Playsound.space - Basics

Version: 1

Overview

Playsound is a sound search and music making tool that queries the online sound database Freesound.org. The website enables search by text queries and display sound results into a list format with metadata and spectrogram representations of the sounds.

Access

Playsound is accessible through the website, http://playsound.space. It works with any JavaScript and HTML5 compatible browser (e.g., Firefox, Chrome and Safari).

Visual searches based on spectrograms

Browsing for sounds in large databases can be complex, and besides the information contained in the metadata or in the title, users usually need to listen to a large amount of sounds in order to choose the ones that can satisfy their needs. One of the main features of Playsound is to offer a visual tool for searching sounds. Complex sounds are difficult to represent through conventional music notation, for example, the same note or chord played from different sources can sound very different. Also, traditional music notation is not capable of representing a whole range of non-musical sounds (e.g., field recordings, everyday sounds, speech) available in the Freesound database. The Playsound web interface lets users visually search for sounds based on *spectrograms*.

Spectrograms are images that represent the distribution of sound frequencies over time. An example of spectrogram is provided in Figure 1. The vertical axis represents audible frequencies, from the lowest frequencies at the bottom, to the highest frequencies at the top. The horizontal axis represents time, and the colors in the graph represent the spectral amplitude of the frequencies. The spectral amplitudes range from dark colors for no sound

(black) or low amplitude (green) to bright colors for medium amplitude (yellow) to high amplitude (red). With some practice into reading this type of graph, users can train themselves to visually recognise some features of the sounds. Sounds including noise, for example, are represented as an homogeneous texture like in Figure 1. Notes, such as the ones played with a violin, are represented with parallel horizontal lines, corresponding to the tone harmonics or partials. In Figure 2, some of the oscillations of the lines relate to small frequency changes due to a vibrato effect. Percussion sounds such as in Figure 3 are usually represented as short term homogeneous texture with a sharp attack presenting a gradient over the vertical axis. One can notice in Figure 3 a succession of percussive sounds where the vertical lines indicate the timing of the percussive elements from a drum loop, such as kicks, snares and hi-hats.

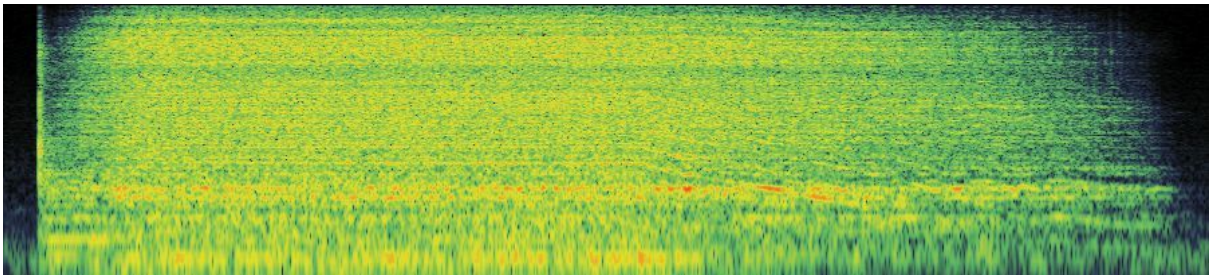
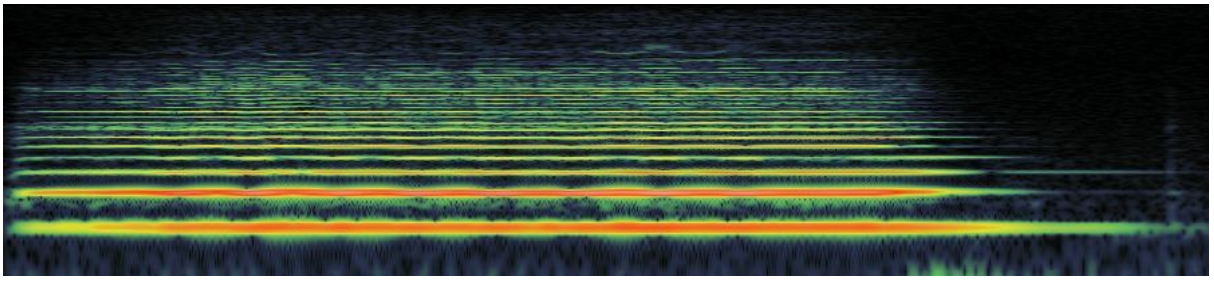


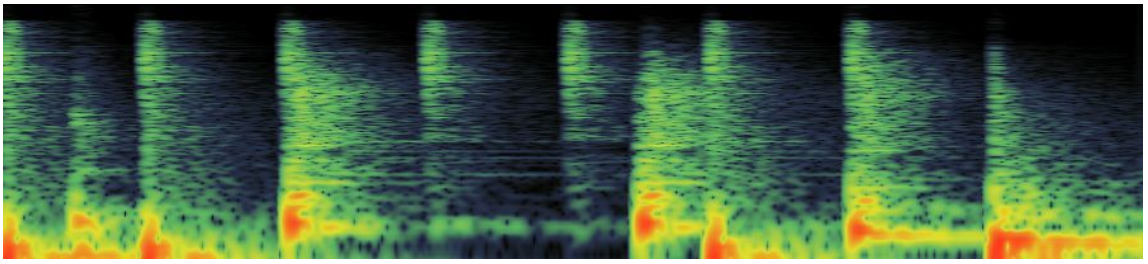
figure 1 - 00:07 | band saw.wav

Figure 1. Spectrogram a sample extracted from a band saw recording.



00:02 | Violin C-5 Tenuto Vibrato

Figure 2. C-5 note played on a Violin with Vibrato



00:01 | Drum Loop - Rock03_02_130 bpm

Figure 3. Drum Loop. Sample and Spectrogram provided by Freesound.org Api.

How does it work?

To use Playsound you need a browser compatible with HTML5 and the Web audio API. The website doesn't require any account, login or license and is open for everyone to access.

You just have to type in the URL playsound.space in the browser window to access the site. Since the current version relies on HTML objects, it can be rendered slightly differently on different browsers.

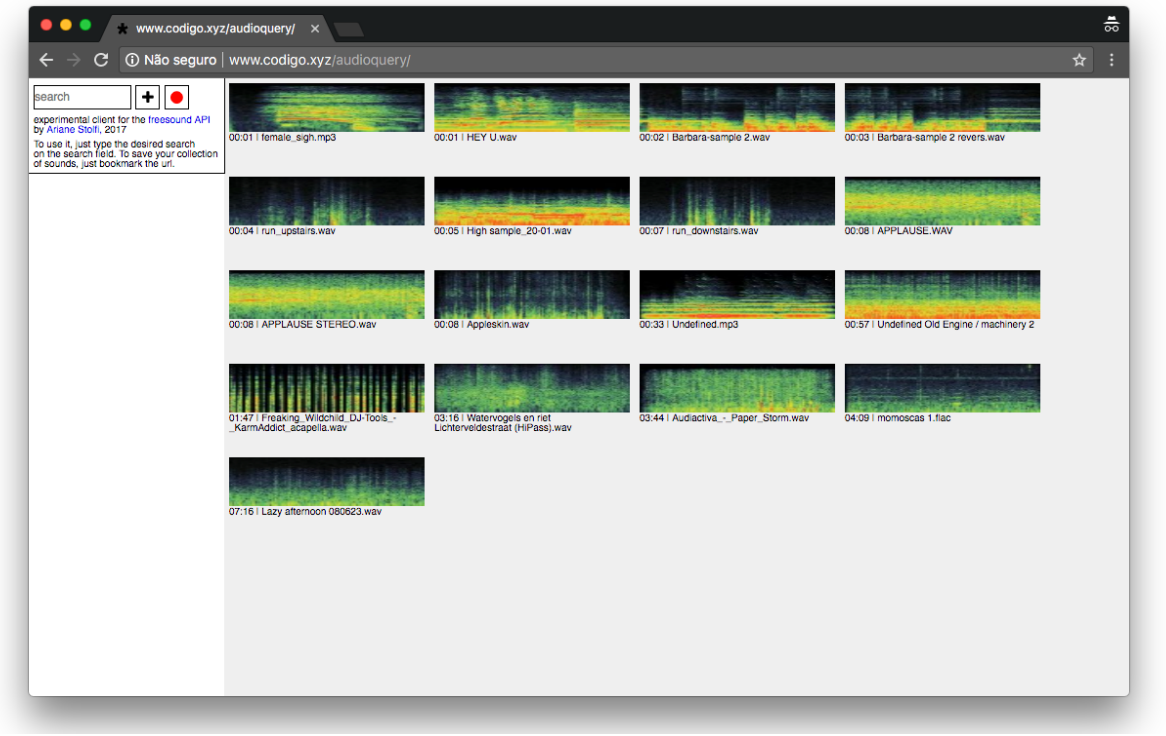


FIgure 4. Playsound UI screenshot

In the upper left corner of the website, there is an input field for searching sounds. You can type in whatever you want to search, and results are shown on the right side of the page as a collection of spectrograms with file metadata. As you click on one result, the corresponding sound starts to play and appears in the left column, below the search result. You can play and pause any sound individually. The small curved arrow below the play button triggers the loop, on and off, for each sample.

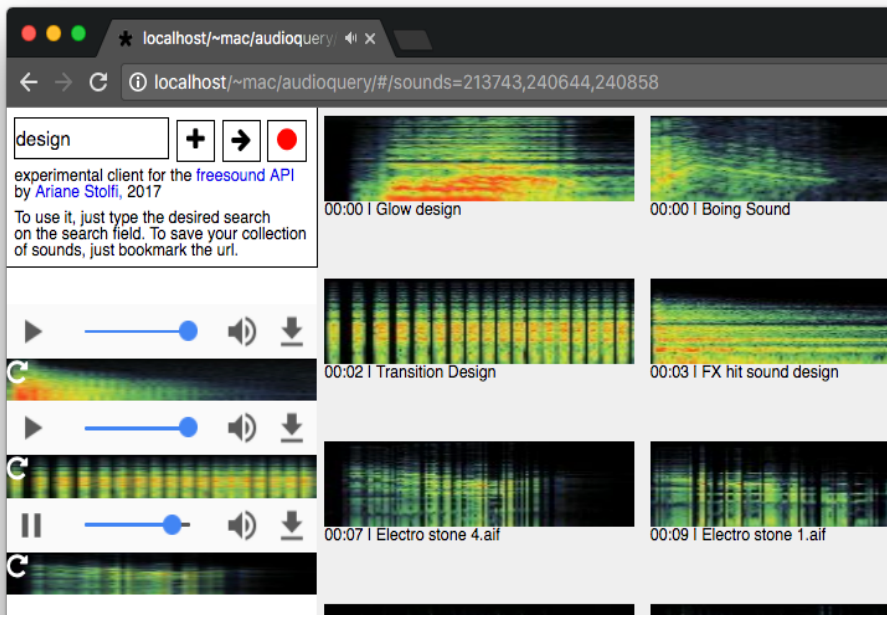


Figure 5 - Zoom on Playsound UI

To the right side of the search input text, there is a plus button that can be used to open a new page with an empty query. When the search has more than 40 results, some navigational arrows are also displayed in the menu for browsing into the search results. The red dot is a built-in recorder that records the sounds played into a WAV file. Once it is pressed, it turns into a stop button. When you stop the recording, a window opens for you to save the recorded sound.

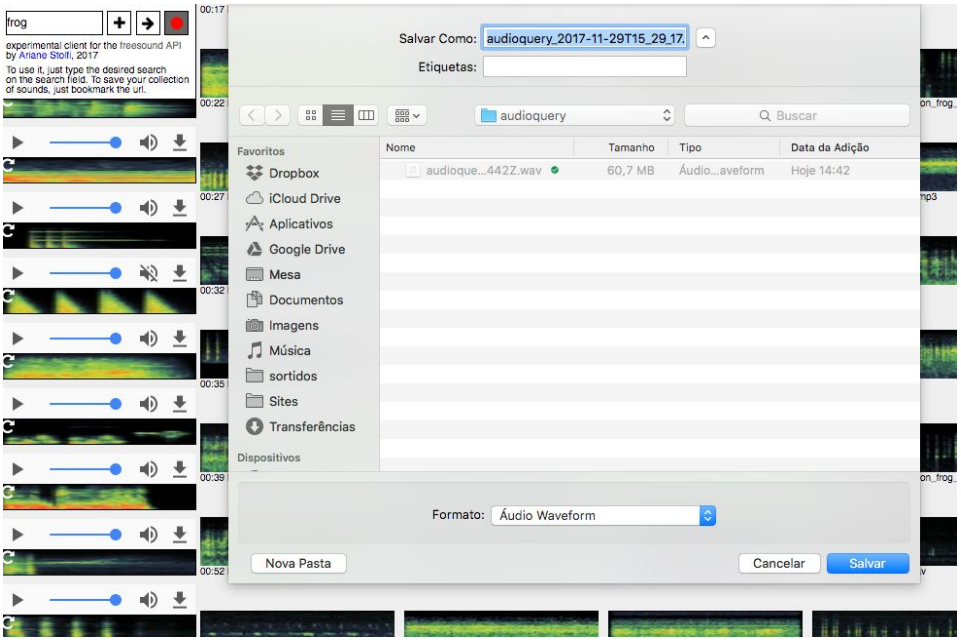


Figure 6 - Recording generated soundscape

How to download the sounds found with Playsound?

In the current version, the sounds are displayed as regular HTML5 sound objects, so to download the original files, you can use the download button (depending on the browser you are using) or just click on the player with the mouse right button and select the option -> *Save audio as…*

How to save a selection of samples?

To save a selection of samples, you just need to save the URL resulting from the queries made during a session in a browser tab. Once the page is loaded, all the sounds will be loaded in the left column of the site. For example, try this one:

http://playsound.space/#/sounds=11870,9099,13595,399769,399761,399761,324514,288736,180234,335391,48761,180953,177734,246212,171896,110424,323592,85314,203466,101592,101581,101576,254030,254025,253923,76419,253904,254036,253903,253926

Want to contribute or help developing the tool?

Playsound is being developed as a free software and is hosted on GitHub, at:
https://github.com/arianestolfi/audioquery
If you are interested in helping to develop this tool, you can contact the developer through her GitHub website.

Creative Commons licenses

Playsound currently uses sounds from Freesound. **Freesound** licensing is based on Creative Commons and information about the various licenses are provided on the Freesound FAQ page. In summary, the main licenses available are "zero" (cc0), "attribution" (by), and "attribution non-commercial" (by-nc). It is in general possible to use the sounds for free following the license requirements, e.g. the need to attribute the original author (by, by-nc) or sole usage in non-commercial situations (by-nc). When required by the license, it is important to attribute author(s) correctly even for short sounds. Information on how to attribute authors are provided here. Finally, what if we want to mix sounds with different types of licenses or if we want to create a new mix? This table explains what is legally correct.

References

If you use this work, please cite the following references.

Ariane de Souza Stolfi, Miguel Ceriani, Luca Turchet, Mathieu Barthet (2018). Playsound.space: Inclusive Free Music Improvisations Using Audio Commons. In Proc. Int. Conference on New Interfaces for Musical Expression, pp. 228-233

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