

CUIDADO IST Program

IRCAM, France - UPF, Spain - Sony CSL, France - Ben Gurion - Israel
Oracle, Spain - CreamWare, Germany- ArtsPages, Norway

AES Amsterdam

MPEG-7 Audio Workshop

Musical Timbre Similarity

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CUIDADO IST Program

■ Sound Palette

- On line version (**Studio On line**)
- Off line version (SCOPE environment CreamWare)
- Features
 - | Sound database management (**query 's by example based on perceptual fetures**, classification, textual query 's)
 - | Editing features based on high-level descriptions

■ Web Music Browser

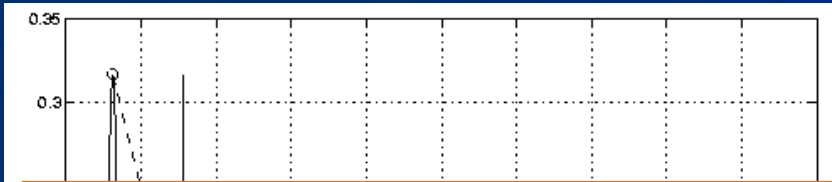
- Music style recognition, characterisation
- Musical paths generation,
- Web music monitoring system



CUIDAD / MPEG-7: Sound/Timbre Similarity

- Sound can be described in terms of
 - pitch, ● loudness, ● subjective duration, ● timbre
 - MPEG-7 proposal:
Description of audio based on perceptual features
 - Choice of descriptors:
based on experiments
(Krumhansl, McAdams, Lakatos, ...)
 - Two classes of sounds considered*:
sustained harmonic, percussive
- * non-mixed, non-layered, monophonic

Spectral Descriptors Temporal Descriptors



HSC

⇒ harmonic spectral centroid

HSS

⇒ harmonic spectral spread

HSV

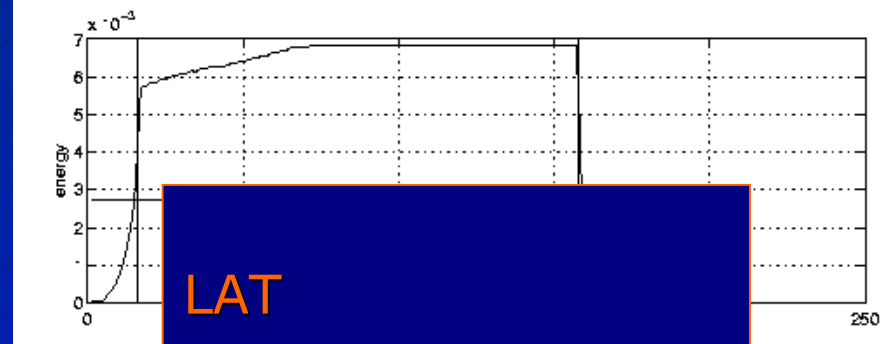
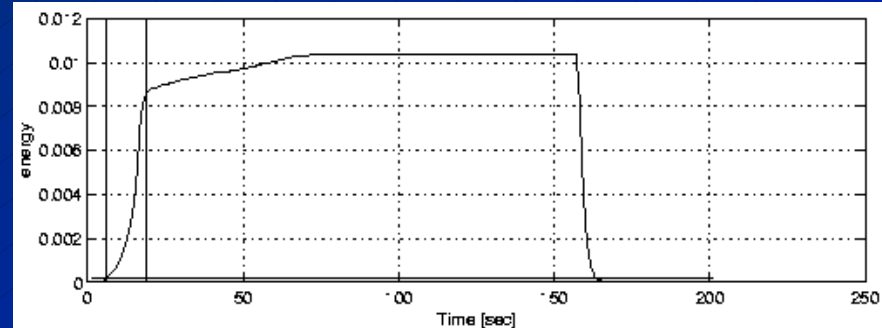
⇒ harmonic spectral variation

HSD

⇒ harmonic spectral deviation

SC

⇒ spectral centroid



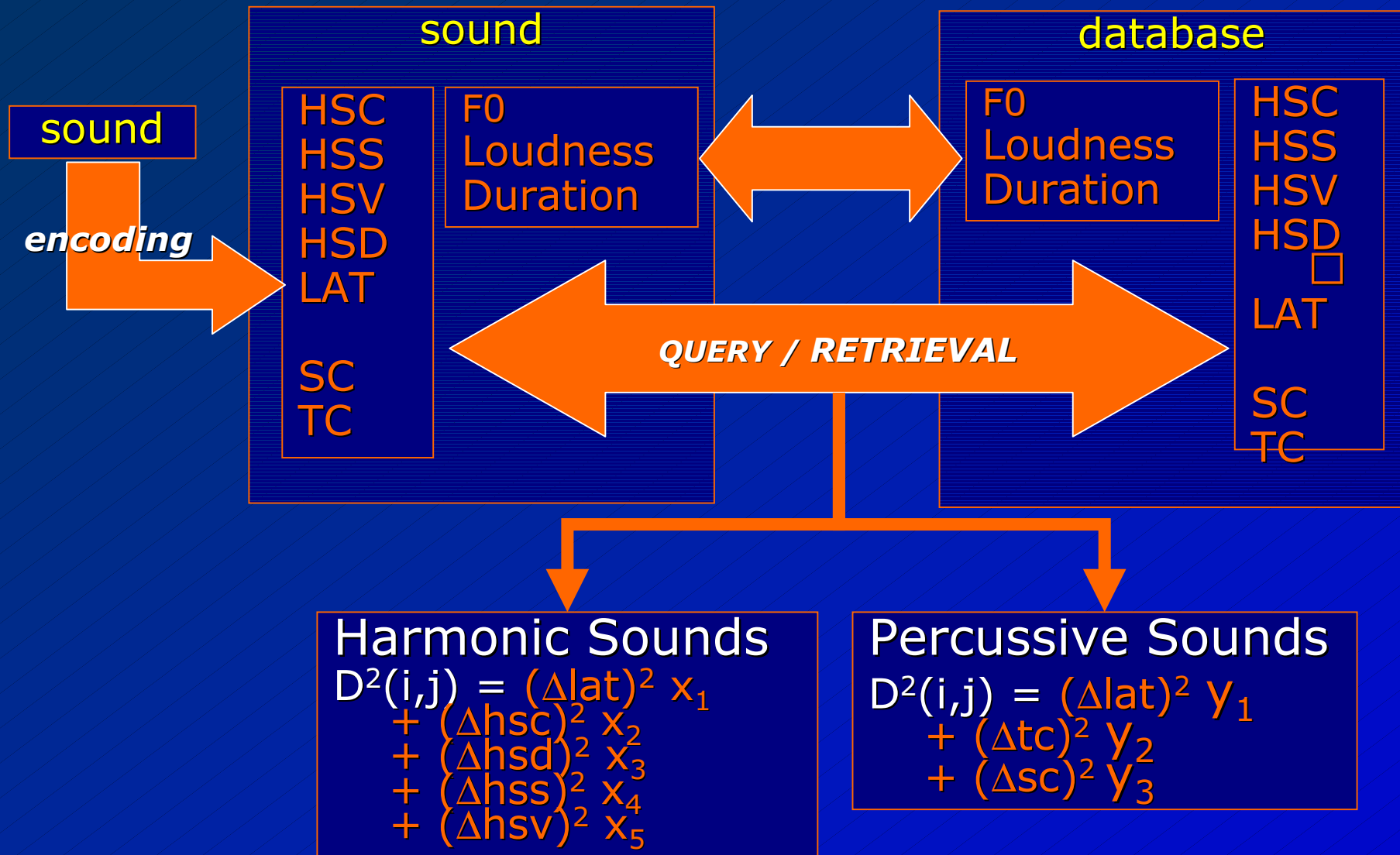
LAT

⇒ log-attack time

TC

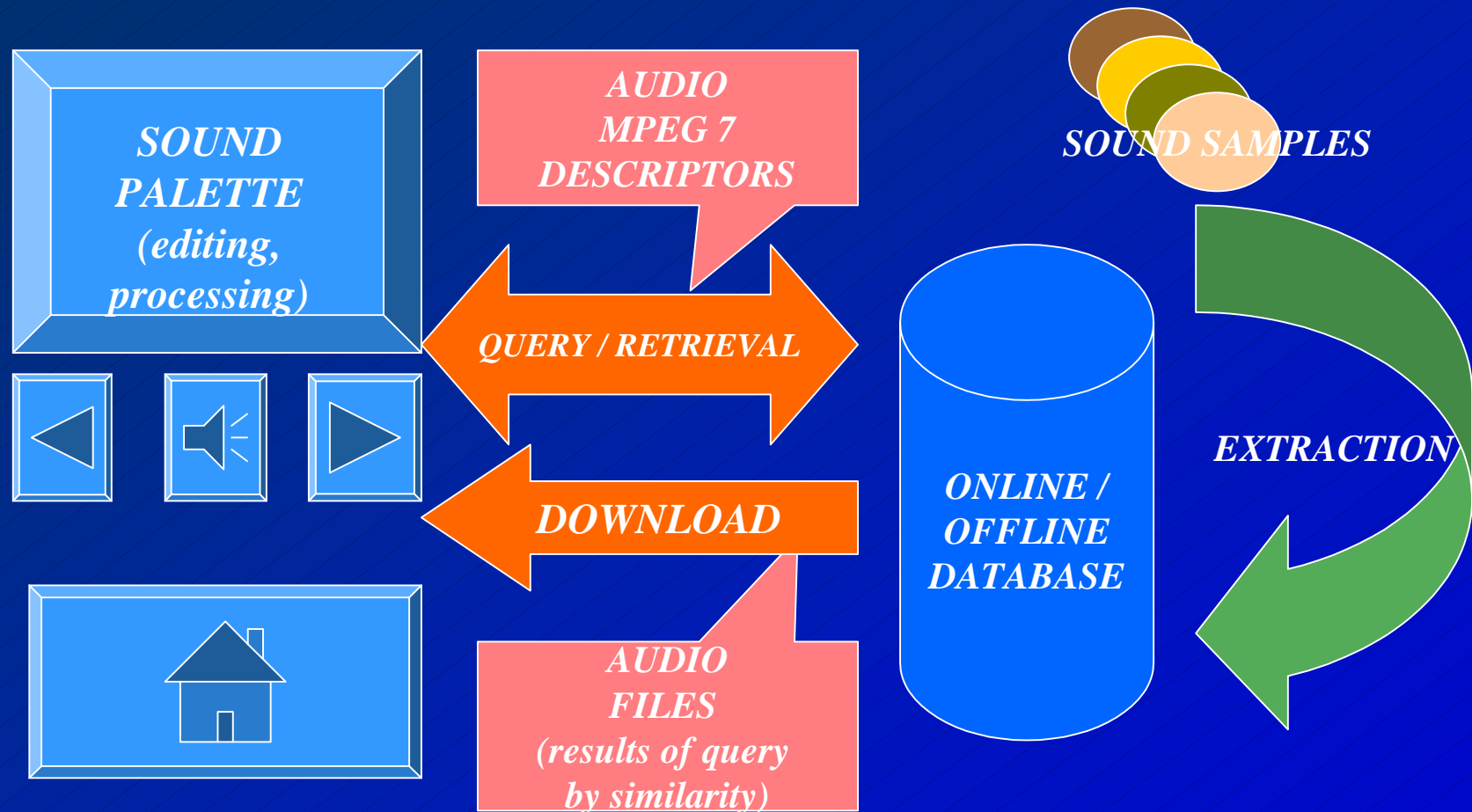
⇒ temporal centroid

Query in a database



CUIDADO

Sound Palette Application



Studio Online

How to navigate through online sound databases ?

Main Menu **Edit** **Sound Manager** **Help**

Sound Base **Search** **Sound Manager** **Preferences**

instrument	<input type="text"/>	clear
type	<input type="text"/>	clear
subtype	<input type="text"/>	clear
string/register	<input type="text"/>	clear
dynamic	<input type="text"/>	clear
note	<input type="text"/>	clear
octave	<input type="text"/>	clear
2nd note	<input type="text"/>	clear
2nd octave	<input type="text"/>	clear
3rd note	<input type="text"/>	clear
3rd octave	<input type="text"/>	clear
4th note	<input type="text"/>	clear
4th octave	<input type="text"/>	clear
index	<input type="text"/>	clear
channel	<input type="text"/>	clear

Available Sound Properties

- flute
- oboe
- clarinet (B flat)
- bassoon (french)
- saxophone (alto in Eb)
- french horn (F)
- trumpet (C)
- trombone (tenor/bass)
- bass tuba (F)
- guitar
- harp
- violin
- viola
- cello
- double bass (5 strings)
- accordion

search:

Current Selection

add to list **play** **clear all**

Studio Online

Sound Similarity Interface : a pilot "Mpeg7" application

Main Menu **Edit** **Sound Manager** **Help**

Sound Base **Search** **Sound Manager** **Preferences**

Search by Psychoacoustic Similarity

Search Set

Distinction continuous/percussive

Options

Intensity Level

Pitch

Perceptive Criteria

Brightness

Richness

Attack

minus normal plus

1. [dist=8.196] viola, decrescendo, D string, fortissimo to pianissimo, F natural, 4, Internal
2. [dist=14.672] cello, pizzicato (l.v.), A string, fortissimo, F natural, 4, Internal

preview original

preview

add to list

search

max. hits

10

accordion, sforzato, right hand, 8' cassoto, forte piano, F natural, 4, Internal

Links

- **Studio Online :**

www.ircam.fr/studio-online

- **CUIDAD reports :**

www.ircam.fr/cuidad

- **CUIDADO pages :**

www.ircam.fr/cuidado

- **List :**

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