

# Weeping Bamboo: Resonances from Within – Exploring Indigenous Memory

## Andreas Kratky, Juri Hwang

University of Southern California  
Los Angeles, California, USA  
akratky@cinema.usc.edu, jurito@gmail.com

### Abstract

*Weeping Bamboo: Resonances from Within* is an exploration of new forms of communicating and preserving indigenous forms of oral culture. It is a locational sound art piece offering a site-specific, reactive soundscape that is experienced in public at the Plaza de Bolívar of Manizales, Colombia. The project builds on the notion of resonance, the correlated vibration of bodies, to transmit sonic, tactile, and gestural experiences. It creates a rich layering of different stages of the history of Manizales through an augmented reality experience that merges environmental sounds with a spatialized soundscape. Through a custom-made headset a spatialized audio experience is transmitted by way of the bone structure of the skull, which makes it seem as if it were coming from the space within the listener's head. The multi-channel soundscape merges with the environmental sounds perceived through the ear. Beginning with narratives of indigenous myths in concert with today's environment, the project offers a narrative soundscape that is correlated with the actual geography of the plaza through a GPS location-tracking unit, inertial sensors and a microphone.

### Keywords

Soundscape, Augmented Reality, Cultural Heritage, Embodied Interaction, Performance Studies, Interactive Media, Bone Conduction Sound.

### Introduction

*Weeping Bamboo: Resonances from Within* is a locational sound art piece that explores the complex historic layering of the city of Manizales. The aim of the work is to make the layers of the past that are missing from the current situation perceivable. The architecture of the city shows rich traces from periods such as the Spanish conquest, which began in the sixteenth century, and the concrete and steel structures of today's modern buildings. The monument of the Bolívar-Condor is witness to the difficulties of gaining independence from the Spanish rule and the establishment of a new Colombia – but evidence of the indigenous cultures who used to inhabit the area do not have an expression in the current cityscape.

This absence is not only due to the colonial development, political power structures and the exploitation of the area through mining and coffee cultivation, it is also due to very different forms of knowing and transmission of cultural heritage of the indigenous cultures. It is this latter aspect that we are predominantly interested in and which we are aiming to address with the project *Weeping Bamboo: Resonances from Within*. To grasp the difference and practical incompatibility of the forms of knowledge preservation and transmission practiced by the indigenous and the cultures following the Spanish settlements Pierre Nora's distinction between *milieux de mémoire* and *lieux de mémoire* is useful.

Nora distinguishes what he calls "real memory," which is part of the social practice of so-called primitive or archaic societies and modern historiography. The first is continuously instantiated and reinvented in its transmission from the elders of the society to the younger, while the latter is "nothing more in fact than sifted and sorted historical traces" (Nora, 1989, p. 8). A *milieu de mémoire* is a place in which memory is lived as part of an ongoing social practice that keeps it alive. In such a setting the past does not disappear, it indeed does not even become 'past' because it is part of an extensive fabric of memory kept alive by the community. As Nora writes, "memory takes root in the concrete, in spaces, gestures, images and objects" (Nora, 1989, p. 9); in the concrete enactment memory stays alive and relevant. Separated from such milieu, it turns into separated, historically closed moments that are past. History, in this sense, is the collection of ordered traces of past events that have lost their quality of living memory. They are represented by documents, buildings, and monuments in order to extend the presence of the historic traces beyond their lived-in relevance. This detachment is due to what Nora called "the acceleration of history," the realization that everything changes and disappears as the result of an ever increasing speed of modernization.

We can use Nora's model of memory and history to distinguish the forms of knowledge of the indigenous and the colonial cultures. Knowledge in the indigenous culture is not a collection of facts separated from the flow of live and nature, it is not an externalized substance that could be transmitted through representations, it rather is a social practice that is bound to the locations and relies on them to remain alive and relevant. The notion informing this kind of knowledge is not comparable to the enlightenment idea of knowledge that can be infinitely extended and piled up in the form of facts and objects that are dissociated from living practice.

### **Storage Versus Performance**

The gap between the two knowledge cultures is increasing with media and media proliferated lifestyles. Not only do media tend to assimilate cultural differences and alienate users from their environment (the use of GPS-supported navigation systems, augmented reality information overlays, or simply mobile communication devices removes people from the direct experience of their immediate environment, they do not have to orient themselves by finding and interpreting environmental cues anymore) also in terms of memory and knowledge the use of electronic records of digital media accentuates the differences between the two knowledge cultures. In an extension of the enlightenment paradigm our current culture conceives of "knowing" as storing. Nearly all information is stored digitally; with the effect that information that is not expressed in media-conform transcriptions is marginalized or excluded. This is in particular the case for oral cultures, procedural and performance-based knowledge. Most digital storage media are modeled on their pre-digital counterparts and implement equivalents of "documents" of various kinds, such as textual, visual, or sonic documents. They are tailored to function in support of a historiographical culture that cuts off memory inscriptions from their real-life source. Because performance does not fit this paradigm of inscription, it can only be preserved in secondary formats as recording, making it lose its immediate, lived character. This means that media exert a filtering effect on what can be known by determining what can enter the realm of codified and shared knowledge.

Filtering and suppression of oral and performative cultures was not just an artifact of the mnemonic apparatuses of different cultures, it was a way of exerting and preserving power. Diane Taylor states that during

the Spanish colonization of South and Middle America indigenous cultures were suppressed and marginalized as primitive and inferior because they had no practice of producing written historic records. Existing inscriptions were censored, "histories were burned and rewritten to suit the memorializing needs of those in power. The space of written culture then, as now, seemed easier to control than embodied culture" (Taylor, 2003, p. 17). The development of appropriate structures of integrating oral and performative forms of knowing therefore addresses several needs: It makes the social knowledge, memory and sense of identity that is transferred through acts of performance available beyond the select circles that partake in this practice and integrates it into body of shared knowledge. And it is a form of counter-acting the century-long forms of oppression of cultural forms that are considered inferior to the Western culture.

In search for such appropriate structures we can consider digital media as a promising avenue. Nothing in the technical framework of digital media necessitates the emulation of traditional storage media. Indeed, digital media have a lot in common with the ephemeral character of oral and performative knowledge transmission. Information is stored through permanent activation in electronic circuits and on constantly spinning disks. If the continuous supply of power is removed from such systems, the information is gone if it is not stored in traditional inscription-based forms as optical or magnetic patterns. The time-based structure of oral discourse and performance resonates with a timebased structure of digital media, in which operations are executed according to a rhythm that makes sure that the temporal relationship between operations is correct. The clock frequency is essential for the functioning of a computer and the synchronization of its actions.

### **Sympathetic Vibrations**

This resemblance on a functional level is what inspired the media theorist Wolfgang Ernst to introduce the term "sonicity" to describe the a nexus between music and computing, which converge in their mathematical nature based on rhythm. He defines "sonicity" as the meeting point of time and technology (Ernst, 2016, p. 21), making it an appropriate tool for the analysis of temporalities. Sonic phenomena are the prototypical form of structuring and experiencing transient time. Ernst turns to oral poetry to formulate a reframed concept of information storage of past events. As he

writes, “the sonicist relationship between present and past is [...] not a relation between a present moment and an archive of the past but is based on a non-historicist figure of time which in itself is temporal: resonance” (Ernst, 2016a, p. 46).

We understand resonance for our purpose as a way of making a body resonate – i.e. move – in accordance with a movement pattern from the past. This movement can be both, the vibrations of a voice, a sound or the gestures of a performance. Taken in this sense, resonance is a way to rethink the forms of knowing of the computer, which are essentially accumulated storage, and the procedural, enactive forms of indigenous cultures in a new and convergent way. Resonance can be thought as the reactivation of a past movement, a past gesture, voice or a rhythm, which does not have to be transmitted in the form of an abstract inscription, but as a sympathetic vibration. *Weeping Bamboo: Resonances from Within* builds on this concept to make the marginalized forms of knowing of the indigenous cultures of the area resonate with the contemporary culture of today’s city.

### **Oral and Embodied Knowledge**

When Antioquian colonists established their settlement and founded the city of Manizales in 1849, the aboriginal cultures there had already been largely destroyed by a few centuries of colonization. Early colonization began with – at first – not so hostile Spanish conquistador Jose Robles in 1539 and saw subsequent aggression and exploitation by Sebastián de Belacázar and his men from Peru. Before that time, the territory was inhabited by various native tribes such as the Pijos, Ansermas, Armas and notably the Quimbaya who had cultivated a tradition of highly sophisticated work with gold and pottery. W.H. Whites estimates the native population of the Cauca and Antioquia region in northern Colombia to have been somewhere between 2 million to 3 million people. Yet, the Quimbayas became extinct as a recognizable group around 1700 and their language remains unknown (Adelaar, 2004, p. 49).

Native cultures of Quimbaya and Carrapa in the Manizales area had a high degree of development and had attained a broad economic base with robust trade activities among various native nations who spoke different languages. Despite the flourishing cultural establishments that lasted thousands of years, with sophisticated agricultural and technical knowledge, for example about irrigation systems, the natives overall had

an entirely different approach regarding the materiality of their habitats and their environment. As chronicler Cieza de León notes, in contrast to the sophistication of other areas of cultural production, such as the utilization of natural irrigation routes, bridge systems, and an abundant agricultural production, the indigenous people did not put much work to their houses (Llano. 1990, pp. 14-15). White, a British anthropologist, mentions that this aspect of the native cultures in the Manizales area is consistent with the indigenous cultures throughout the North-Western provinces of South America: they did not build monuments and lasting buildings as European cultures would have considered it foundational for the transmission and preservation of cultural identity and heritage.

White argues that this material avoidance is not due to the lack of sophistication of the civilization, but the collective wish of the cultures to hand down their memories to their future generations in respect of their origins (White, 1884, p. 149). The origins of the indigenous people are profoundly linked to what they consider sacred nature locations and the close kinship between the human culture and nature. So preservation of nature is essential to their cultural identity. Cultural rituals are performed to communicate with nature and to reinstate and embody the relationship. Sacred locations are the depository of their knowledge and memories that is essential to continue their heritage to the future generation. This relationship to the nature and practices of embodied knowledge through sacred locations, rituals and oral traditions are characteristics of the surviving aboriginal tribal communities such as Kogi and U’wa in contemporary Colombia.

### **Weeping Bamboo: Resonances from Within**

The project *Weeping Bamboo: Resonances from Within* is an attempt to communicate these traits of the indigenous cultures in a close tangible relationship between aural experience and the specific properties of a location. Building on the notion of *resonance* as a way of transmitting sonic and gestural experiences the project creates a reactive soundscape that can be experienced in the public space. Choosing the Plaza de Bolívar, the project is placed in the historic center of Manizales where the multitude of historic layers constituting the city becomes most tangible and condensed. The physically present traces in which the history of the city manifests, the surrounding buildings, the monument, the

people, the traffic, are the site of a locational sound art piece, which fuses these traces with an experience of indigenous knowledge and philosophy.

The title Weeping Bamboo is inspired by the indigenous Quimbaya burial culture found in the Manizales area, where the tombs were fenced with bamboo poles with holes cut into their stems. As aeolian instruments, they were humming and weeping evocative whistles to the winds. The only way we know of this tradition is through the written records of the colonial witnesses. These records tell about the buried aspect of the poetic and artistic nature of the culture that disappeared and about the fragility of the culture that has been extinguished without vestige of its existence. The indigenous cultural heritage was not preserved in material artifacts, it was a living memory and tradition of practice in unison with the nature; the songs of the Aeolian instruments relied on the wind as most of the myths and narratives relied on oral transmission and a spiritual enactment in sacred sites.

The project presents an augmented sound layer that is superposed on the geographic reality of the current plaza. In a locational experience it communicates elements of the disappeared indigenous culture, such as myth of the origin of the world from water and spirit and the weeping bamboo instruments from indigenous burial culture, in conjunction with the development of the local coffee culture during global colonization, and the reformation toward sustainable coffee cultivation by local farmers in recent history. The soundscape is the result of intensive site-specific research and sonic experiments with authentic as well as recreated instruments, such as the aeolian bamboo instruments.

### Experience Set-up

*Weeping Bamboo: Resonances from Within* is experienced through a portable headset with four channels of spatialized audio. The headset is equipped with four bone-conduction transducers located on the temples, the forehead and the back of the head, transmitting the audio through vibrations applied to the skull which are perceived by the cochlear, bypassing the pinna and the middle ear. This technique allows the listener to hear the spatial differentiation of the sound and locate its directionality while perceiving it as coming from the inner space of the head. The spatial distribution of the sounds is correlated with the actual geography of the plaza in which the listener is tracked through a

GPS location sensing system. Head movements of the listener and the direction she is looking in are tracked through a compass and an inertial sensing unit so that a stable relationship between the listener's position in space and the spatial distribution of the sounds can be achieved.

With its sensors the headset responds to the body movement of the listener, shaping the soundscape in response to location and movement of the listener and in response to the loudness of the environment, captured through a built-in microphone. All data from the sensors and the microphone are processed by a Raspberry Pi computer, which calculates the soundscape in correspondence to the position and situation of the user. The software uses a combination of python and Pure Data to process the sensor data and generate the soundscape. The hardware setup is designed such that it is small and has low power consumption. Battery-powered operation and the possibility to integrate all components into a wearable head-gear were important constraints.

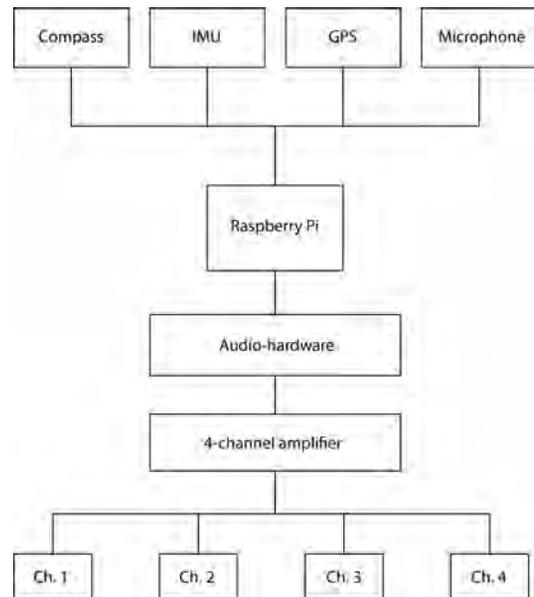


Figure 1. Diagram of the components for environmental and audio data processing

The experience unfolds as a combination of internal and external landscape of sounds and voices that incite the user to feel the tactility of sound and to enact

gestures in tune with the experience. The listener is led to explore the space of the Plaza de Bolivar though the augmented perspective of the soundscape. What starts as an exploration turns gradually into a performance and an embodied relationship with the environment. Through this open and reactive concept *Weeping Bamboo: Resonances from Within* effectively avoids the detachment of a digital media in which the “body is poised to disappear in a virtual space that eludes embodiment” (Taylor, 2003, p. 16). Instead, the experience unfolds in unison with the environment.

The use of bone conduction transducers leaves the listener’s ear open to perceive all environmental sounds as normal. The layers of the environmental sounds and the soundscape merge in the perceptual system of the listener, forming a type of augmented reality experience. In this sense, the project extends a line of research from other augmented reality art works, standing in a tradition of interventionist public art, as practiced for example by artists such as the Manifest.AR group. The focus on sound and the avoidance of image overlays underlines the notion of balanced harmonies and sympathetic vibration instead of the virtual insertion of imagery. The augmented reality layer in our project is not inserted as a foreign layer of separation, distancing the viewer from the environment, instead we are focusing on a close and immediate connection between listener and what is going on around him. As Frauke Behrend’s study of locational media suggests, the sonic layer is more appropriate for our purpose, because “the visual focus in the media world often implies a distant observer - this does not work for sound and locative media as these rely on immersion, not distance” (Behrendt, 2012, p. 288).

The project aims to reinsert the lost forms of knowledge of the indigenous culture to the current environment and merge them with contemporary forms of knowledge. Our goal is to foster a forward-looking synthesis in support of sustainable forms of living in balance with nature and today’s environment.

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### Authors’ Biographies

Andreas Kratky is a media artist and assistant professor in the Interactive Media and Games Division and the Media Arts+Practice Division of the University of Southern California’s School of Cinematic Arts. Kratky’s work focuses on new forms of cinema and the poetics of the database. It spans the arts, human computer interaction and digital humanities and comprises several award winning media art projects like “Bleeding Through – Layers of Los Angeles 1920-1986”, the algorithmic cinema system “Soft Cinema”, and the interactive opera “The Jew of Malta”. Kratky’s work has been shown internationally in Europe, USA, Japan, and Korea in institutions like the ICA in London, ICC in Tokyo, HDKW in Berlin, Centre George Pompidou in Paris, and REDCAT in Los Angeles. For his work on the modeling software “Xfrog” Kratky was nominated for the Science and Technology Award of the Academy of Motion Picture Art and Sciences.

Juri Hwang is a media artist, researcher and currently a PHD candidate in Interdisciplinary Media Arts and Practice in University of Southern California. Her research focuses on sonic culture and the role of media in the formation of memory. Engaging in an analysis of the cultural shifts of media usage and technologies she investigates the relationship between means of representation and how we perceive and remember.

Through the analysis of still images, moving images, stereoscopic 3D images and sound, her work develops a sensitivity toward the artifacts that media introduce into our perceptual relationship to our environment. Her work includes the award winning project “Bleeding Through Layers of Los Angeles: 1920-1986”, “Three Winters in the Sun: Einstein in California” and “Venture to the Interior.” Juri’s current projects comprise “Somatic Echo,” an embodied sonic experience engaging bone conducted sound, and “Nightfield,” a sound installation exploring the immersive and embodied nature of sonic memory.