Radio-active Monstrosities

Angeliki Diakrousi
Artist/Designer
Rotterdam
angeliki@w-i-t-m.net

ABSTRACT

In this paper, I describe the artwork *Radio-active Monstrosities*, a web-audio interface that addresses ways of listening to collective voices and certain female-sounding voices that are perceived as inappropriate or annoying — because of the quality of their sound, their gender, the medium's distortions but also stereotypes and collective memories that they often awake. These are verbal expressions that have been associated with forms of 'monstrosity' since ancient times. Visitors of the page are invited to record themselves and choose a type of distortion to participate in, forming new imaginaries around technologically-mediated voices, which through their technical 'monstrosity', can reveal other forms of speech.

1. INTRODUCTION

The interface consists of four vocal distortions with lists of voice contributions, a record button and a series of texts derived from a research on collective and female voices. The visitors can choose what type of distorted voice they want to have; 'collective', 'echo', 'lowpitch' or 'lowpass' — a distortion that may reflect to their personal needs and traumas. A series of texts reveals stories, concepts and theories behind each distortion and mediations of collective or female speech acts. The interface allows each recorded voice to be saved on a home server where the website is hosted, and then distorted by executing several scripts directly through the browser using Web Audio API. Then the new sounds are categorized by the type of chosen distortion, and published back to the platform.
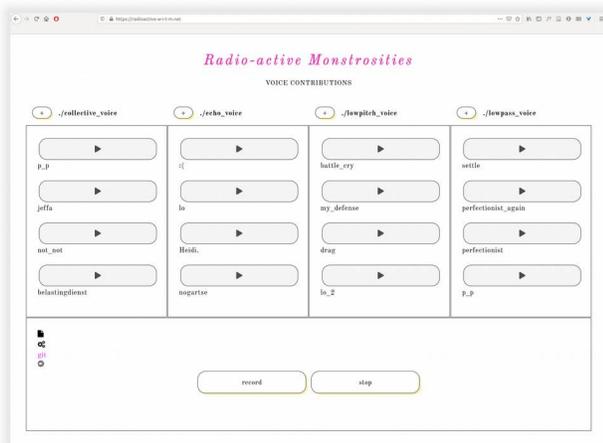

Figure 1. Screenshot from the interface

2. TECHNICAL DISTORTIONS ON VOICE

The technological apparatus, from radio, smartphones to megaphones, that channel these suppressed vocal expressions, manifests the referred sonic deformations. Examples throughout history vary from female radio broadcasters in Syria that transformed their voices technically to a male register in order to stay on air, to female politicians who learn how to change the pitch of their voices because they sound 'shrill' on TV or online radio. I see the distorted vocal expression as an 'audio drag' — a term borrowed from Laurie Anderson who gave this name to an effect that she used to distort her voice to a male register in her performance *Nova Convention* (Lane, 2017, pg. 108) — that carries suppressed vulnerabilities, emotions, needs and desires and can propose other forms of speech. I use the concept of a 'mask' that allows the voice, and thereby the prolocutor, to transform to a male or even an alienated persona transmitting and claiming malformed aspects of the mediated female voice. In this interface I attempt to reproduce and explore these mediations through a web-audio experience. Thus pass to the mediation of today, revealing the issues of the online channeling of our voices through phone or online calls, voice messages, voice assistants, streaming. Understanding the bias, the exclusions, the annoyances and then claiming our distorted digitized voices.

Below I will describe further the distortions I have chosen to highlight.

2.1 'collective'

In Occupy Wall Street, amplified sound devices, like microphones and megaphones, were only allowed outside, in public spaces when special permission from the police was given. The protesters didn't have this permission. The participants of #occupy became the 'human microphone', as they called it. This means that all together they would repeat the words of the speaker for the benefit of those located in the rear. "Even given that many of the participants of #occupy are in full possession of smartphones, verbal address to the crowd from a singular source is still important" (Moraine, 2011). A collective human body acts as a technological apparatus that channels one person's speech.

The 'collective' distortion is a symbolic gesture of amplifying through multiplying one's voice having gone into deformations similar to the other distortions in the interface. It is made by the three other distortions overlapping each other with a small time difference between them in order to listen clearly to each of them.

2.2 'echo'

We often feel uncanny listening back to our voices and their echoes through phones, video calls, voice messages. Imagine what a radical change radio brought in the experience for listening to each other, when it became public and accessible to everyone. I would like to think of echo in a more metaphorical sense,

regarding the mediated female voices. I imagine a voice that has a special quality which creates the feeling that exists in different temporal spaces. I am thinking of gossip as an echo effect where messages are spread fast and collectively through a sequence of voices. For many women it is difficult to express their inner thoughts, fears and opinions. These thoughts become internal voices that accumulate into anger and despair. Endless echoes of unrealized public speeches reverberating inside their bodies.

Inspired by Alvin Lucier's sound art piece *I am sitting in a room* the 'echo' voice is also a reference to how the space and the medium affects the vocal sounds. The spatial qualities that the voice beholds when it is transmitted through different devices and spaces add to the distortion and forms the vocal identity. The space as a private room or a public spot, the space within the body between the organs before the sound comes out, the space within the laptops and their inner parts, the space of the frequencies or the internet delay.

For this voice I use the *reverb.js* (Brae, 2016), a Web Audio API extension for creating reverb nodes and an accompanying impulse-response reverb library. In order to have the delay effect I use the *createDelay* property and the script is based on the *delay.js* (Ramirez, 2016).

2.3 'lowpitch'
During the conflict in Syria, a radio station called *Radio Fresh* was set up in 2013 broadcasting alternative news and narratives. While it was on the air the male initiators invited women to produce their own programs. Some groups of women decided to first learn vocal techniques. They then broadcast their own music and speech, but after a while *Nusra*, an extremist Islamist group, threatened to close the station if women didn't leave. "Nusra considered their voices shameful, a form of nakedness" (Ballout, 2019), that should not be exposed. Immediately these women transformed their voices technically to a male register – technicians helped them to distort electronically the quality of their voice as they speak in the microphone – and their words would be heard. The 'lowpitch' voice is a reference to that story and to people that perform a voice of a different gender in order to speak in public. This distortion is also inspired by Laurie Anderson's performances. For this voice I use the property of *playbackRate* and reduce its value in order to lower the speed of the audio. This distortion results in a voice that sounds like being in a lower pitch and thus like a male voice.

2.4 'lowpass'
In 1927, the Federal Radio Commission, a government agency that regulated United States radio communication, decided to allot each radio station 10000 hertz slice of bandwidth. Thus, as Tina Tallon (Gladstone and Garfield, 2019) observes, the base band had to be actually limited to 5000 hertz because amplitude modulation doubles the bandwidth of the signal. That meant that all of the microphones and all the recording equipment didn't go above that number because none of that information would get transmitted. There is a range of audio frequencies, between 300 to 3400 Hz, used for the transmission of speech, called voiceband. The regulators and researchers who decided for that range initially took lower voices into account because the broadcasters were only men at that time. Thus listeners believed that women spoke more softly than men but they were missing a lot of the information of the consonants and the voice quality at higher frequencies. Station directors in 1924 asserted that "women sounded 'shrill', 'nasal', and 'distorted' on the radio, and claimed that women's higher voices created technical problems" (Tallon, 2019). And these

distortions would happen because the microphones wouldn't pick up higher frequencies. According to Tina Tallon (Gladstone and Garfield, 2019) it is not lack of just a representation on air but a lack of accurate or quality of representation. And that is a big problem regarding how certain people can speak for themselves and be represented on media.

The voice gets distorted with the use of *BiquadFilterNode,* which represents a simple low-order filter. One of the types of filters it provides is the lowpass, a "standard second-order resonant lowpass filter with 12dB/octave rolloff. Frequencies below the cutoff pass through; frequencies above it are attenuated" (MDN Web Docs, 2021). I use the property *GainNode* in order the audio to sound more 'deep' into the medium.

3. WEB AUDIO
The interface uses Web Audio API, Apache, PHP, html/css and javascript. The different scripts are in experimental phase and the platform is built gradually. The technicalities of the distortions, the textures and qualities of the voices will be improved in the future.

The interaction with the visitor is as follows: pressing the 'record' button will record their voice with the use of *mp3recorder.js* (Rajivepandey, 2014). Then a prompt window will ask for a title or name and the desired type of distortion. Pressing the 'upload' button their recording will be uploaded in the server and saved with a PHP script. Then the file will be converted to a wav file with ffmpeg and depending on the chosen type, the recording will be distorted accordingly. In the end the distorted sounds will be displayed on the website separated in categories with PHP.

4. THOUGHTS AFTER
The voice is an integral part of one's political and personal identity. Living in an era of voice data and collection through apps, browsers and speech analysis devices privacy is often violated and speaking is submitted to control by big tech companies and governmental authority. At the same time online platforms become the main political sphere for speaking publicly and chat apps the communication channels for organizing and demonstrating with voice messages. By observing through a different angle the *Radio-active Monstrosities* platform and the included examples, I realize that the distortion camouflages the actual vocal identity, and allows anonymity. It can be used as an 'audio mask' that transforms the voice, and thereby the identity, into another selfhood, either plural or singular. The distortion of the voice becomes its quality, that is re-claimed, and bears the damage and traumas — caused by the technology used, the bias, social restrictions and political reasons — through which needs, opinions and desires are expressed.

I would imagine the browser as a 'monstrous deformer' that allows an active auscultation of the — political, social, technical — contemporary audible Internet's alienation.

6. REFERENCES

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7. LINKS

platform: https://radioactive.w-i-t-m.net

git: https://gitlab.com/nglk/radioactive

8. ABOUT THE AUTHOR

Angeliki is a researcher and an artist whose work examines the politics of public realms through the lens of art, architecture and technology. She is engaged with dialogical and relational methodologies, critical computing, listening practices and feminist pedagogies, and is interested in unravel the political and technological potentialities of suppressed voices. She is an Architecture graduate of the University of Patras in Greece and she holds an MA from the Experimental Publishing Master at Piet Zwart Institute in Rotterdam. Her Master's studies have been funded by the Onassis Foundation. Angeliki is a member of Varia in Rotterdam and is currently involved in research work in Hybrid Publishing and Social Practices in Willem de Kooning Academy. Her work has been published in different setups, such as the Chinretsukan Gallery and Tokyo University of the Arts, the Mediterranea 18 Young Artists Biennale in Albania, the gallery Nomina Nuda in the Philippines, Sign Gallery in Groningen and TENT in Rotterdam.