A small command line query-by-example search engine for similar sounds.

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ESchae removed test.db.json Latest commit 71444e4 on 8 Jun

Evaluation	updatet main	5 months ago
Testfiles	removed test.db.json	5 months ago
.gitignore	Initial commit	5 months ago
LICENSE	Initial commit	5 months ago
Makefile	added makefile	5 months ago
README.md	added usage video	5 months ago
feature_extractor.py	added new argument to main module	5 months ago
search.py	updatet main	5 months ago
similarsounds.py	removed test.db.json	5 months ago
soundbase.py	added new argument to main module	5 months ago
usage.png	usage.png	5 months ago

README.md

SimilarSoundSearch

A small command line query-by-example search engine for similar sounds.

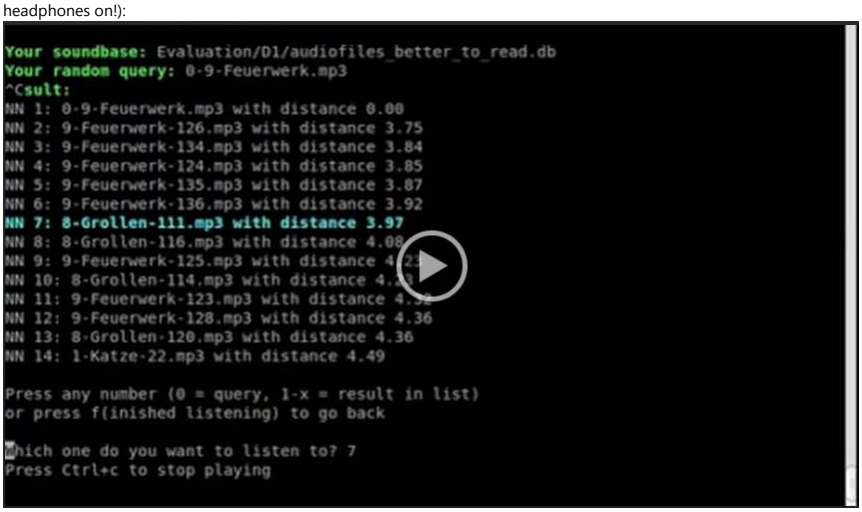
This repository contains the code and evaluation data related to a bachelor's thesis written at the University of Freiburg. A content-based search algorithm for similar sounding sounds was implemented and evaluated using crouwdsourcing.

Given an audiofile as query and a specific database with sounds the algorithm returns the most similar sounds to the query. You can directly listen to the sounds from the terminal.

Usage

To perform a search you need to call similarsounds.py from the terminal. Given a soundbase and a query the program will return a list of most similar sounds to the query found in the soundbase. If no query is specified, a randomly selected sound from the soundbase will be used. Once presented with the results you can decide if you want to listen to the sounds directly from the terminal, perform a new query or exit.

Click on the picture below to see how it works (you will be redirected to the video - don't forget to turn your speakers or headphones on!):



If you want to customize your search check

```
$ python similarsounds.py -h
```

for more options.

If using the example database is not enough for you and you want to build your own just try

```
$ python soundbase.py -h
```

Requirements

Up to now the functionality was only tested on Ubuntu 14.04.

Linux

- python 2.x (used version is 2.7.6., theres no support yet for python 3 because of missing support for python 3 within Essentia (see https://github.com/MTG/essentia/issues/138)
- Essentia (v.2.1._beta2 _fixes) for feature extraction. You can download it from here for a complete installation follow the instructions here. For SimilarSoundSearch it should be enough to do the following:

Install the dependencies

```
sudo apt-get install build-essential libfftw3-dev libavcodec-dev libavformat-dev libavutil-dev libavresample-dev
python-dev libsamplerate0-dev python-numpy-dev python-numpy
```

Then go into the source directory and configure with

```
./waf configure --mode=release --with-python
```

compile

```
./waf
```

and insall (you might need sudo).

```
./waf install
```

Additional python packages:

- scikit-learn for nearest neighbors search (requires numpy and scipy)
- dataset 0.6.0 for sql workarounds
- tqdm for displaying a nice progressbar

```
$ pip install scikit-learn dataset tqdm
```

For listen to audiofiles directly from terminal:

- SoX and a handler for mp3 files

```
$ sudo apt-get install sox libsox-fmt-mp3
```