

I Am Afraid: Voice as Sonic Sculpture

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Figure 1: Screenshot of the Virtual Application, I Am Afraid. (Copyright: Maria Lantin)

ABSTRACT

We present a multi-user networked VR application, I Am Afraid, which uses voice as an interface to create sonic objects in a virtual environment. Words are spoken and added to the environment as three-dimensional textual objects. Other vocalizations are rendered as abstract shapes. The sculptural elements embed the sound of the voice that initiated their creation, and can be played as instruments via user-controlled interactions such as scrubbing, shaking, or looping. Multiple users can simultaneously be in the environment, mixing their voices in an evolving, dynamic, sound sculpture. I Am Afraid has been used for fun, performance, and therapeutic purposes.

CCS CONCEPTS

• **Human-centered computing** → **Virtual reality**; *Collaborative interaction*; • **Applied computing** → **Media arts**;

KEYWORDS

immersion, interaction, multiuser, sculpture, sound, typography, virtual reality, voice

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1 INTRODUCTION

It has been said that sounds are as close to us as our thoughts [Berkeley 1709]. I Am Afraid began as an exploration of remixing thoughts as externalized entities. What if I could see and hear my thoughts and play with them as virtual instruments? How would this transform their affective power? We first developed the I Am Afraid (IAA) VR application for a TEDx talk by Maria Lantin on fear [Lantin 2017c]. She used the VR app (in a Google Daydream headset) to begin her talk and perform fear using a generated word sculpture based on phrases such as "what's going on", "I like it", "I don't like it", "why did he do that" (See Figure 2). Since then the app has been demoed at many different venues, and used in performance at the AR in Action industry summit [Lantin 2017a].

2 USERS AS PERFORMERS

We have noticed that a sense of play develops between participants in the app (up to three could be in the same, networked, environment), and between participants and their audience. As words and vocal sounds, from different voices, build up in the environment, there is a sense of call and response or dialogue with present and past participants. There can also be a playfulness in deleting sounds which, in the case of words, explode into individual letters onto



Figure 2: TEDx speaker performing with the VR application I Am Afraid. March 2017 [Lantin 2017c]. (Photo by Jerez Challenger on tedxecuad flickr, CC BY-NC-ND 2.0. Used with permission.)

the floor. In one demonstration instance [Lantin 2017b], we had an unexpected visit by some Baroque musicians who happened to be visiting from Germany for a concert performance. Without knowing their background, we put them into the IAA environment and were delighted at the layered, harmonious, yet chaotic soundscape they produced together. This highlights the role of prior experience and virtuosity in any new instrument. Our own experience has shown that, with practice, the space of sound possibilities expands far beyond what IAA's simple interface might suggest.

3 SOUND AND AFFECT

Virtual Reality as it is currently offered privileges visual perception. This is perhaps because of a long-standing bias equating presence with seeing, and seeing with knowledge. However, sound is in many ways closer to virtuality than image because, with more tenuous material referents, it can have a more diffuse affect. The visual design of IAA is deliberately low-fi, with grey tones, little movement, and simple geometries that loosely reference interiority and the body (See Figure 1). It is meant to be a counterpoint to many virtual reality experiences which overwhelm with hyperreal, saturated, constantly changing images. We want to foreground the experience of creating a soundscape from voiced thoughts. The interaction proceeds with simple gestures that generate a layered sound environment through loops and direct playback. The result is an iterative feedback loop of listening and doing, a collaborative phenomenal dance with sound. The experience has been described as meditative, engrossing, playful, and potentially endless, which reflects the way immersive sound interaction can transform our usual way of perceiving the world.

4 IMPLEMENTATION

I Am Afraid is built for the Google Daydream platform using the GVR SDK and the Unity gaming engine. It is a multi-user networked application which has been tested with up to three users at once,

though the number of users could be increased with a strong stable wi-fi network. Participants are represented as masks, reminiscent of neurons. All interactions use a controller with one button that can also act as a trackpad. The IBM Watson Speech to Text service is used to transform speech into textual objects in real-time. The objects contain the sound of their creation, and can be played back using the controller. The playback of words is done through granular synthesis whereby the sounds are broken apart into small chunks and recombined in real-time [Roads 2001]. Moving the controller pointer on a word object plays the word's sound at any speed, forward or backward, and at an arbitrary position. The volume of a sound object can be changed by moving the object higher or lower in the space, allowing for a more complex mix of sounds. Non-word sounds are added to the environment as objects similar to paper balls and can be looped by moving the controller onto the paper ball. The non-word sounds are instrumental in creating a textured soundscape. Some of the more interesting sonic sculptures created in IAA have made extensive use of a "library" of paper balls. More complex playback is possible by creating loops of sounds which then continuously play and can be layered with other loops or interactive sounds. A loop is created by "right-clicking"¹ and drawing a path on and around a sound object. The path then plays back continuously or until a participant turns off the loop by right-clicking again. A small red sphere traces the path while in playback mode, in a comet-like fashion, which lends another playful dynamic element to the sonic sculpture being developed. Deleting a word explodes it into its component letters which then linger on the floor. Deleting a paper ball shrinks it to nothing. Words can also be moved and rotated to create a visual and sonic dynamic composition.

5 CONCLUSION

I Am Afraid is an evolving project which seeks to externalize or re-virtualize thoughts, into sonic sculptures. It started as a fascination with words and their sounds, and subsequently intersected with a long-standing investigation of fear and its manifestations in the body. We have created a collaborative immersive space where spoken words become instruments and sculptural building blocks, and eventually invitations to dance and perform with others. The emphasis on sound creates an intimate and meditative space, providing a counterpoint to the mostly visual spaces that are currently available in Virtual Reality.

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¹"Right-Clicking" here refers to pressing the single button on the controller with the finger on the right side of the button. Other active regions are the bottom, and centre.