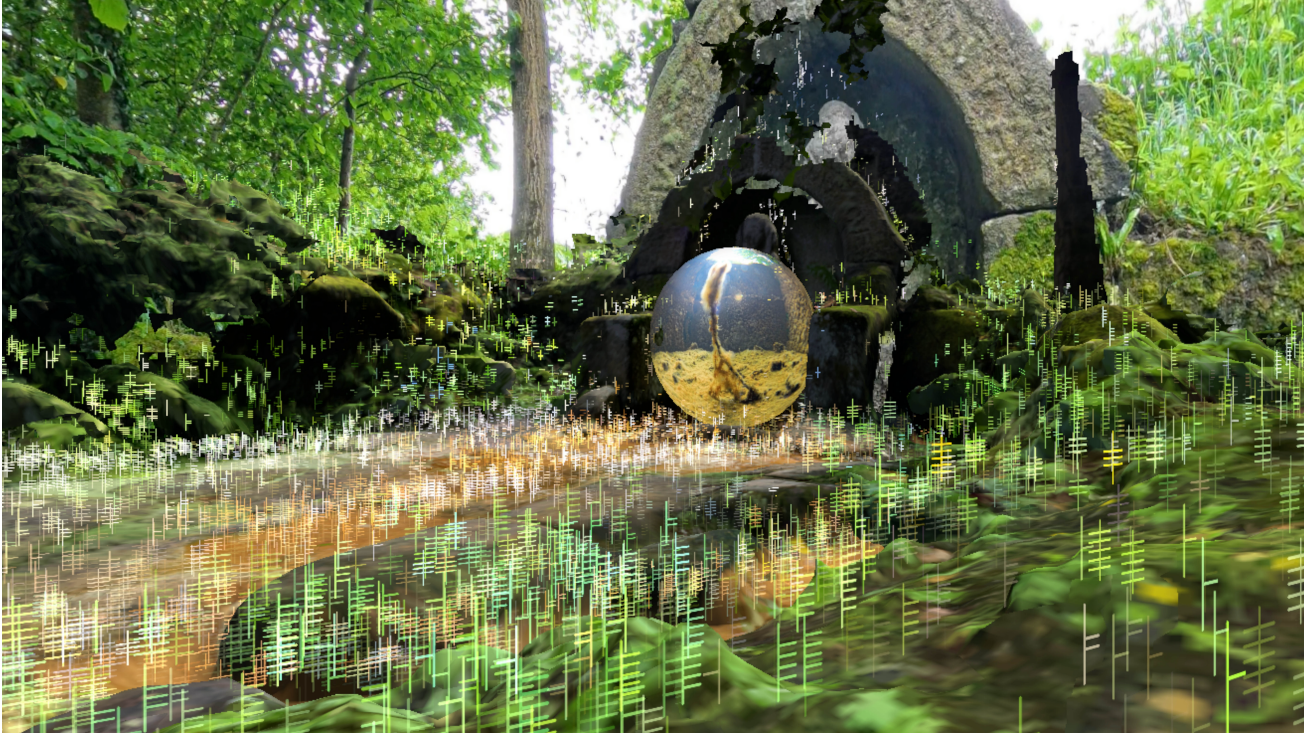


## Resonant Sources

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### 1 Program Notes

*Resonant Sources* is a virtual reality (VR) artwork that explores the evolving landscape of healing in the digital age. The work was inspired by ancient Celtic healing fountains in the Brittany region of France. Many of the fountains, which date as far back as 5000 BC, were and still are believed to be places of healing, often of very specific ailments, and were part of a larger culture of water as a healing agent.

For NIME 2026, we present a series of VR scenes, each centered on a different fountain. One example is the Fontaine de la Vierge in Bulat-Plestivien, a site historically visited by mothers who drank from the spring and prayed for abundant milk and the health of their children. The fountain is deeply sunken and enclosed by high granite walls, forming a resonant acoustic space shaped by trickling water, birdsong, church bells, footsteps, and, today, the distant passage of airplanes. In each scene, visitors will encounter a range of sonic elements, including a variety of sounds from each site, as well as

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whispered contemporary conversations about specific ailments, which invite reflection on the historical and communal role of these fountains and their enduring associations with healing.



Fig. 1 Particles based on Ogham alphabet that each play a sound (left), superimposed on LiDAR (right)

## 2 Project Description

*Resonant Sources* is a virtual reality installation drawing on a selection of ancient Celtic healing fountains in Brittany, France, some of which date to as early as 5000 BC and were later developed by Welsh and Irish Christian monks in the 6th and 7th centuries. The fountains were, and still are believed to be places of healing, often of very specific ailments, and were part of a larger culture of water as a healing agent. As an example, Fontaine de la Vierge, one of the dozens of fountains we visited in 2024 and 2025, was especially popular with breastfeeding mothers who came to drink and pray for an abundance of milk and good health for their children. This fountain is a deeply sunken, and to access its healing waters, you have to go down 12 steps, each of which is about 40 cm high. The fountain is enclosed by deep granite stone walls that create a powerful reverberating space for the sounds of trickling water, birdsong, church bells, footsteps and in this age, airplanes.

Over the course of two years and several trips to Brittany, we collected data from dozens of these fountains, including LiDAR scan data, 360 videos of each site and underwater, ambisonic (3D) audio field recordings, and voluminous ancillary sounds, images, and stories. In learning about the various ailments each of these fountains are claimed to heal, we examined Reddit discussions where people openly share experiences of mental and physical illness, considering how these digital communities might echo the collective social practices historically associated with healing fountains.

In our piece, the visitor initially encounters a field of particles derived from the ancient Celtic Ogham alphabet that forms into point cloud scan of a fountain structure in an empty black space (see fig. 1). As the visitor explores the area, moving arms in swim-like strokes causes interaction with the soundscape, including the addition of water sounds, and eventually leading to the particles resolving into a more realistic conception of the space, via the LiDAR scans, 360-degree video, and ambisonic field recordings mentioned earlier. Here the visitor is encouraged to explore, potentially encountering whispered conversations or other sounds. Eventually the visitor is lured to the fountain centre, where a sphere of water beckons. Upon interacting with the water sphere, the visitor is brought into the fountain, where music and video swirl around the visitor, eventually fading into the dark field of particles of the next fountain. In this way, the visitor can progress through several fountains, each with individual sonic and visual characteristics, as well as different healing foci.

The system was built in Unity, integrating Google Resonance Audio for three-dimensional spatial audio rendering and ChuckK for interactive sound synthesis and control. The sound design and music are integrated, derived from field recordings from each fountain site, and including sounds from inside the healing fountain, recordings of nearby church bells, local birds, and other sounds found on location. Sounds also include whispered conversations based on Reddit threads, each unique to the condition attributed to the fountain's healing powers, as well as musical materials written for gongs, organ, viola, and synthesized sounds.

## 2 Technical Notes

The system requires a VR-capable PC with a discrete GPU equivalent to or exceeding an **NVIDIA GeForce RTX 3080**, along with sufficient CPU performance and memory to support real-time rendering. If this is not possible, the authors are prepared to bring a laptop and headset that will run the piece. Ideally the piece should be installed in a small room that is quiet, and should include at least a 2x2 meter square area. If desired and available, the piece can be made to work with AR sound (speakers, rather than headset sound only), in stereo or quadraphonic sound.

## 3 Media Link(S)

- Video (long walk-through at 1080 – 1.55 GB):  
[https://drive.google.com/file/d/1W7NOy\\_XhHwfiiXiwJoIUxkCFUYu0\\_RJW/view?usp=sharing](https://drive.google.com/file/d/1W7NOy_XhHwfiiXiwJoIUxkCFUYu0_RJW/view?usp=sharing)
- Video (short walk-through at 1080 – 506.2 MB):  
[https://drive.google.com/file/d/1Anc3lb2hSAUoE\\_w6c8DUkU6rUwhiF3p9/view?usp=sharing](https://drive.google.com/file/d/1Anc3lb2hSAUoE_w6c8DUkU6rUwhiF3p9/view?usp=sharing)
- Video (short walk-through at 720 – 255.6 MB):  
<https://drive.google.com/file/d/1Xaepx727t3CBvsU6CttKZMCxczgMfPoK/view?usp=sharing>

## 4 Ethical Standards

Funding for this project comes, in part, from the University of Alberta, the KIAS Institute for Advanced Study (KULE), and the Social Sciences and Humanities Research Council (SSHRC) of Canada. All source materials were captured and recorded on location by team members. Poetry, written by Marie-Ange Beaussaut, was used with permission.

## 5 Acknowledgments

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