Composition

NPFAI.7

Track	Cameras			
7/okan	2,8,9			
7/meji	4,6,7			
7/meta	1,2,3,4,5	5,9,7	5,6,8	5,6,7,8,9
7/merin	1,8,7			
7/marun	3, 9,6			

Duration

32 min 27 sec

Dimitri Voudouris

Casiotone 201 (CT-201) , marimba, saw, flutes, whistles, animal horn, rattlers, gourdes, shells, bells, djembe, scrap (metal, plastic objects), Neuman and homemade microphones, computer processing.

Paolo Graffieri

(*Gcorp*) physical gesture recognition

Voudun - VeVe Ogoun

Rituals are expressed by a VeVe cosmogram, having geometric positioning and sacred numeric numbers, and are used to invoke and represent specific Iwa (spirits). The diagrammatic symbols of Ogoun VeVe are a cutlass or sabre, representing his mastery over metal and combat, and the dog, symbolising his role as a protector and mediator. Ogoun is a prominent spirit warrior associated with war, fire, and iron and is worshipped in Vodun tradition amongst the Yoruba. The VeVe is typically placed near the potomitan (central pillar) of the peristyle (ceremonial space). This placement emphasises their role as a bridge between the physical and spiritual realms.

The oungan priest is a spiritual mediator who leads the ritual ceremony through song, dance, prayer, gesture and trance. He attempts to connect with different spirits and gods through physical objects, as well as use elements of nature to honour and communicate with the dead. He is completely covered with a garment made of straw attire; he dances amongst the people and then enters a closed space where the dancing becomes more intense and esoteric.

The number 7, according to numerology articles, is linked to completeness and cycles, which are full journeys, or a sense of wholeness. It is associated with spirituality and wisdom in the divine, linked to specific deities or spirits. Elemental powers are represented, such as darkness, light, air, earth, water, fire, and blood. Cultural significance is linked to rituals, ceremonies, and beliefs.

The role of music in voudou

Communication with the Spirits: A language for communicating with the loa. Each spirit has its own unique musical signature, including specific rhythms, melodies, and vocalisations. Facilitating Trance: The rhythmic and repetitive nature of Vodou music can induce altered states of consciousness, such as trance, which is a key element in connecting with the spiritual world. Ritual Atmosphere: Music helps create a sacred and focused atmosphere for Vodou ceremonies. It helps participants to enter a receptive state of mind and connect with the spiritual energy of the ritual. Expression of Devotion: Music allows practitioners to express their devotion and faith through singing, dancing, and playing instruments. Communal Experience: Music brings people together in a shared experience, fostering a sense of community and collective participation in the spiritual practices. Specific Instruments: Vodou music typically features drums, rattles, bells, and vocalists. Rhythmic Variations: Different rhythms are associated with different types of Vodou and with specific deities. Nago rhythm played for Ogou is characterised by its strong, martial quality.

Procedure

In 2015 I met Paolo Graffieri, a robotics engineer from Politecnico di Milano involved in developing a gesture recognition program (**GCorp**). I suggested to him that I would produce a musical work for his project and offered him a detailed interactive procedure to test the gesture capabilities of the program and the interaction it would have with sound. In 2016 he contacted me; he mentioned voudun (the various dance patterns offered in the ritual) and an ougan in western Nigeria that was comfortable with the cameras capturing parts of the ritual (which was usually prohibited) as long as the ritual was not made public. Under the supervision of the Italian Arts and Culture Foundation in Nigeria, the first part of the project took place; the film data was captured, and samples of the prepared sound followed. More funding was needed; the project was put temporarily on hold. In mid-October 2018–early 2019 we combined the visual data with the sound.

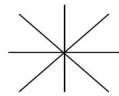Camera positions in gesture capture
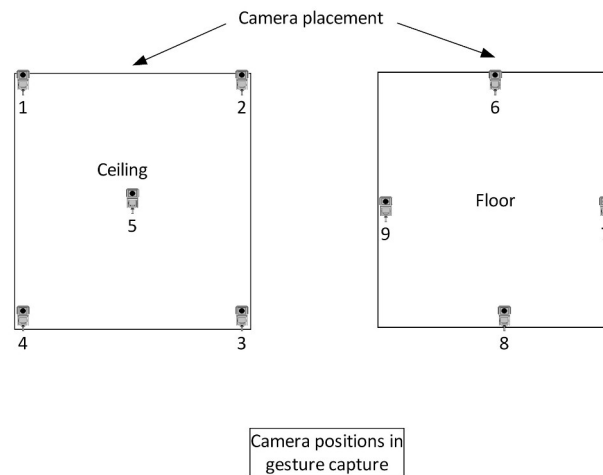
Data capturing

Data was captured at the four positions of the square space, and four tracks were created representing each of the four positions and a fifth track representing all four positions.

Hardware and Software

8 x 2D cameras with infraredlight sensors – By analysing the time it takes for the IR light to return (time-of-flight) or the intensity of the reflected light, depth information can be obtained, allowing for 3D perception even with a 2D camera.

1 x 3D camera.

The hardware and software program developed features of machine learning methods for gesture recognition, gesture following, and gesture-sound mapping, among other applications. The toolkit was built on the notion of high-level modules handling specific operations and is comprised of four types of modules:Receiver modules receive motion data from sensing hardware. In the interface, a module exists to get data from the Leap Motion or generic OSC input streams. Preprocessing and analysis modules to analyse and process gesture data. A filter module can be used to reduce noise. The Energy module extracts gestural energy from the incoming signal. Velocity is calculated by computing the derivative. Some modules are specific to inertial sensors, as the most used hardware in our work with the toolkit. Machine learning modules perform classification (e.g., gesture recognition) and regression (e.g., gesture-to-sound mapping). Classification can be static (for posture recognition) or temporal (for gesture following and real-time time warping). Similarly, regression can be static or temporal. Synthesis modules allow prerecorded sounds to be played and manipulated. The toolkit integrates temporal modulation (scrubbing). A trigger module allows for triggering a sound from a sound bank. A manipulation module allows sound to be sculpted and modified live as movement is performed.
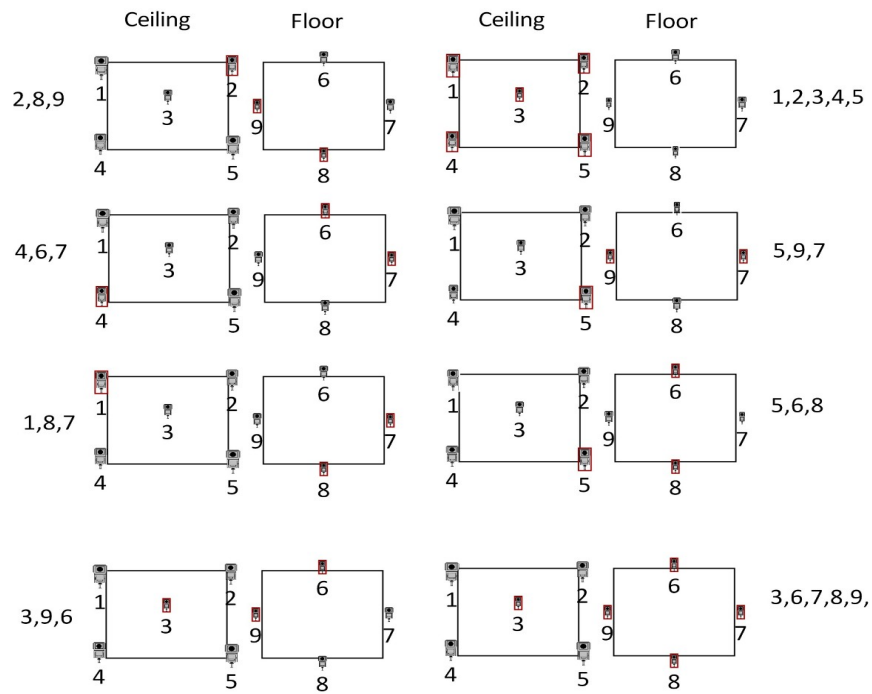
The star in the VeVe Ogoun cosmograph has 8 positions.
8 x 2D cameras positioned in performance space
9 x 3D camera from above (central position).

**Data gesture recognition 3D camera positioning derived
from the VeVe Ogoun cosmogram**

Sound interaction

The translation of the data to gesture resulted in what I had envisioned: the movement of the straws in every possible direction. Certain measures to gradually deconstruct the sound were applied, such as tone removal, pitch alterations, splitting and repositioning of the sound in various ways that created back-and-forth shaking of the sound similar to that of rattles, compression, filtering, envelopes, stretching and minimising sound, harmonisation and Grm shuffling. Finally, the deconstruction of the sound created an atmosphere conducive to spiritual communication, strengthening connection, facilitating possession, and invoking spirits.