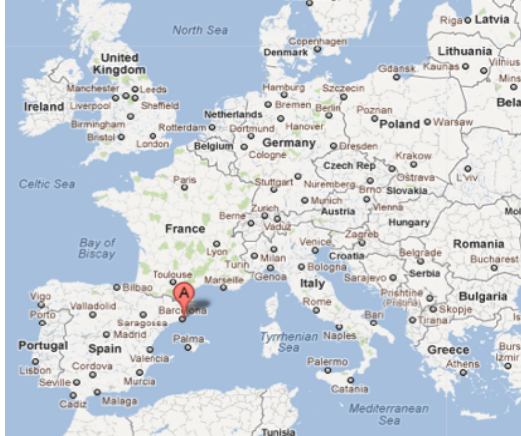


# 10T3: MTG-UPF

***Xavier Serra***

Universitat Pompeu Fabra, Barcelona

# Universitat Pompeu Fabra

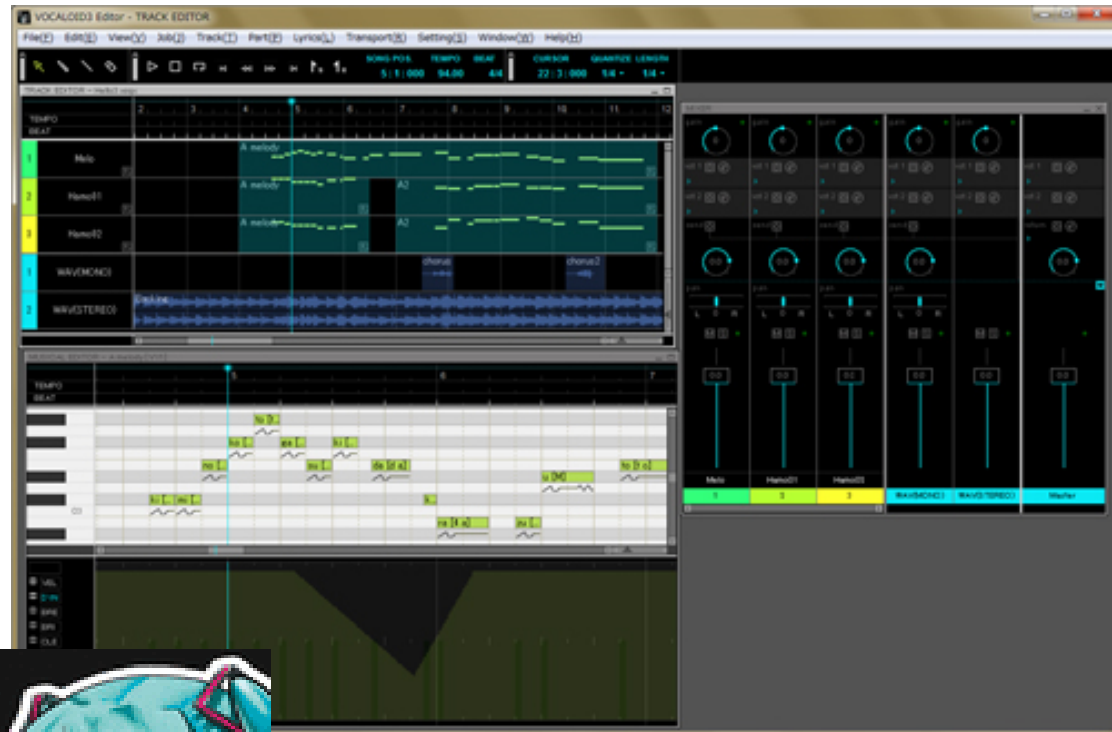


# Music Technology Group - UPF

- part of the Department of Information and Communication Technologies
- Teaching:
  - Master in Sound and Music Computing
  - PhD in Information and Communication Technologies
- Research:
  - Audio Signal Processing
  - Sound and Music Description
  - Musical and Advanced Interaction
  - Semantic Technologies for Sound and Music

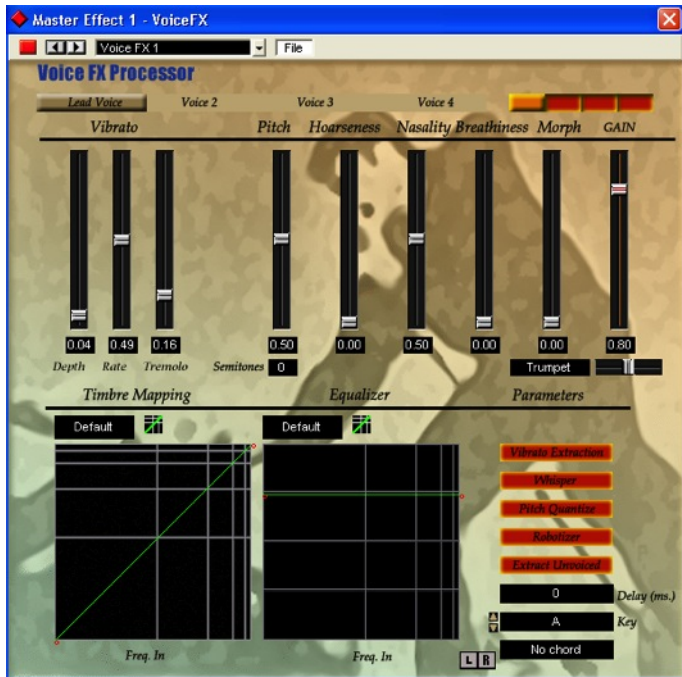
# Audio signal processing

Singing voice synthesis



# Audio signal processing

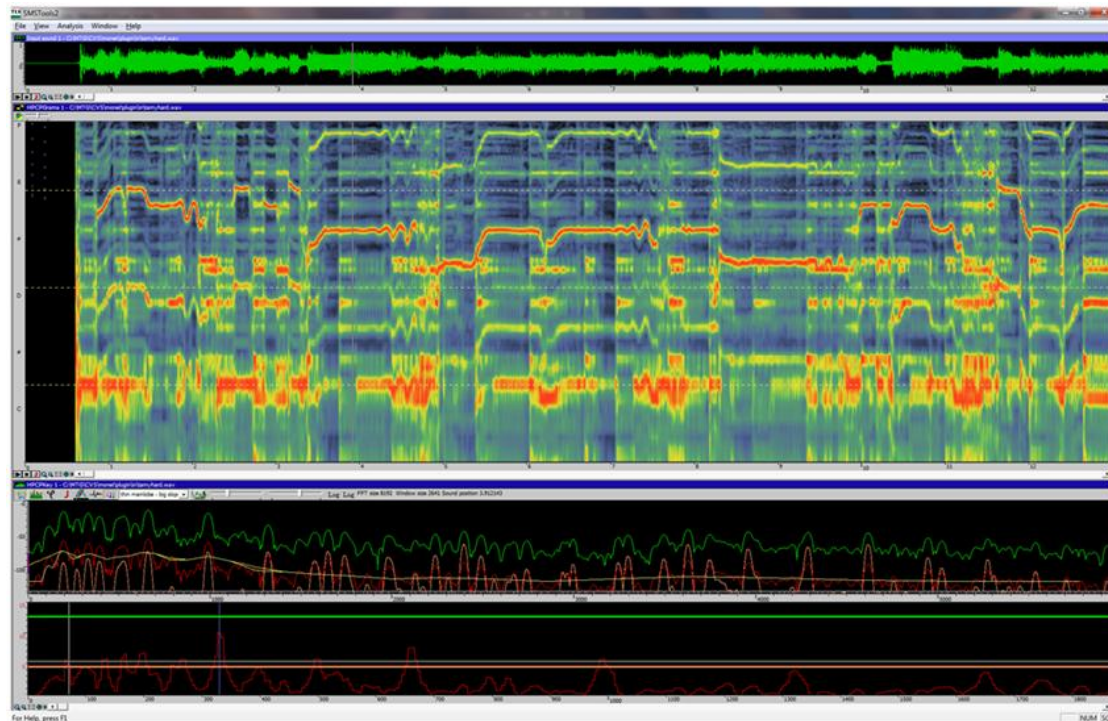
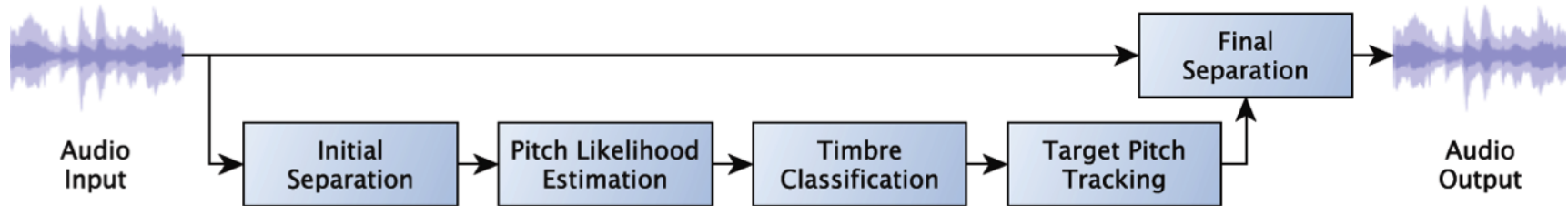
## Voice transformations





# Audio signal processing

## Sound source separation



# Sound and music description

## Audio features

```
metadata:  
  version:  
    essentia: "1.2.2"
```

```
pitch_confidence:  
  mean: 0.725613296032  
  skew: -1.01243495941
```

```
spectral_flatness_db:  
  mean: 0.189157426357
```

```
spectral_rms:  
  mean: 0.0014992490178
```

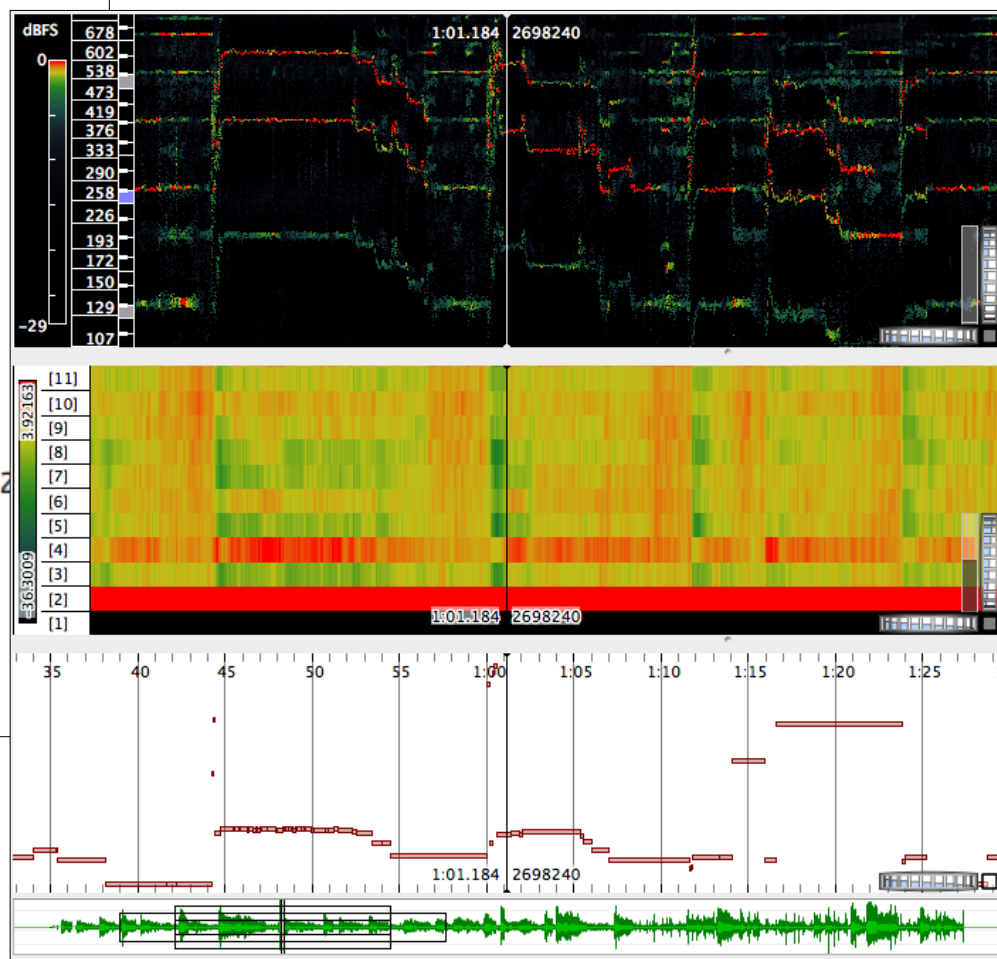
```
spectral_strongpeak:  
  mean: 0.628910064697  
  var: 0.741435945034
```

```
mfcc:  
  mean: [143.017318726, -38.4358482361, 7.88732626,  
        122.917526245, 159.187026978]
```

```
onset_rate: [1.70000004768]
```

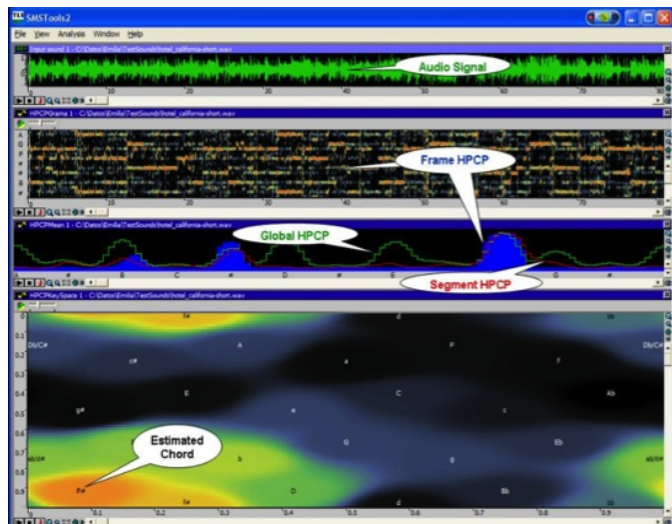
```
tristimulus:  
  mean: [0.29845097661, 0.602976679802]
```

 SSENTIA

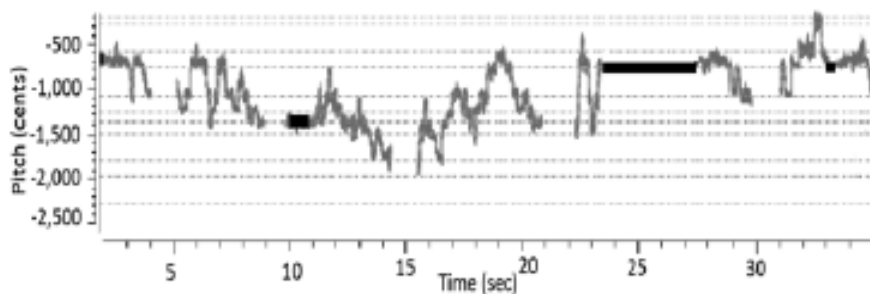


# Sound and music description

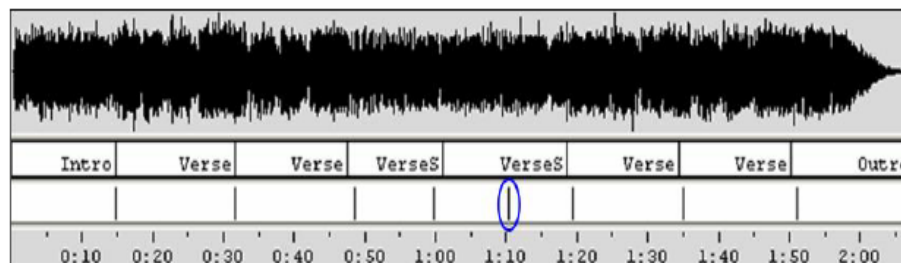
## Musical features



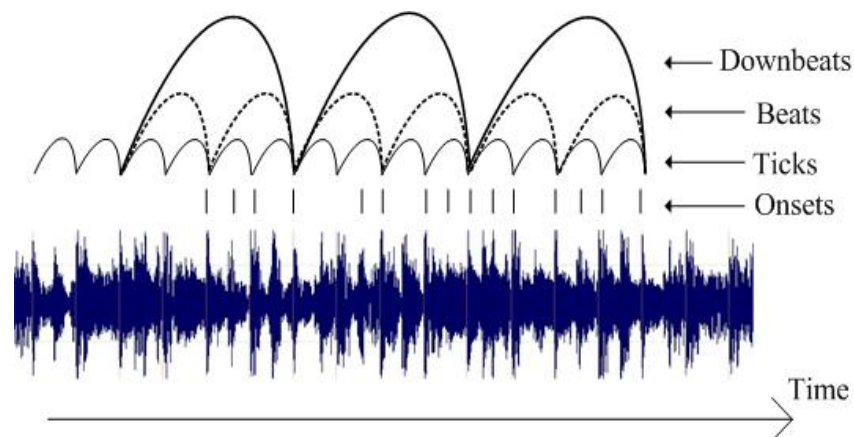
harmony



melody



structure



rhythm



# Sound and music description

## Music collections

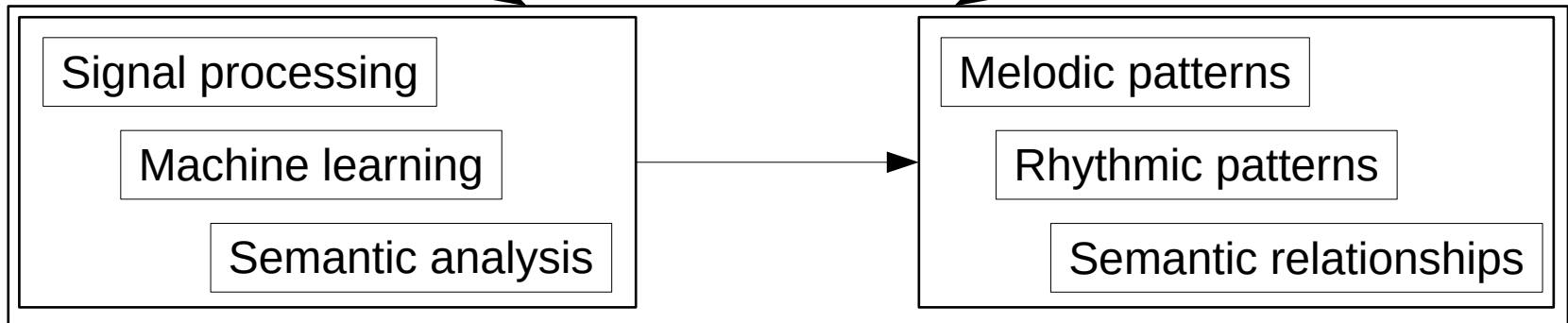


**Dunya Hindustani**  
~ Public collection by [?] compmusic (See all of compmusic's public collections)

Overview

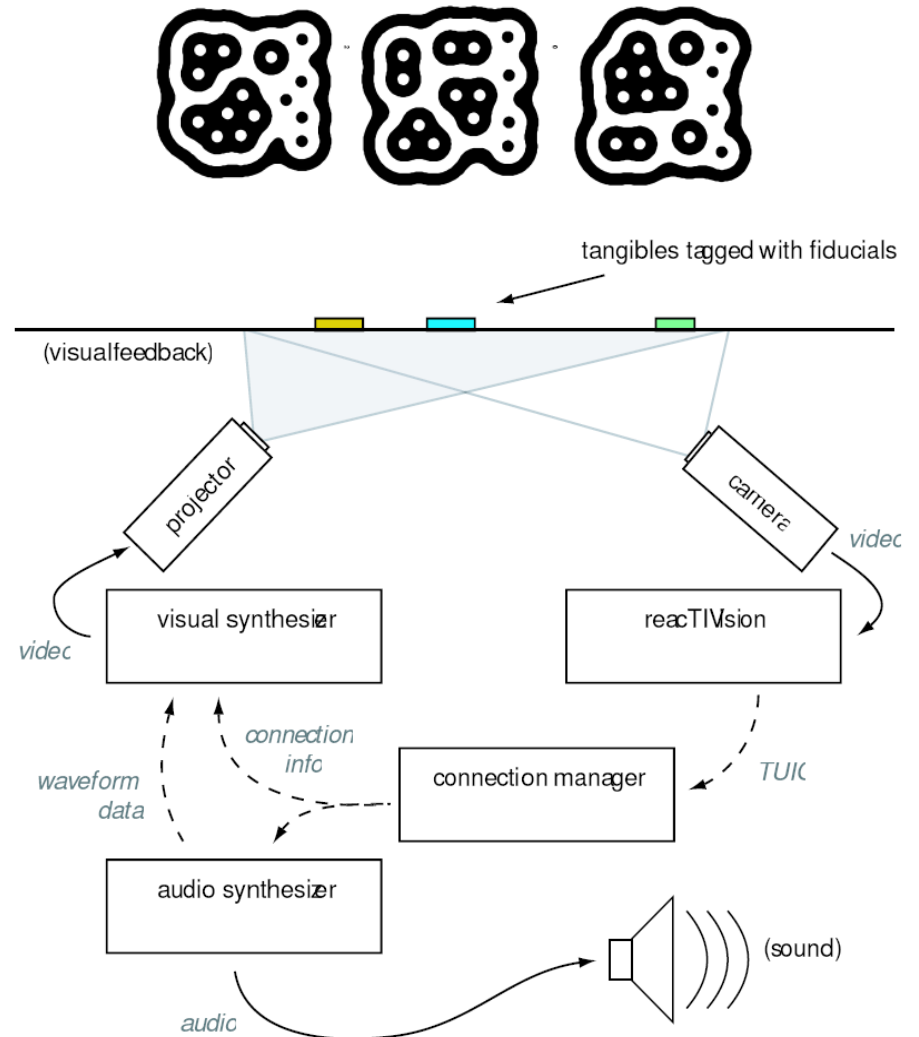
Releases

Release	Artist	Format	Tracks	Date	Country	Label	Catalog#
All India Radio Archival Release Vol. 3	Vilayat Hussain Khan	CD	2	1960	IN	T-Series	SVCCD 126
Echoes of a Golden Voice	Jasraj	CD	4	1982	IN	Swarashree Enterprises	PJ001
A Life in Music	Amir Khan	CD	2	1984	IN	Saregama	CDNF150641A00
An Undying Parampara Vol. 1	Omikamath Thakur	CD	3	1987	IN	Rhythm House	CD 240361
The Sanctity of Parampara	Manik Bhide	CD	2	1987	IN	Rhythm House	CD 240367
Tribute To Miyan Tansen Vol-1	Veenai Sahasrabudhi	CD	2	1987	IN	Rhythm House	CD 240 369
Tribute To Miyan Tansen Vol-2	Veenai Sahasrabudhi	CD	2	1987	IN	Rhythm House	CD 240 370
An Undying Parampara Vol. 2	Omikamath Thakur	CD	3	1988	IN	Rhythm House	CD 240374
An Undying Parampara Vol. 3	Omikamath Thakur	CD	3	1989	IN	Rhythm House	CD 240381




# Musical and advance interfaces

## Reactable



# Semantic technologies for sound and music

## Freesound



xserra Messages 0 Mod 0 Settings Log Out Upload Sounds

Home Sounds Forums People FAQ


search sounds

Automatic by relevance

search

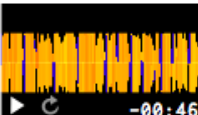
Show advanced search options

previous next 1 ... 2 3 4 5 6 7 8 ... 4667 | 224925 sounds



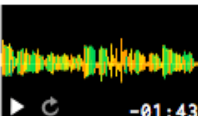
**Sea - Ocean - Beach - Di...** ★★★★★  
Distant recording of waves crashing on the shore at Boscombe Beach, UK  
field-recording sandy beach ocean sea-shore waves sea shore water coast sand seaside

**nebulousflynn**  
February 25th, 2014  
194 downloads  
0 comments



**Marker Pen on Paper** ★★★★★  
An assortment of pen sounds for you to chop up and use in your project!  
scribbling drawing scribe marker signature paper pen write writing draw

**nebulousflynn**  
February 25th, 2014  
214 downloads  
0 comments



**scots standard english.wav** ★★★★★  
Me saying 'will you tell the girls about the murder rate of squirrels in third world countries, for a friend ...  
example voice english words scots standard vocal accent spoken fife male

**urbaneguerilla**  
February 25th, 2014  
29 downloads  
0 comments

**licenses**

- Attribution (110909)
- Attribution Noncommercial (33389)
- Creative Commons 0 (66260)
- Sampling+ (14367)

**tags**

1-shot ambience ambient bass beat  
carnatic compmusic drum  
electronic field-recording  
h4n-zoom icassp2013-dataset iitm indian-  
percussion loop metal mridangam  
mridangam-stroke-dataset  
multisample noise  
percussion processed sm-58 snare  
sound soundscape synth velocity voice  
water

# Semantic technologies for sound and music

AcousticBrainz



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## Welcome to MusicBrainz!

MusicBrainz is an open music encyclopedia that collects music metadata and makes it available to the public.

MusicBrainz aims to be:

1. **The ultimate source of music info** contribute and releasing the **data**
2. **The universal lingua franca** for m unambiguous form of **music identific** machines to have meaningful conver

Like Wikipedia, MusicBrainz is maintained by volunteers, and we want everyone — including you — to

**More Information – FAC**

MusicBrainz is operated by the [MetaBrainz](#) 501(c)(3) tax-exempt non-profit corporation. [MusicBrainz](#) free and open source.

## Community



Become a part of our **global community** and **start contributing!**

### Recent Additions

**AcousticBrainz**

## Contribute

Download

## Goals

API/Data

## FAQ

### Detailed Statistics

## Welcome to AcousticBrainz!

The AcousticBrainz project aims to crowd source acoustic information for all music in the world and to make it available to the public. This acoustic information describes the acoustic characteristics of music and includes low-level spectral information and information for genres, moods, keys, scales and much more. The goal of AcousticBrainz is to provide music technology researchers and open source hackers with a massive database of information about music. We hope that this database will spur the development of new music technology research and allow music hackers to create new and interesting recommendation engines.

AcousticBrainz is a joint effort between [Music Technology Group](#) at [Universitat Pompeu Fabra](#) in Barcelona and the [MusicBrainz](#) project. AcousticBrainz was originally envisioned by Xavier Serra, the founder and head of the MTG. At the heart of this project lies the [Essentia toolkit](#) from the MTG -- this open source toolkit enables the automatic analysis of music. The output from Essentia is collected by the AcousticBrainz project and made available to the public.

AcousticBrainz organizes the data on a track basis, indexed by the [MusicBrainz ID](#) for recordings. If you know the MBID for a recording, you can easily fetch from AcousticBrainz. For details on how to do this, visit our [API documentation](#).

All of the data contained in AcousticBrainz is licensed under the [CC0 license](#) (public domain).

## Examples

If you're wondering what this collected data actually looks like, have a look at the last 5 tracks that have been submitted:

1. Nickelback / Just For
2. The National / Bloodbuzz Ohio
3. Lake of Tears / The Shadowshires
4. Cornershop / Breaking Every Rule Language English
5. Limp Bizkit / The Priest

### Track Statistics

	Lossy	Lossless	Total
Unique	388862	314427	703289
All	605298	399918	1005216

updated every 10 minutes  
last updated: 2014-11-27 17:37  
[more on the detailed statistics page](#)

## Tweets



AcousticBrainz  
@AcousticBrainz

2h

We have so many files our counter has overflowed its box! Thanks to everyone for 1m submissions and 700k uniques  
[pic.twitter.com/SmNHHfEock](https://pic.twitter.com/SmNHHfEock)

all music in the describes the acoustic information for is to provide music se of information w music technology endation engines.

## Track Statistics

	Lossy	Lossless	Total
Unique	388519	312628	701147
All	603604	396717	1000321

# References and credits

- <http://upf.edu>, <http://www.upf.edu/dtic/>, <http://mtg.upf.edu>
- <http://en.wikipedia.org/wiki/Vocaloid>
- <http://compmusic.upf.edu/>
- <http://en.wikipedia.org/wiki/Reactable>
- <http://acousticbrainz.org/>
- Slides released under CC Attribution-Noncommercial-Share Alike license and available from <https://github.com/MTG/sms-tools>



# 10T3: MTG-UPF

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