Visualisering av lyd

Lydanalyse (MUS4831) H2011

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Lyd

Digitalisering

Visualisering

Egenskapsutrekning

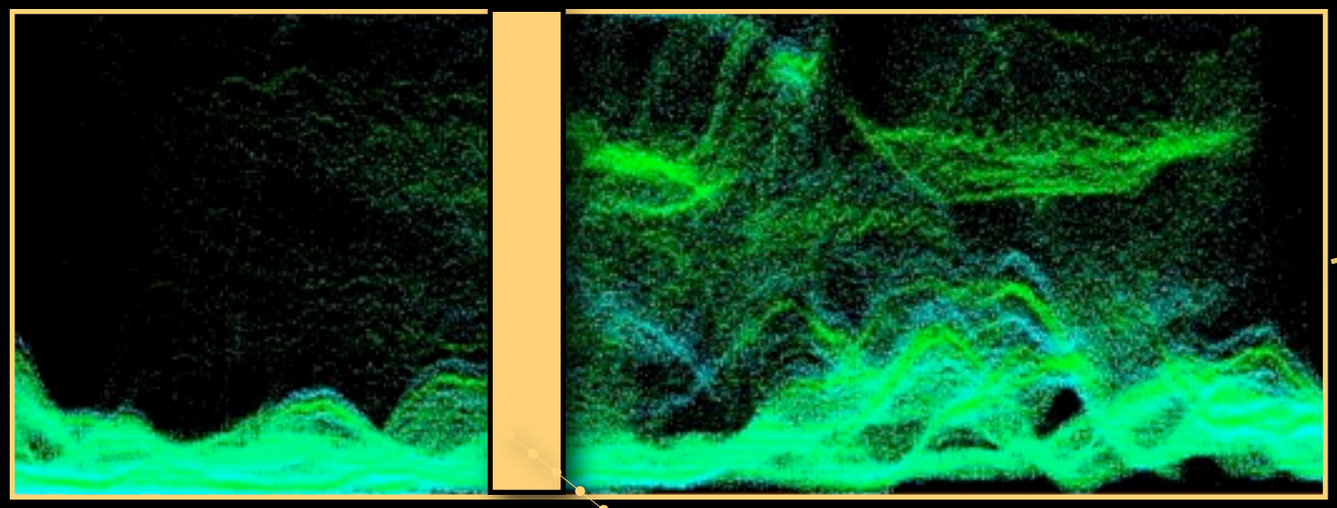
Informasjonsbehandling

Lydteori

Lydanalyse

Lyd

Digitalisering



måling

amplitude

oppløsning

16 bit = 2^{16} = 65 536

tid

44.1 kHz målingsfrekvens

Amplitude

Tidsvindu

Tid

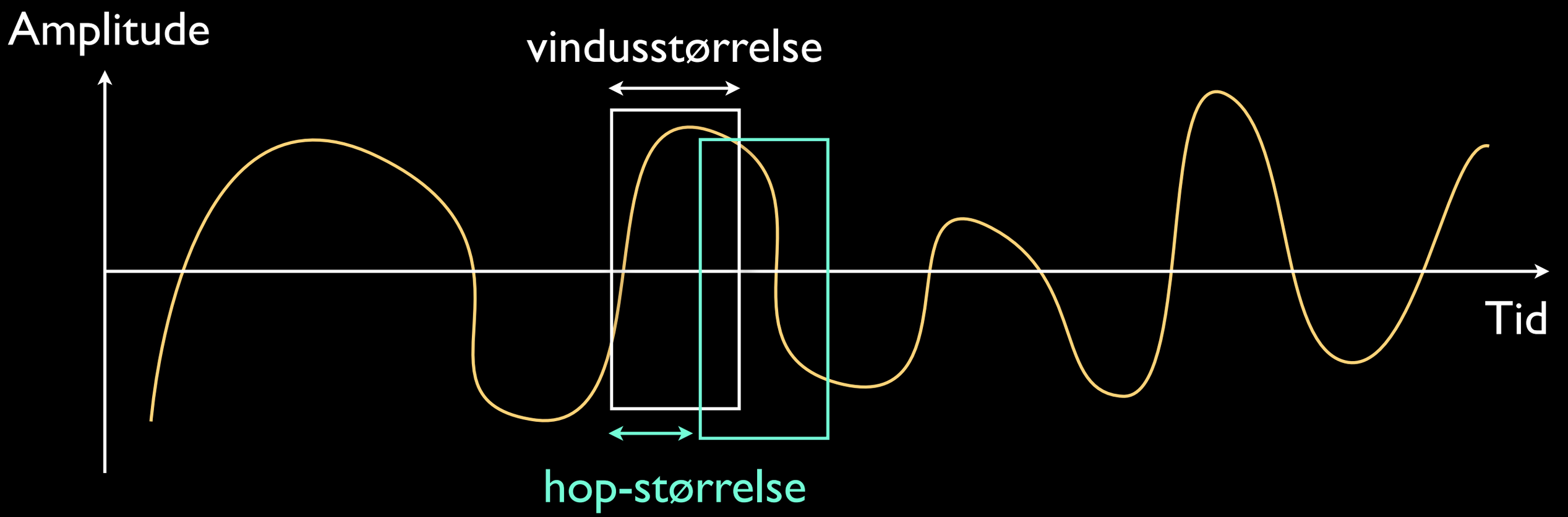
FFT

Amplitude

Frekvens

Frekvens

Tid


Amplitude
vindusstørrelse
Tid
hop-størrelse

<u>Begreper</u>
Vindusstørrelse
Oppløsning
Lineær/logaritmisk

<u>Visualisering</u>
Bølgeform
Spektrum
Spektrogram

Programmer
SoundAnalysis
Audacity
SonicVisualiser
SPEAR
Praat
PureData
Matlab

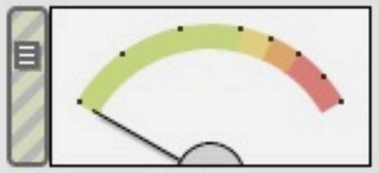
SoundAnalysis

Audio on

Mic/line in

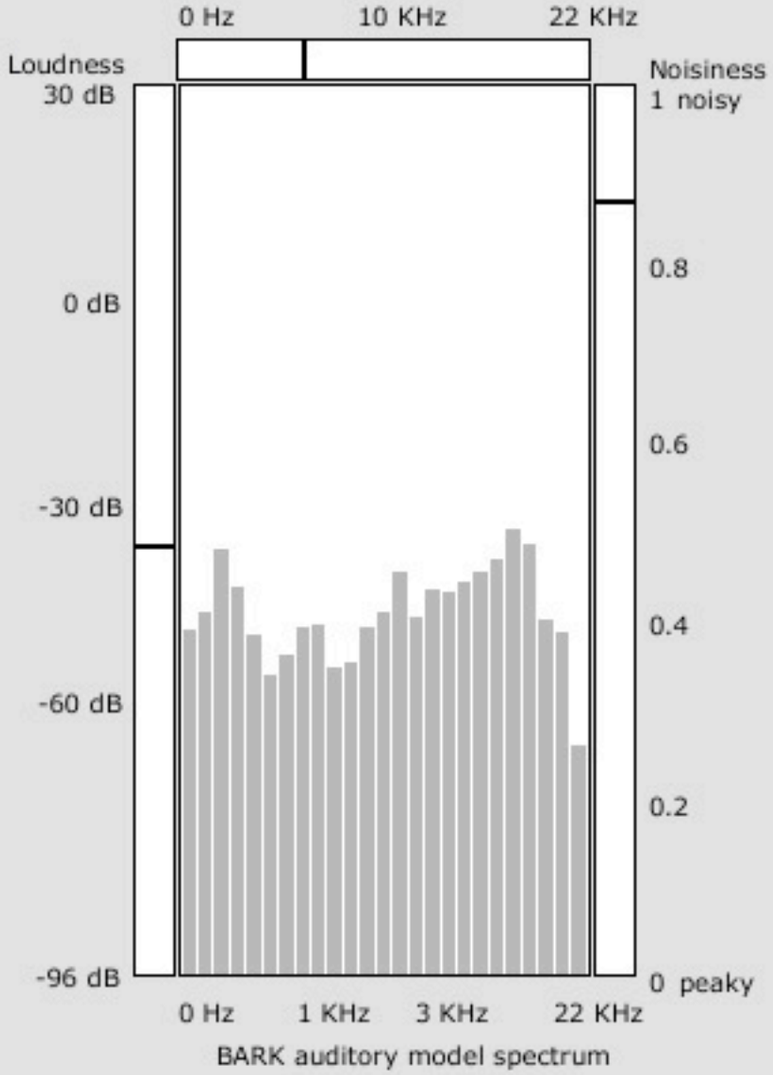
Soundfile: open

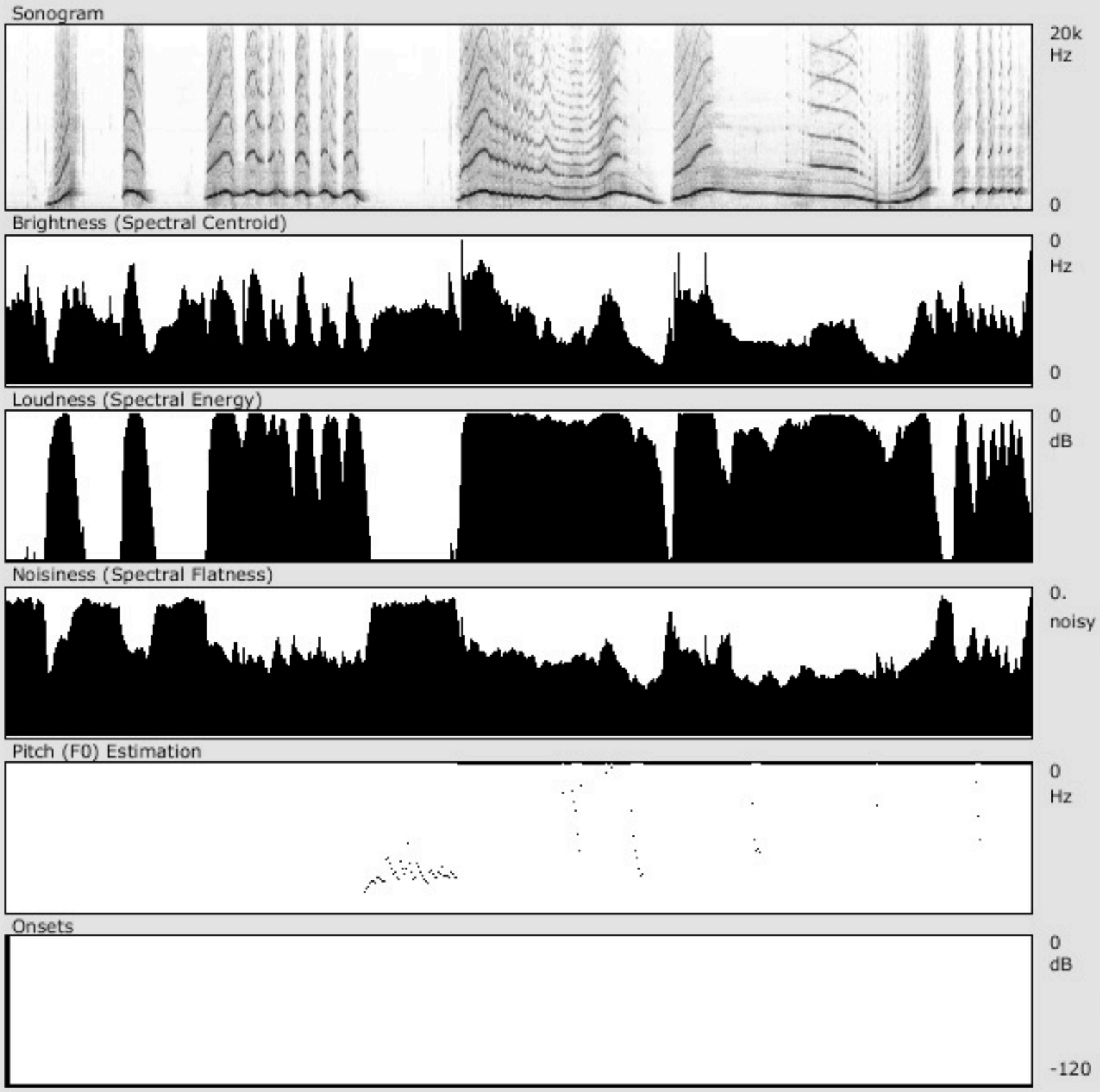
Play

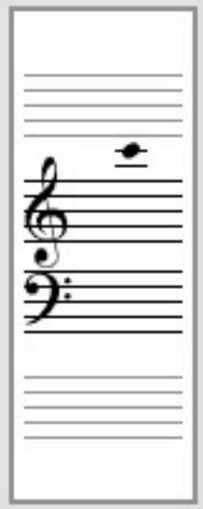


SoundAnalysis v0.3

fourMs,University of Oslo







Audacity File Edit View Transport Tracks Generate Effect Analyze Window Help 09:50

africa

Internal microphone

africa
Mono, 44100Hz
16-bit PCM
Mute Solo

Aubio Beat
1.637 2.043 2.450 2.856 3.111 3.518 3.924 4.331 4.714

Aubio Onse
0.012 0.151 0.418 0.546 0.801 0.952 1.219 1.358 1.614 1.765 1.892 2.287 2.438 2.566 2.821 3.088 3.228 3.506 3.622 3.889 4.040 4.168 4.435 4.702 4.841 4.981

Simple Perc
0.023 0.279 0.430 0.813 0.975 1.242 1.904 2.299 2.496 2.833 3.100 3.518 3.913 4.714 4.865

Annotasjon
Her skjer det noe
Her skjer det noe annet

Project Rate (Hz): 44100 Snap To Selection Start: End Length Audio Position: 00 h 00 m 02 s 00 h 00 m 02 s 00 h 00 m 00 s

Click and drag to select audio

Actual Rate: 44100

Sonic Visualiser File Edit View Pane Layer Transform Playback Help 10:34

Sonic Visualiser: /Users/alexanje/Desktop/workshop/lydeksempler/violon-flute.aiff (modified)

dBFS 0 −48 7396 4941 3305 2207 1475 979 656 430 290 193 129 86 53 32 21 0

8.263 364442

8.742 / 385536
9.450 / 416768
(0.708 / 31232)

1 2 3

Colour Default

Scale Linear

Window 4096 93.75 %

Bins Frequencies Log

Show Play

Hz 3300 2990 2680 2370 2050 1740 1430 1110 800

0 5 10 15

8.263 364442

1 2 3

Colour Purple

Plot Type

Scale Auto-Align Hz

Show

0.90 0.80 0.70 0.60 0.50 0.40 0.30 0.20 0.10 0.00

Violin Flute Violin Flute

1 1

1 2 3 4 5

Colour Red

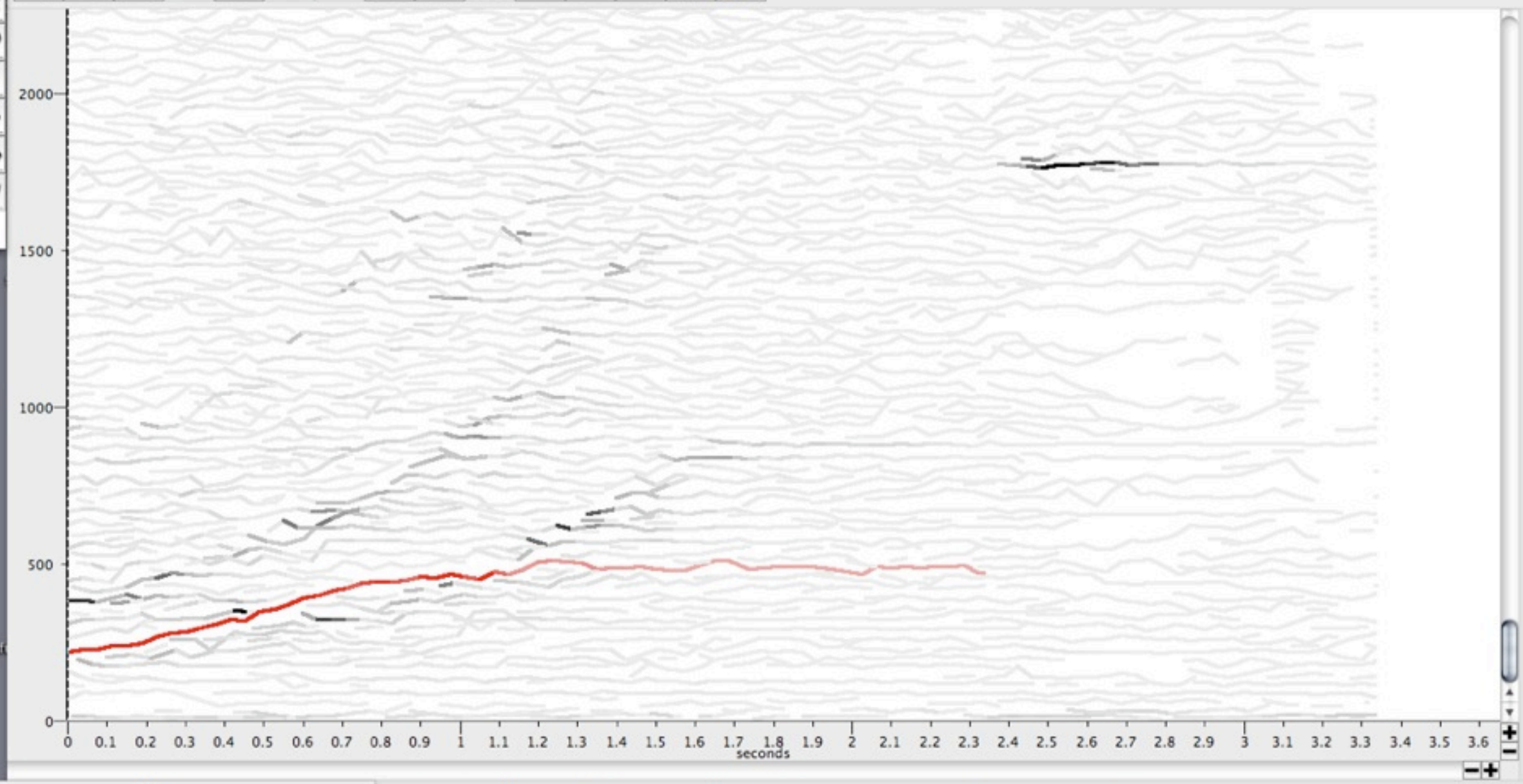
Show

Click and drag to select a range; hold Shift to avoid snapping to items; hold Ctrl for multi-select; middle-click and drag to navigate

SPEAR File Edit Sound View Transform Window Help 10:37

Tools

Analysis-mcferrin2.wav



idual breakpoints. Hold down shift to extend the selection. Hit <space> to playback, <shift>-<space> to play selection.

Cursor

Time:	3.258 sec.	Frequency:	148.000 Hz
Keynumber:	50.137	Note:	D3

Praat Help

10:52

5. LongSound Hardloop1

File Edit Query View Select Spectrum Pitch Intensity Formant Pulses Help

0.866735

0.5916

-0.7999

0.5478

-0.6675

10^4 Hz

0 Hz

100 dB

72.7 dB

50 dB

0.866735 0.866735

0 Visible part 1.733469 seconds 1.733469

Total duration 1.733469 seconds

all in out sel bak Group

Pd

IN OUT

0 0

CLIP CLIP

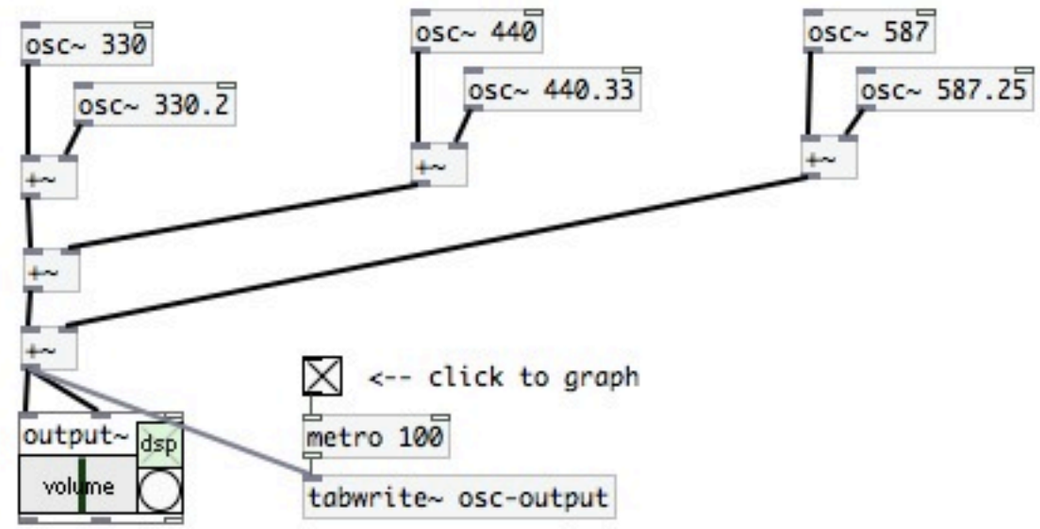
DIO

compute audio

peak meters

```
libdir_loader: added 'pixeltango' to the global
libdir_loader: added 'pmpd' to the global objec
libdir_loader: added 'rradical' to the global o
libdir_loader: added 'sigpack' to the global ob
libdir_loader: added 'smlib' to the global obje
libdir_loader: added 'toxy' to the global objec
libdir_loader: added 'unauthorized' to the glob
vbap - v1.0.3 - 12 Aug 2006 - (c) Ville Pulkki
libdir_loader: added 'pan' to the global object
libdir_loader: added 'freeverb' to the global o
libdir_loader: added 'hcs' to the global object
libdir_loader: added 'jmmmp' to the global obje
libdir_loader: added 'ext13' to the global obje
libdir_loader: added 'ggee' to the global objec
libdir_loader: added 'flib' to the global objec
libdir_loader: added 'ekext' to the global obje
libdir_loader: added 'flatspace' to the global
PDP: pure data packet version 0.12.5-darcs
PiDiP : additional video processing objects for
        version 0.12.23 ( ydegoyon@free.fr )
pdp_colorgrid: version 0.4
by Yves Degoyon (ydegoyon@free.fr) & Lluis Gome
saved to: /Users/alexanje/In progress/undervisr
saved to: /Users/alexanje/In progress/undervisr
```

beating.pd



osc-output

```
%%% Read MoCap file

disp('Read a file and place it into
m = mcread;
tm=(0:(m.nFrames-1))/m.freq;


% Read audio file in Matlab
[file,path] = uigetfile({'*.wav'},
fn = [path file];
[x,fs]=wavread(fn);
x=x(:,1);                          % Reduc
ms1=fs/1000;                        % maxi
ms20=fs/50;                         % mini
t=(0:length(x)-1)/fs;               % time
xd=(length(x)-1)/fs;                 % dur

tmin=100;
tmax=1000;

txmin=tmin*fs/m.freq;
txmax=tmax*fs/m.freq;

% Read audio file in MIRToolbox
a=miraudio(fn,'Extract',tmin/100,tm


%%% Basic conversions

disp('First derivative (velocity)')
d2v=mctimeder(m, 1);

disp('Second derivative (accelerati
     d2a=mctimeder(m, 2);

disp('Component parts of the above
mn=mcnorm(m);
d2vn=mcnorm(d2v);
d2an=mcnorm(d2a);

disp('Smoothen data')
mns=mcsmoothen(mn);
d2vns=mcsmoothen(d2vn, 99);
d2ans=mcsmoothen(d2an, 99);
```