

# **O-TONE: Interactive Sound Experience for Audiences in Sound Installations**

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**Abstract:** Designing interactive instruments for audiences in sound installations can be quite challenging. The instruments have to be simple and should offer highest creative freedom. This article introduces an interactive sound instrument that follows playful strategies of interaction with sound environments and generating new sound experience for everybody.

## **1 Introduction**

What is a good functional electronic instrument for interactive sound installation? This is a tricky question. But there are some reasons that make an instrument more powerful and flexible than others. On one hand the instrument should be quite simple to handle, and on the other hand it should offer a great amount of creative freedom to the players. It is important to keep in mind that some members of the audience in sound installation don't have any musical skills. Therefore the design and the handling of the instrument have to be easy to understand. After a short time of practice the user should be able to produce satisfactory outputs with the instrument. Additionally it is helpful to add some visual feedback to the instruments. "Visual feedback can highly increase the intuitiveness of an interactive music system, making complex principles understandable." [1]

## **2 O-Tone**

For the last years my main field of interest has focused on developing interactive sound installation and music instruments for specific performers. During that time I often got the feeling that the audience in sound installation sometimes missed a lot of important facts regarding to the projects even if they were very interested. The conclusion of this impression was the idea to create a series of understandable and playable interfaces for sound installations. My first attempt at building an

instrument for audience in sound installations that tried to satisfy these conditions came with the O-TONE, a project I started working in 2008.

The O-TONE is an electronically instrument designed for audience in sound installation. It is simple to use and playable without physical contact. The design of the instrument encourages the audience to interact with it. The piece combines a black ball mounted on a big spring and looks like a punch-ball. The users can even handle the instrument like a punch-ball. It is possible to push the black ball away and it will return.

Via three distance sensors, set into the ball, the O-TONE is played by both hands and the torso of ones body. The sound and the visual feedback directly come from the black ball. Moving closer or further to the sensors produces different sounds and visuals.

## **2.1 Sound Generation**

The generated sound appears from a speaker in the ball. It is a digital singing voice produced by a synthesizer programmed in Max/Msp, a graphical programming environment for music and multimedia developed. The singing voice makes this instrument more humane than other instrument and allows users to sing with someone else's voice. It is possible to control three parameters of the synthesizer voice, the volume with the torso, the pitch and the vowel with both hands. By trying different distances to the sensors the users can discover a huge amount of singing computer voices.

## **2.2 Visual Feedback**

Synchronized to the generated sound the O-TONE instrument as well shows a visual feedback. A small monitor is mounted into the instrument. By looking through a punched hole at the top of the black ball, the users can watch triggered video samples. The video shows a humane mouth forming vowels in consonance to the singing voice.

## **2.3 Asking Mode**

When the instrument is not used for a while it starts to invite participants to interact. The O-TONE keeps asking until someone begins to play with it.

## **References**

- [1] Jordà, S.: Exploring Visual Feedback as a Way for Creating more Intuitive, Efficient and Learnable Instruments, Proceedings of the Stockholm Music Acoustics Conference, August 6-9, 2003, p. 1