### **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

チャラクター・ボーカル・シリーズロル

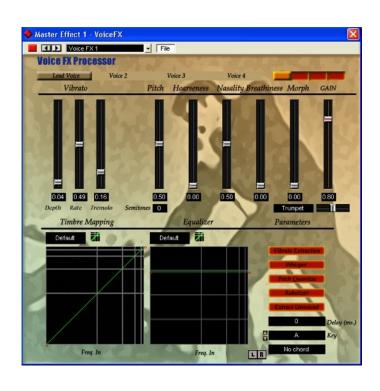
Singing voice synthesis





# Audio signal processing

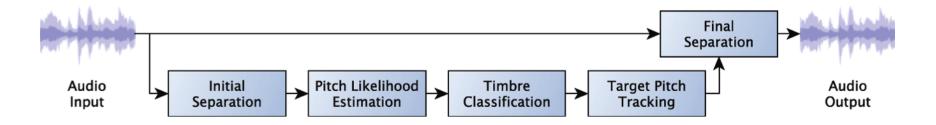
Voice transformations

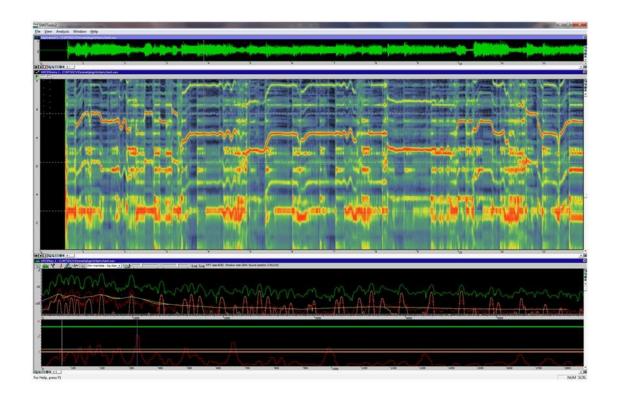




# Audio signal processing

Sound source separation



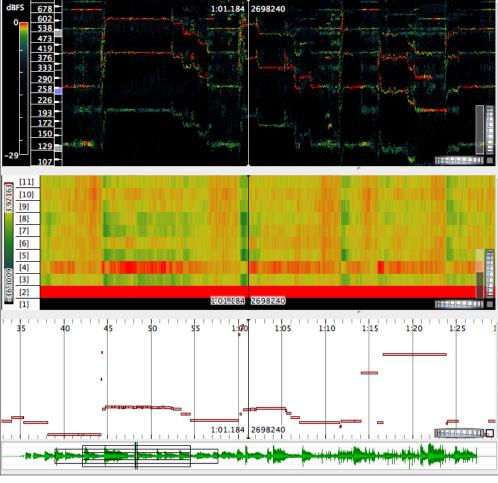


### Sound and music description

#### **Audio features**

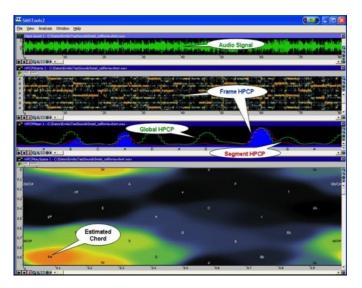
```
metadata:
    version:
        essentia: "1.2.2"
pitch_confidence:
    mean: 0.725613296032
    skew: -1.01243495941
spectral_flatness_db:
    mean: 0.189157426357
spectral_rms:
    mean: 0.0014992490178
spectral_strongpeak:
    mean: 0.628910064697
    var: 0.741435945034
mfcc:
   mean: [143.017318726, -38.4358482361, 7.8873262
    var: [122.917526245, 159.187026978]
onset_rate: [1.70000004768]
tristimulus:
   mean: [0.29845097661, 0.602976679802]
```

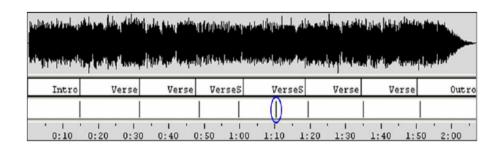
### **ESSENTIA**



### Sound and music description

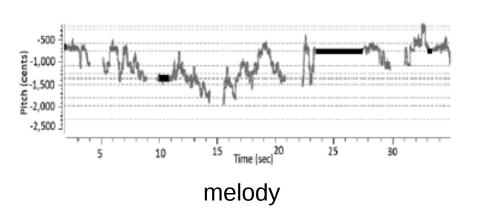
#### Musical features

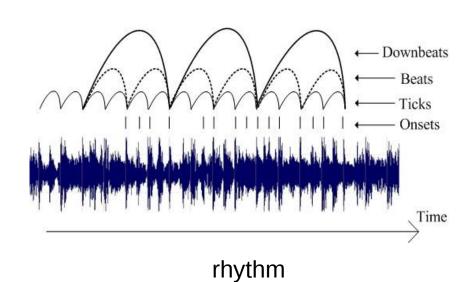




structure

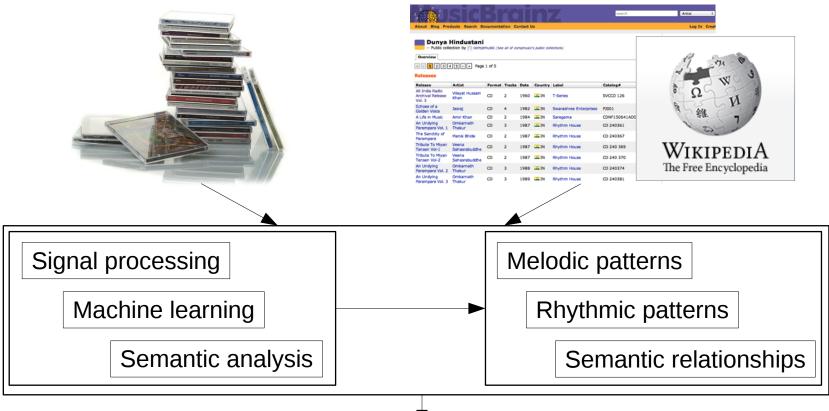
harmony



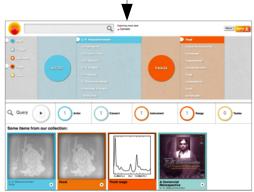


# Sound and music description

#### Music collections





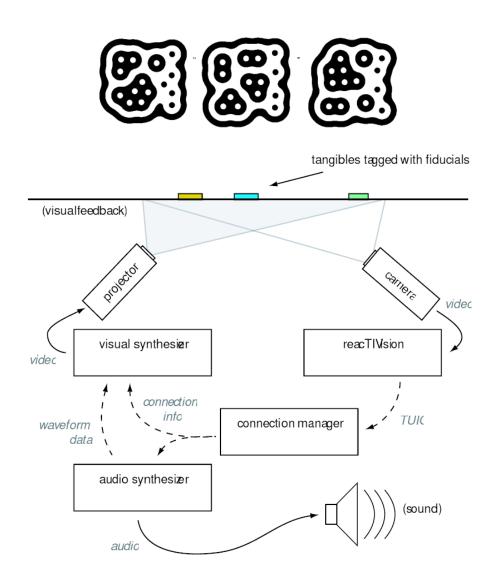


### Musical and advance interfaces

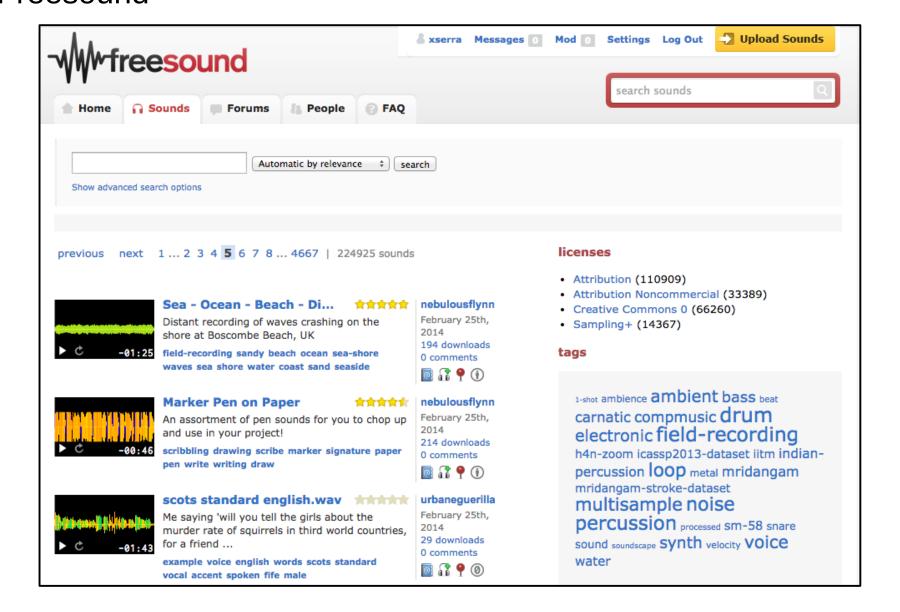
#### Reactable







# Semantic technologies for sound and music Freesound



### Semantic technologies for sound and music **AcousticBrainz**

Lossy

388862

605298

Tweets

scribes the acoustic

rw music technology

jinally envisioned by

endation engines. ersitat Pompeu

nformation for t is to provide music

AcousticBrainz @AcousticBrainz We have so many files our counter has overflowed its box! Thanks to everyone for 1m

submissions and 700k uniques

pic.twitter.com/SmNHHfEock

Track Statistics

Unique 388519 312628

Lossless

314427

399918

updated every 10 minutes

last updated: 2014-11-27 17:37

more on the detailed statistics page

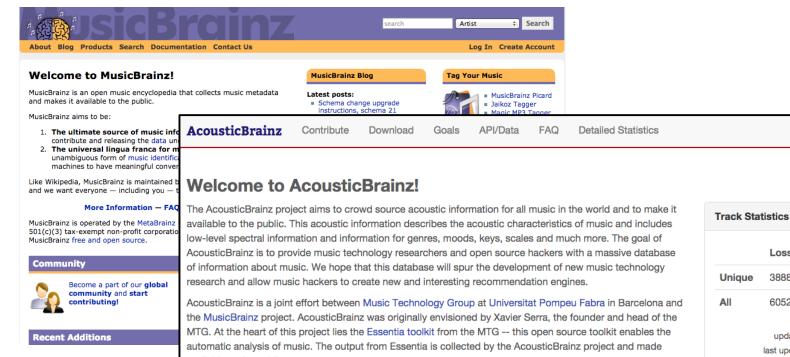
Lossy Lossless Total

Total

703289

1005216

> Follow



2. The National / Bloodbuzz Ohio

Limp Bizkit / The Priest

3. Lake of Tears / The Shadowshires

4. Cornershop / Breaking Every Rule Language English

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). 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

### 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

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