Graphical and Tangible User Interfaces for Computer Audio

Low-bandwidth version with reduced image quality

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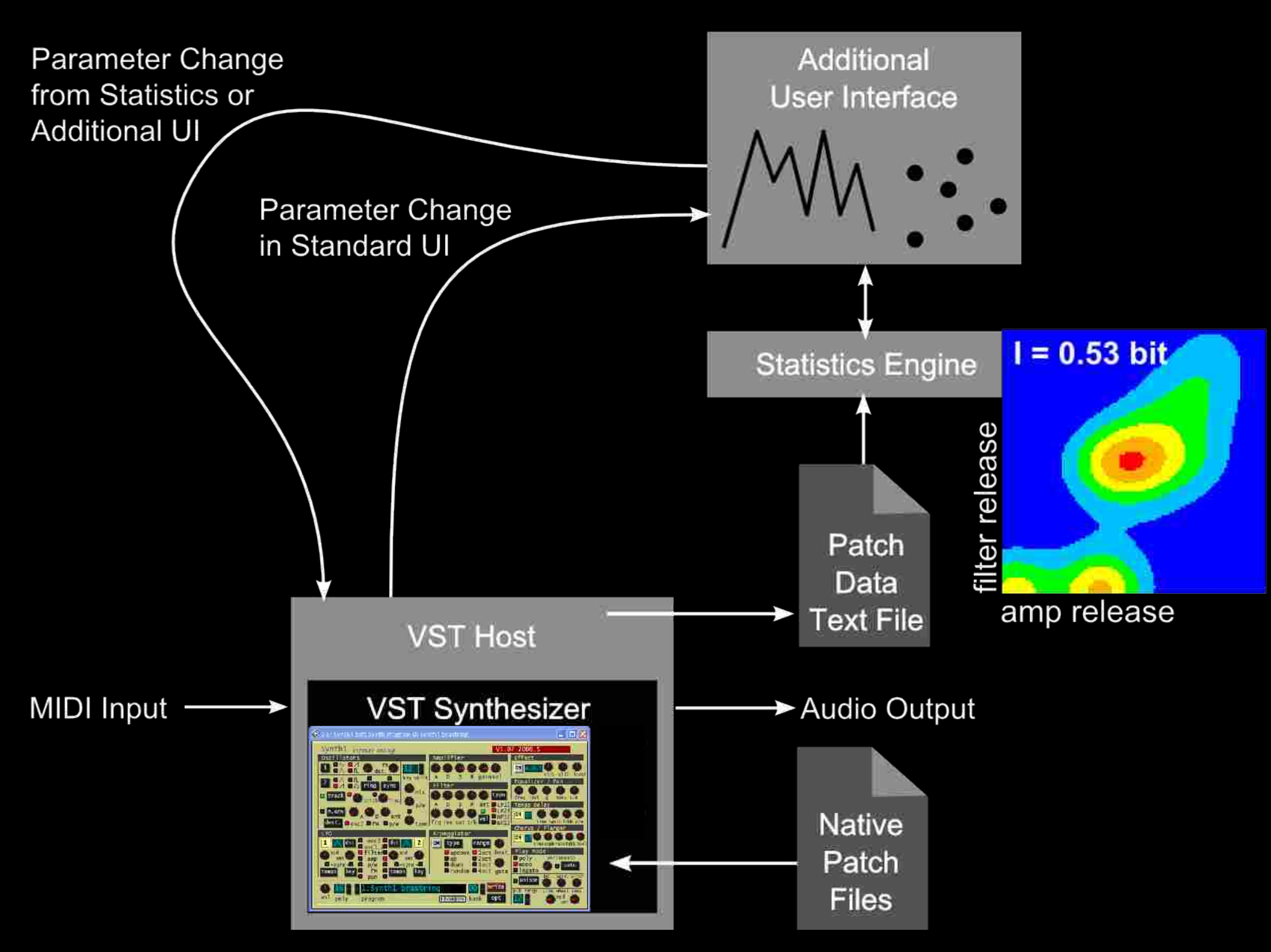
~~Grand Unified Theories~~

Let's see some real-life examples!

- Sound Creation
- Audio Processing
- Content Management

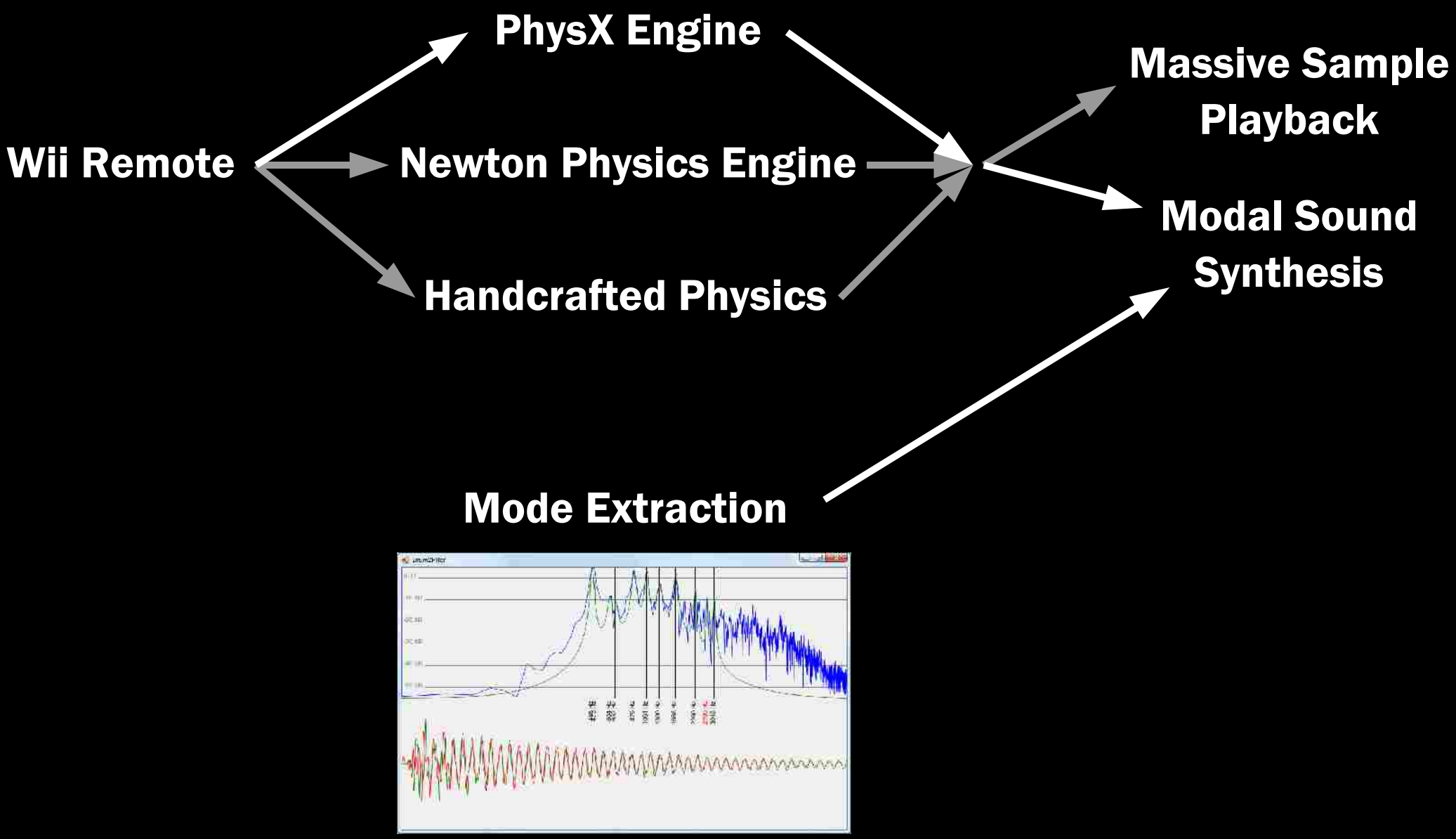
Sound Creation

Programming a Music Synthesizer through Data Mining


Parameter Change
from Statistics or
Additional UI
Parameter Change
in Standard UI
Additional
User Interface
Statistics Engine
I = 0.53 bit
filter release
amp release
Patch
Data
Text File
VST Host
MIDI Input
VST Synthesizer
Audio Output
Native
Patch
Files

A Versatile Expressive Percussion Instrument with Game Technology

with Sebastian Heise


PhysX Engine
Wii Remote
Newton Physics Engine
Handcrafted Physics
Massive Sample Playback
Modal Sound Synthesis
Mode Extraction

A Malleable Drum

with Christoph von Tycowicz

Output

Real-Time Audio Output

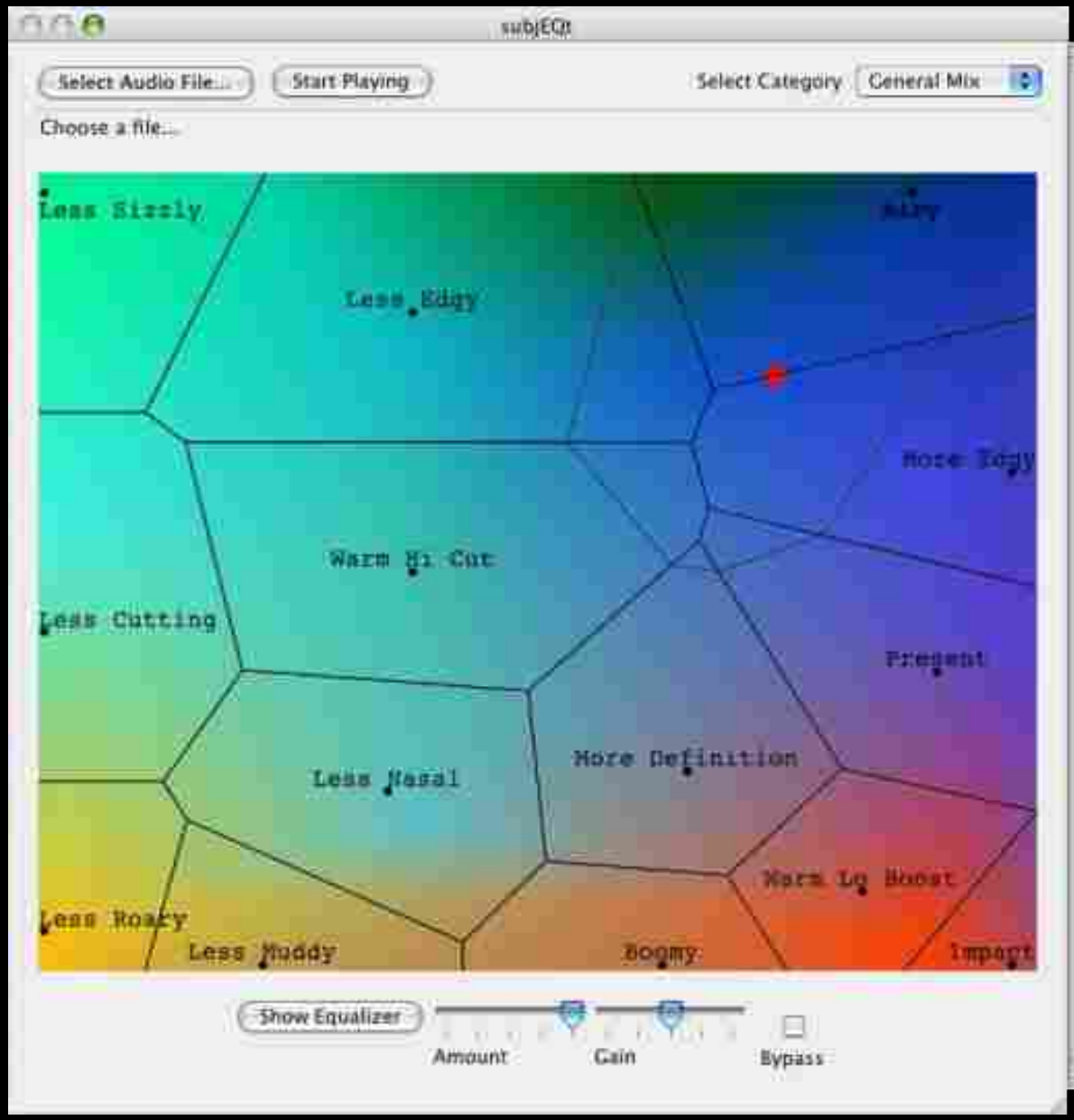
Drum Strokes (incl. Position), Damping, Pressure

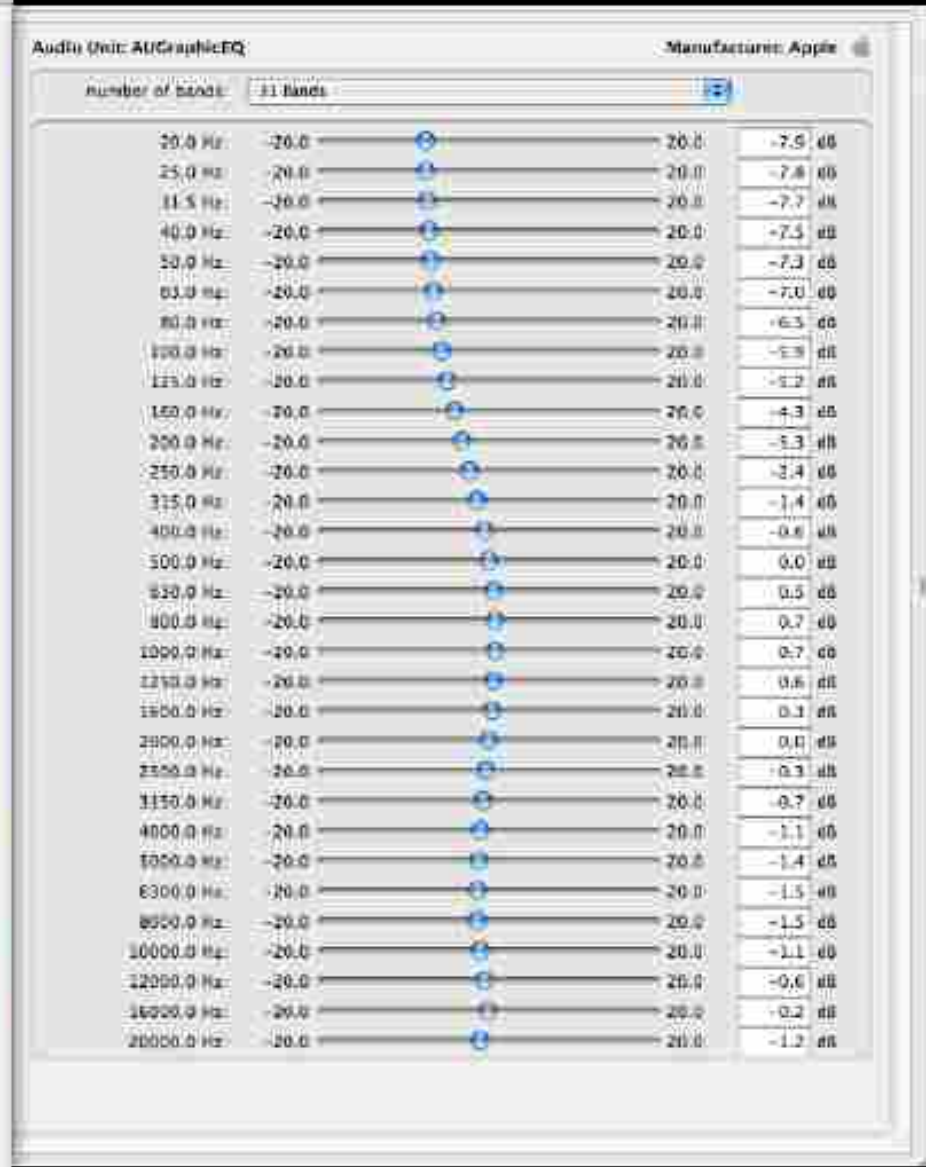
Drum Shape

Audio Processing

subjEQt: Controlling an Equalizer through Subjective Terms

with Sebastian Mecklenburg

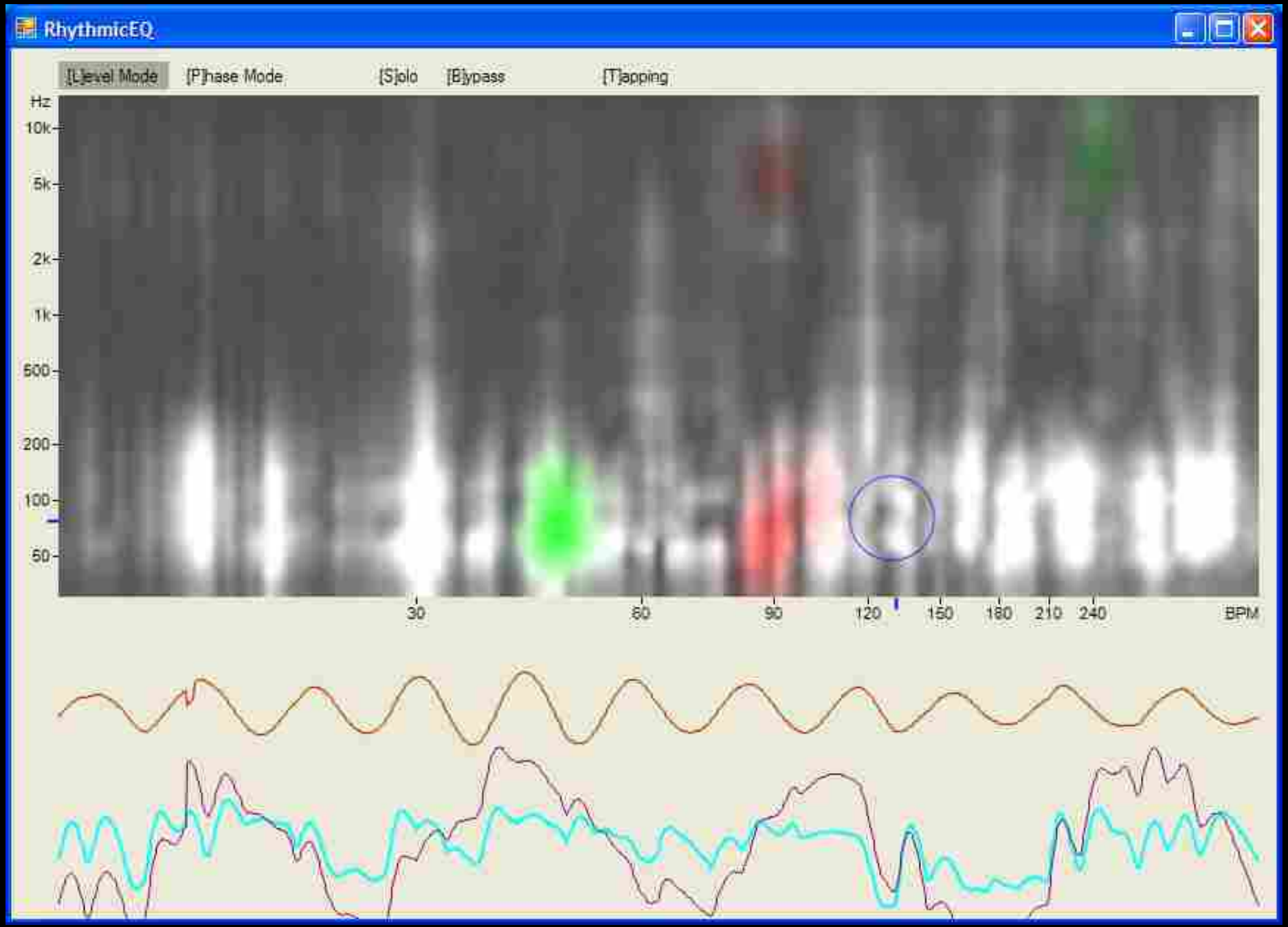

subjEQt
Select Audio File...
Start Playing
Select Category
General Mix
Choose a file...
Less Sizzly
Less Edgy
Airy
More Edgy
Warm Hi Cut
Less Cutting
Present
More Definition
Less Nasal
Warm Lo Boost
Less Roxxy
Less Muddy
Boomy
Impact
Show Equalizer
Amount
Gain
Bypass


Audio Unit: AUGraphicEQ
Manufacturer: Apple
Number of Bands:
31 Bands

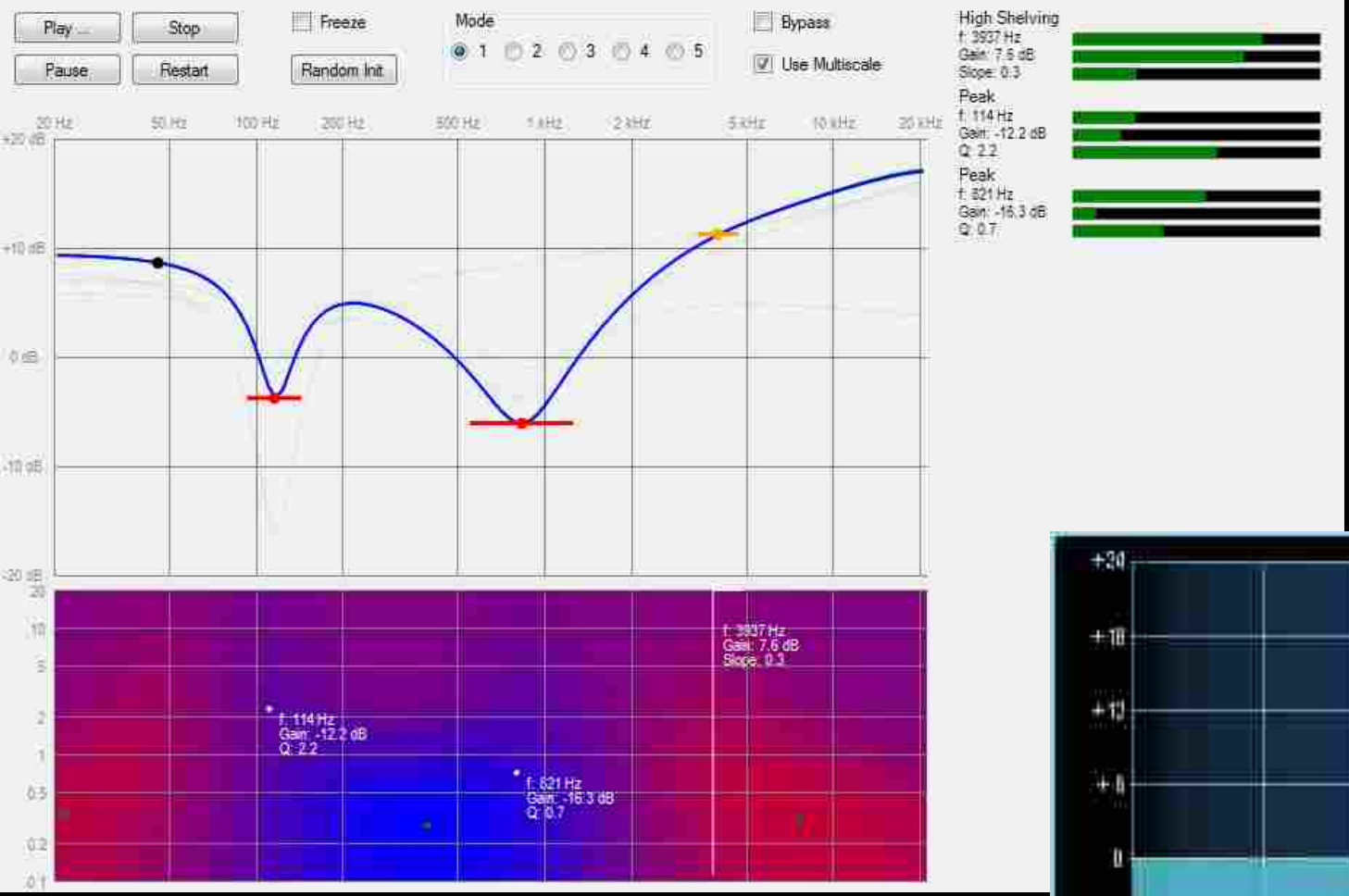
A Rhythmic Analyzer and Equalizer

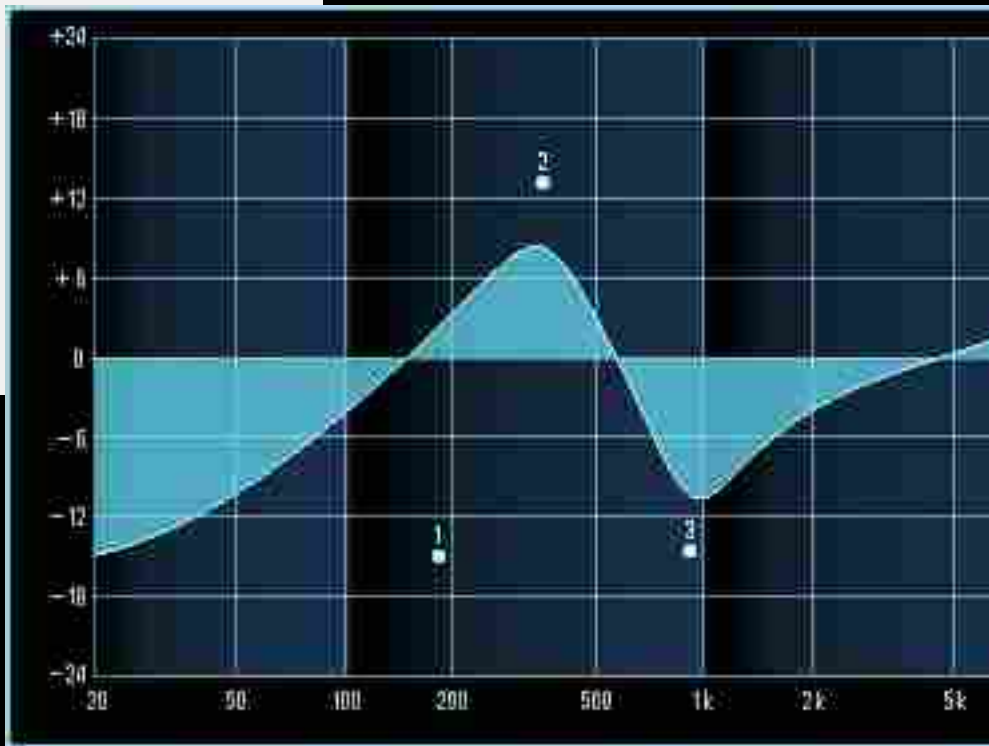
Rhythmic Frequency (Beats per Minute)

Audio Frequency (Hz)



Graphical Control of a Parametric Equalizer

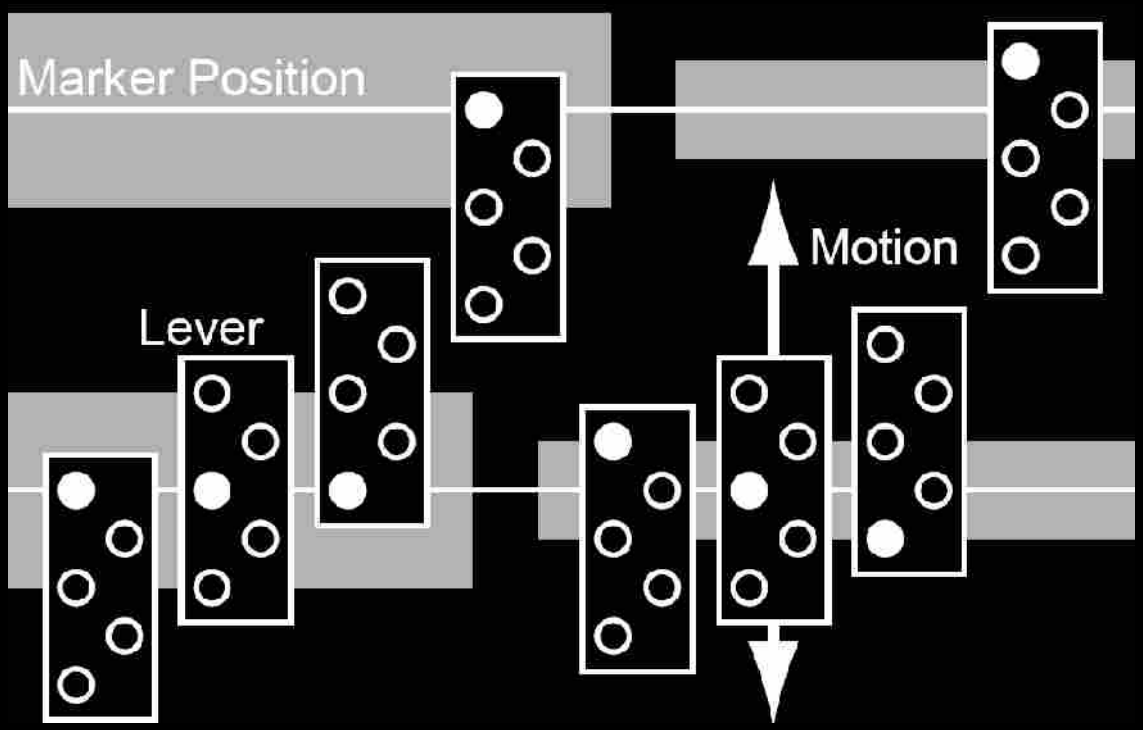




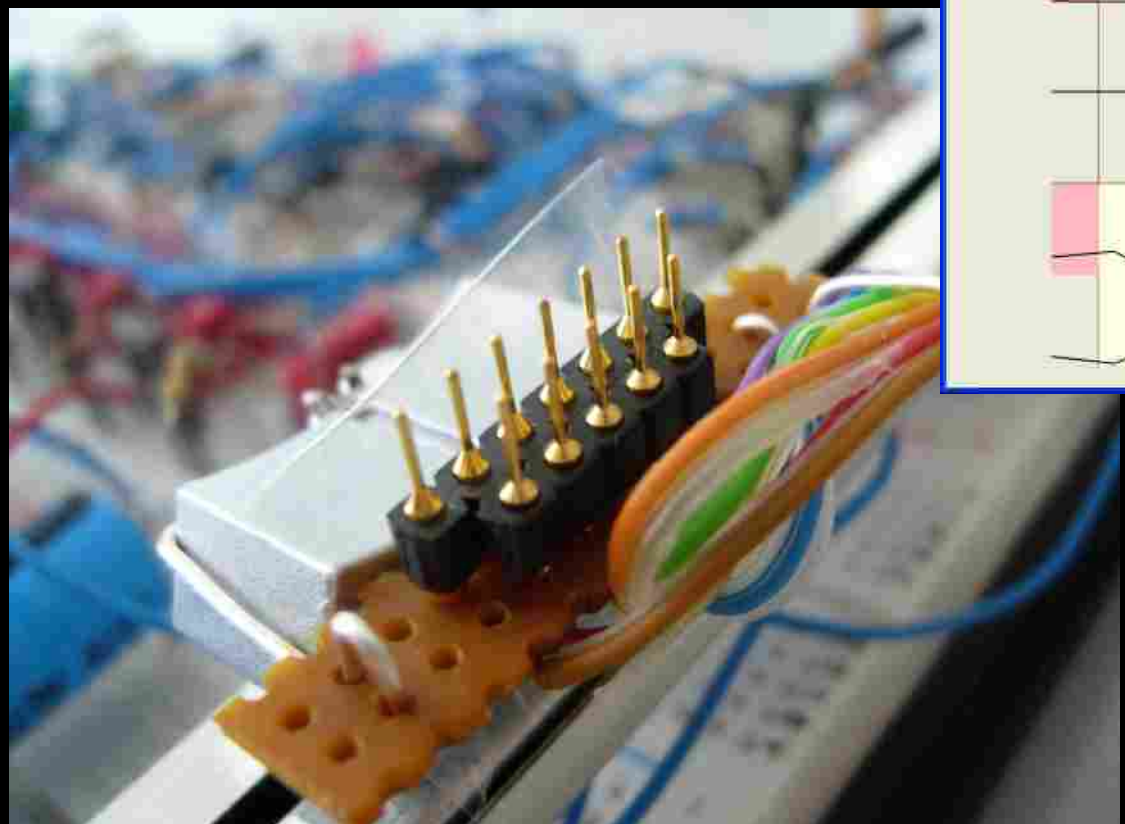
New Interface:
On-curve Controls

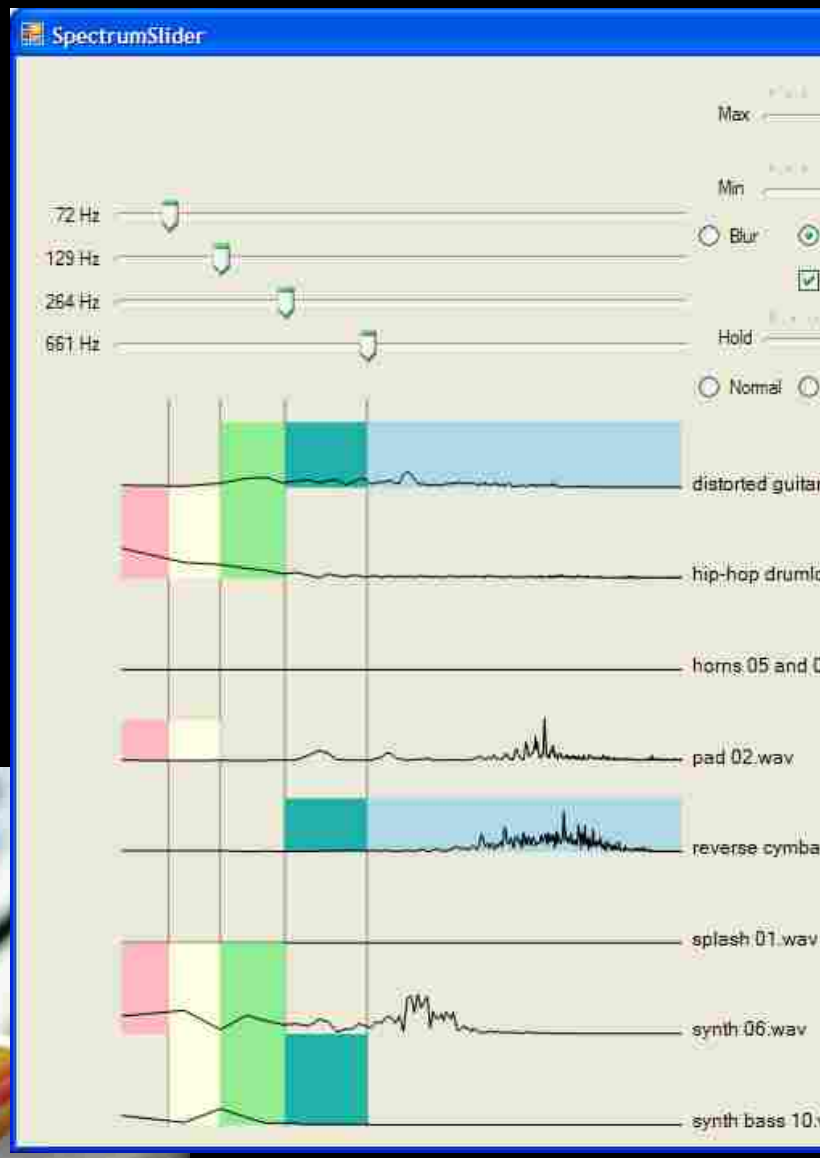
Standard Controls:
Off-curve
(Steinberg Cubase)

Sound at Your Fingertips: An Electrotactile Fader



Virtual Detents



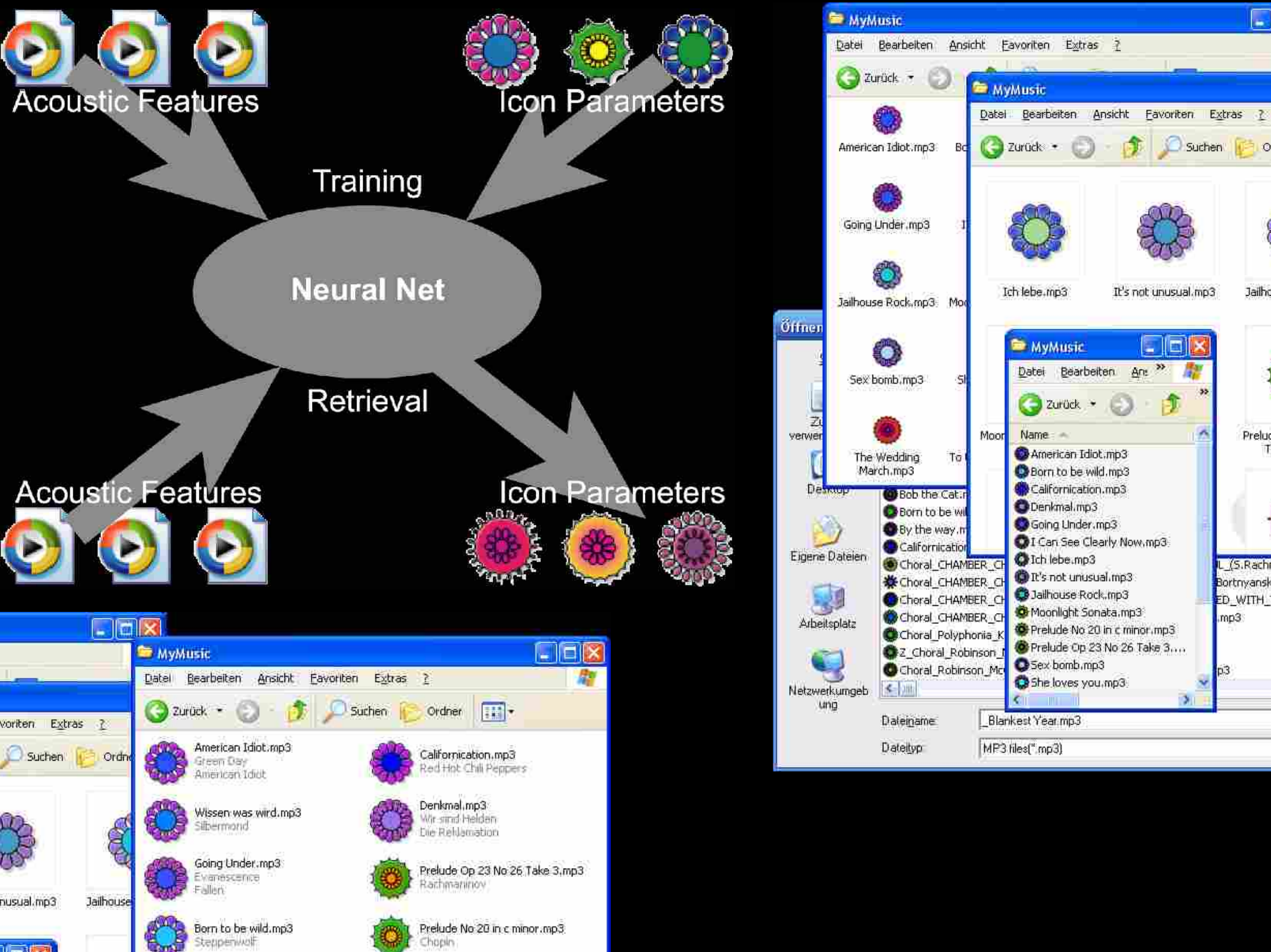


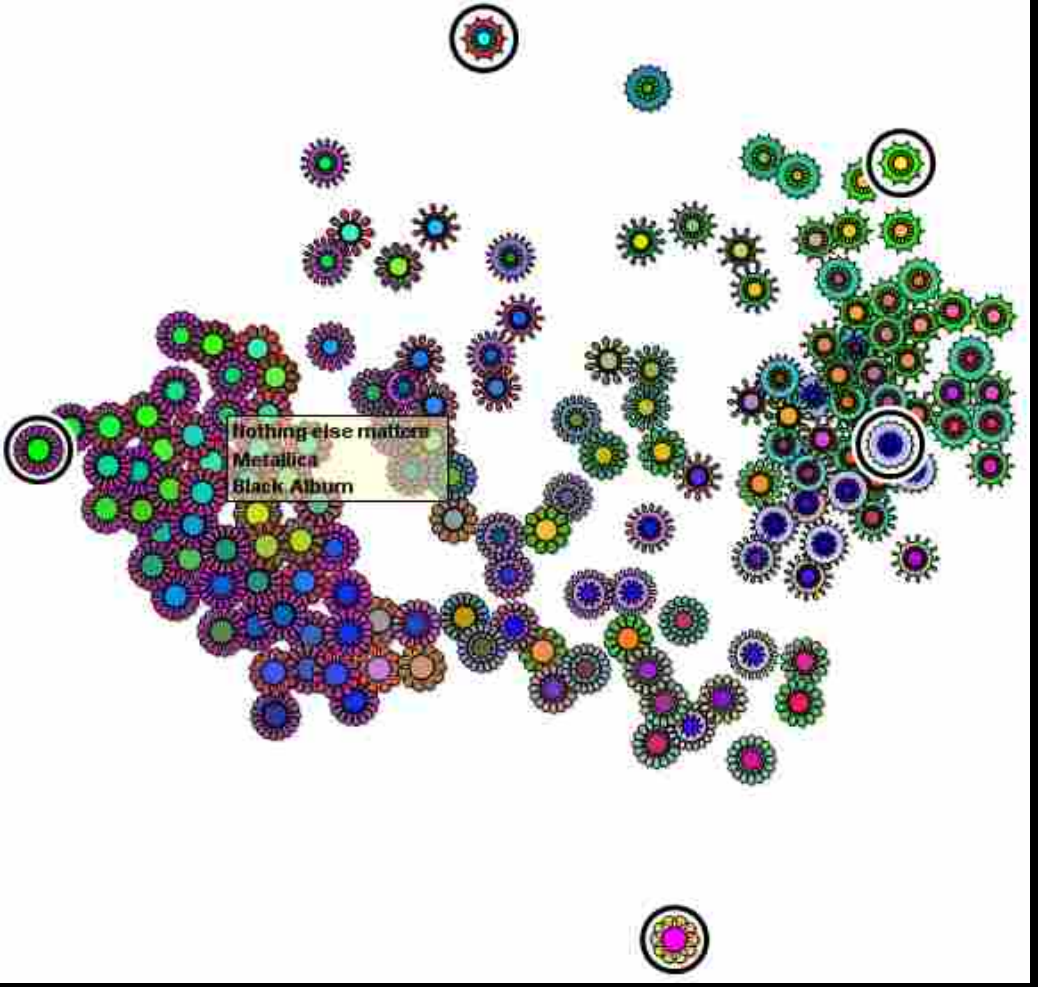
Track Identification

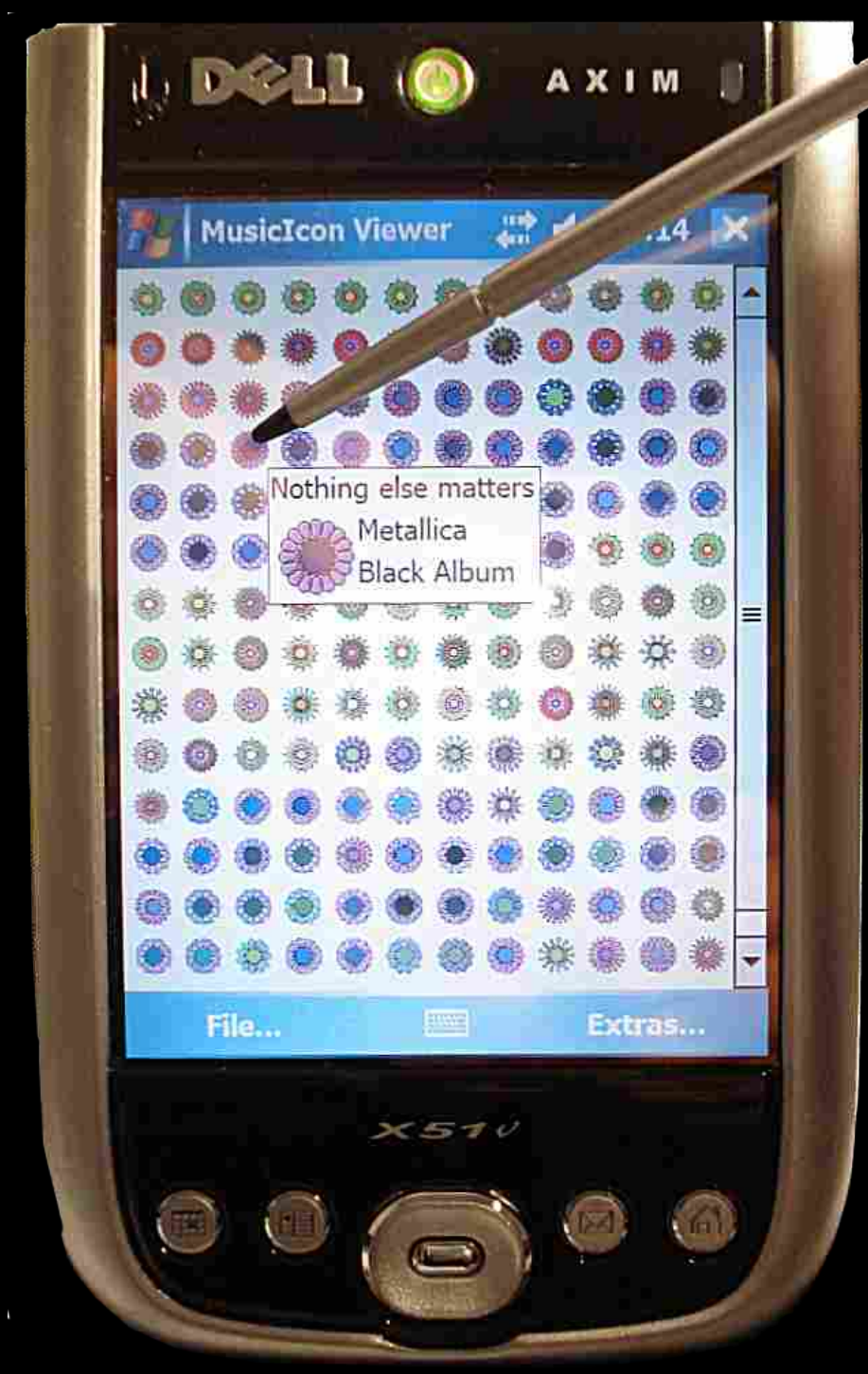
Content Management

Music Icons: Procedural Glyphs for Audio Files

with Philipp Kolhoff and Jacqueline Preuß

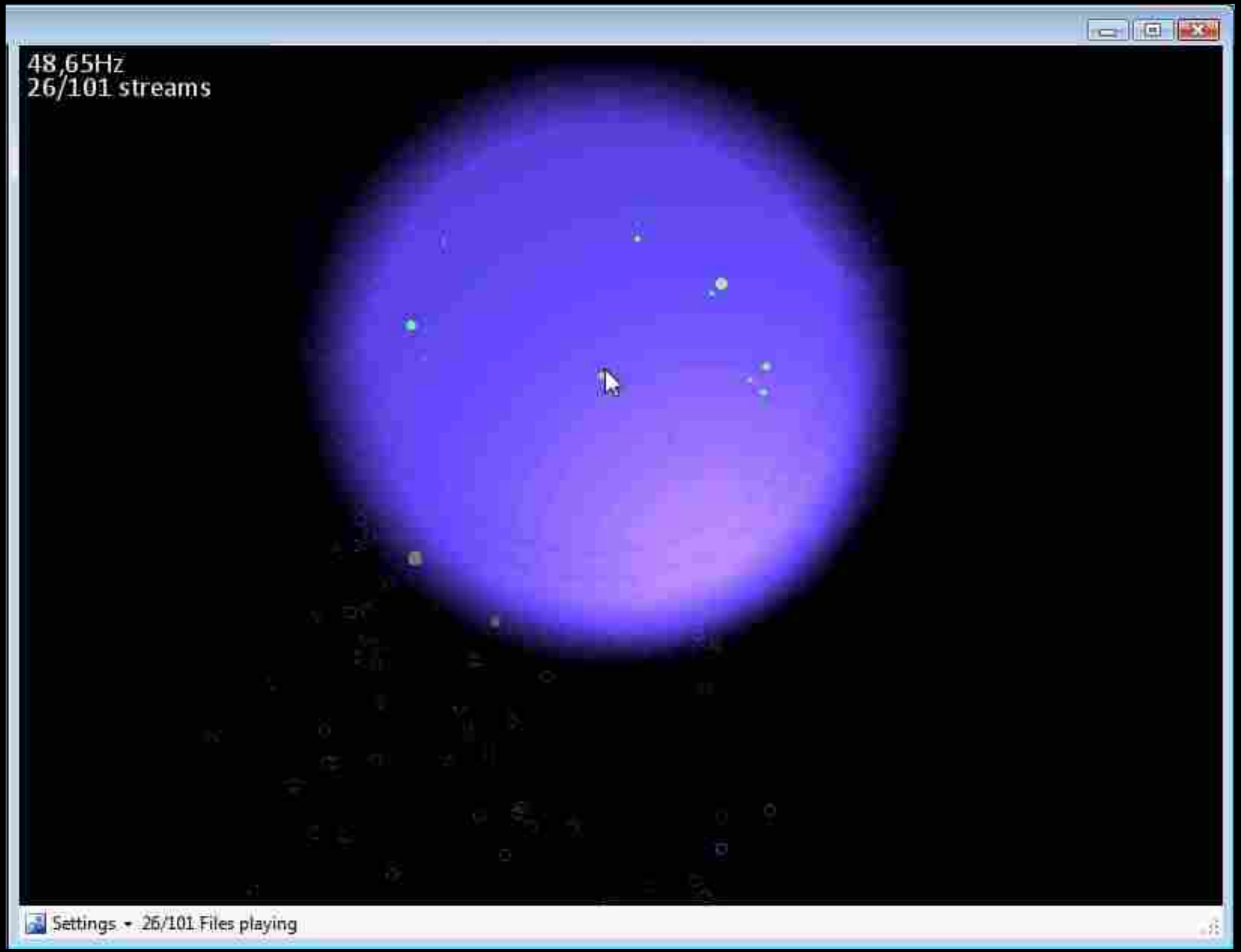

Acoustic Features
Icon Parameters
Training
Neural Net
Retrieval
Acoustic Features
Icon Parameters
MyMusic
Datei Bearbeiten Ansicht Favoriten Extras ?
Zurück
Suchen
Ordner
American Idiot.mp3
Going Under.mp3
Jailhouse Rock.mp3
Sex bomb.mp3
The Wedding March.mp3
Ich lebe.mp3
It's not unusual.mp3
Name
Born to be wild.mp3
Californication.mp3
Denkmal.mp3
I Can See Clearly Now.mp3
Moonlight Sonata.mp3
Prelude No 20 in c minor.mp3
Prelude Op 23 No 26 Take 3,...
She loves you.mp3
Öffnen
Eigene Dateien
Arbeitsplatz
Netzwerkumgebung
Dateiname: _Blankest Year.mp3
Dateityp: MP3 files(*.mp3)
Californication.mp3
Red Hot Chili Peppers
Wissen was wird.mp3
Silbermond
Denkmal.mp3
Wir sind Helden
Die Reklamation
Going Under.mp3
Evanescence
Fallen
Prelude Op 23 No 26 Take 3.mp3
Rachmaninov
Born to be wild.mp3
Steppenwolf
Prelude No 20 in c minor.mp3
Chopin


Nothing else matters
Metallica
Black Album


DELL
AXIM
MusicIcon Viewer
Nothing else matters
Metallica
Black Album
File...
Extras...
X51v

Quick Browsing in Vast F/X Sound Collections

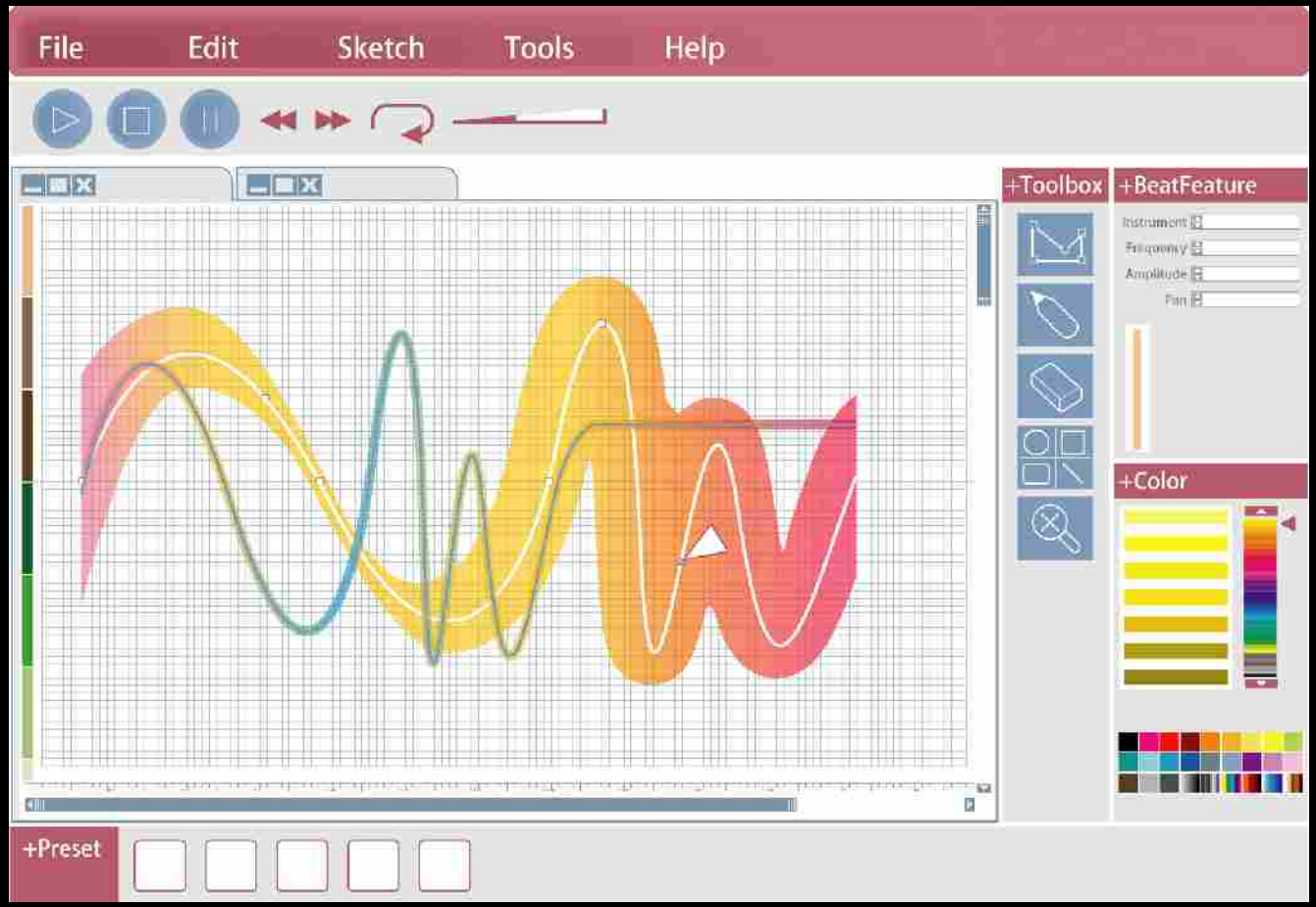
with Sebastian Heise and Michael Hlatky


48,65Hz
26/101 streams
Settings
26/101 Files playing

Where to go from here

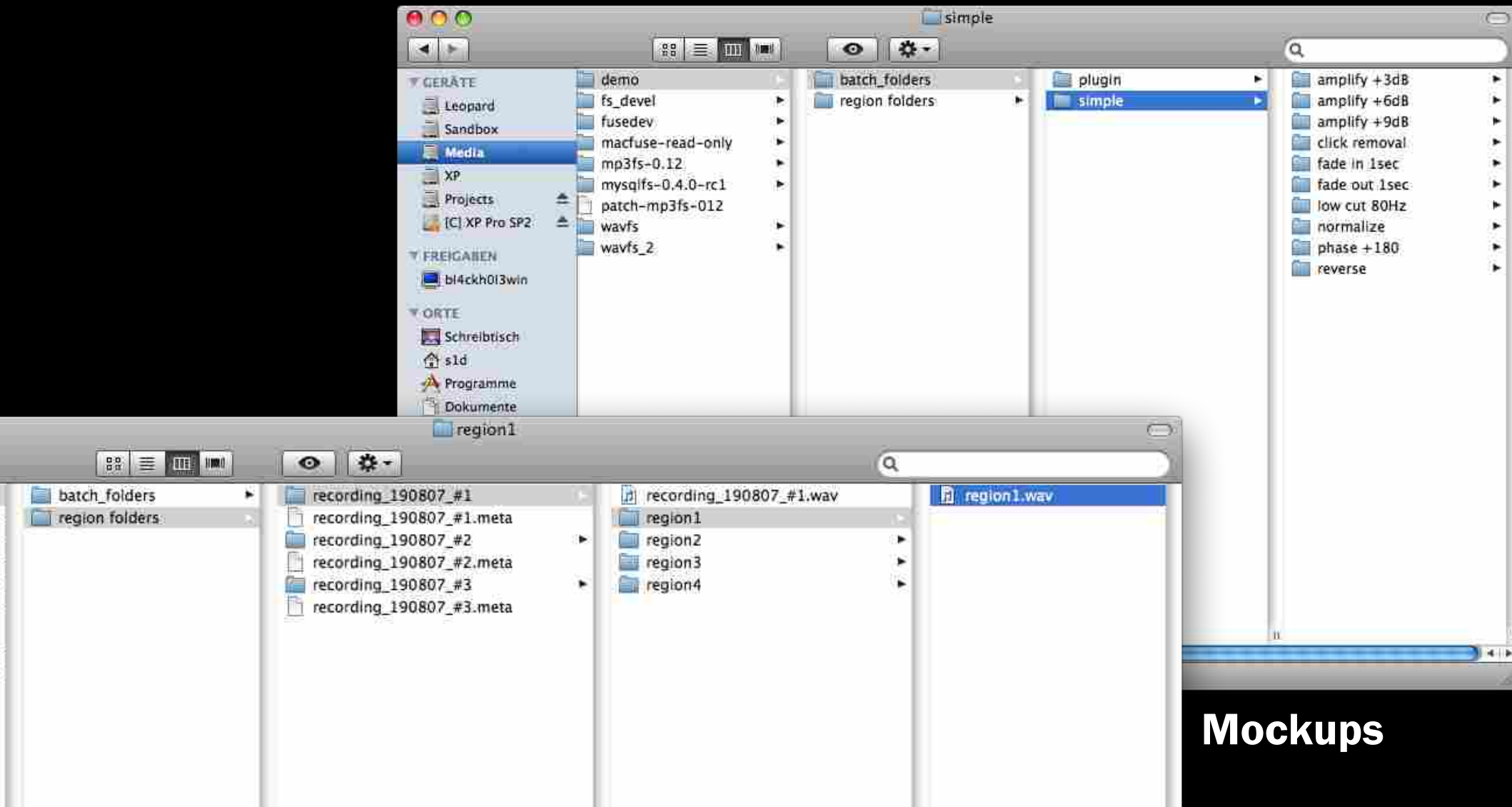
Sketching Sounds, Sketching Music

with the NoISE master's project group



FUSE for Audio Applications

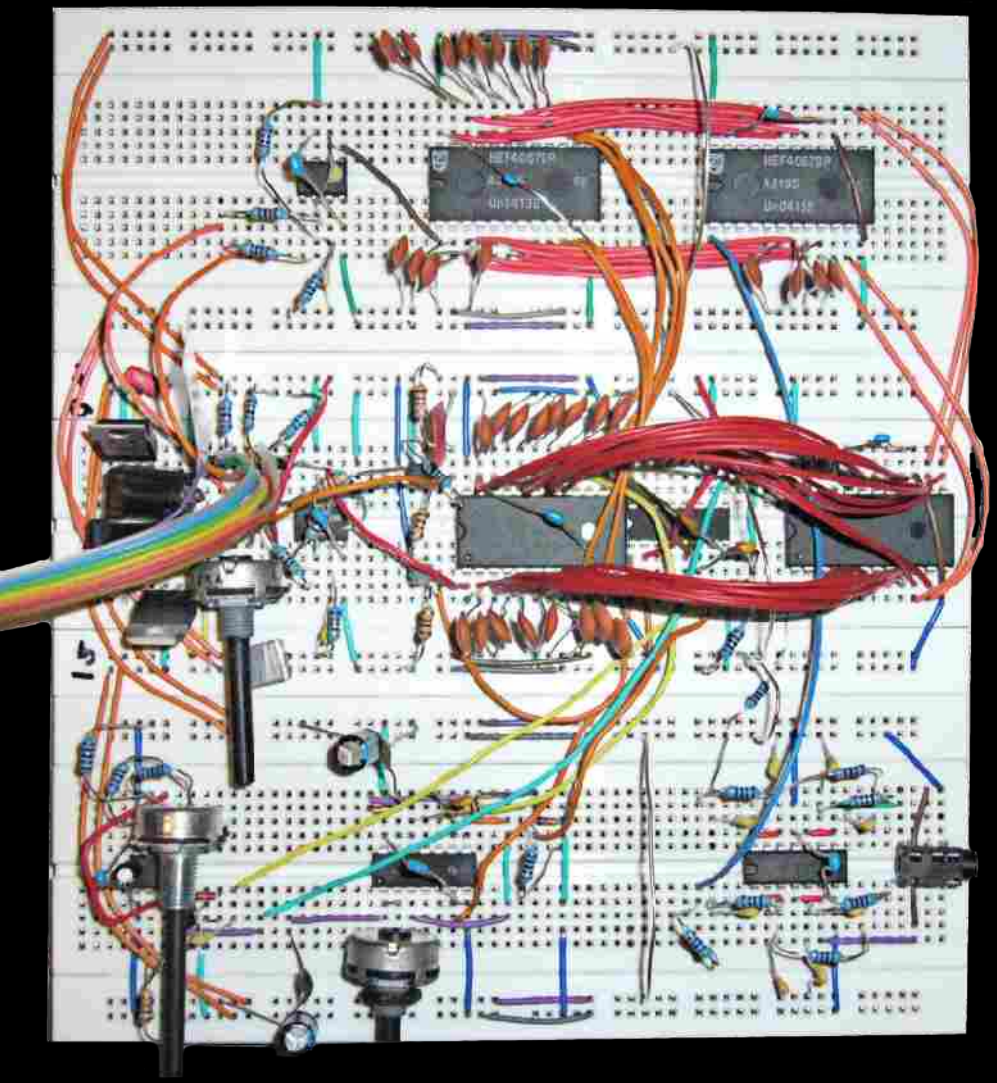
with Michael Hlatky and Sebastian Heise



Mockups

GPU-based Audio Processing

VGA to Audio



DVI to Audio?

GPU

↓

DVI Port?

↓

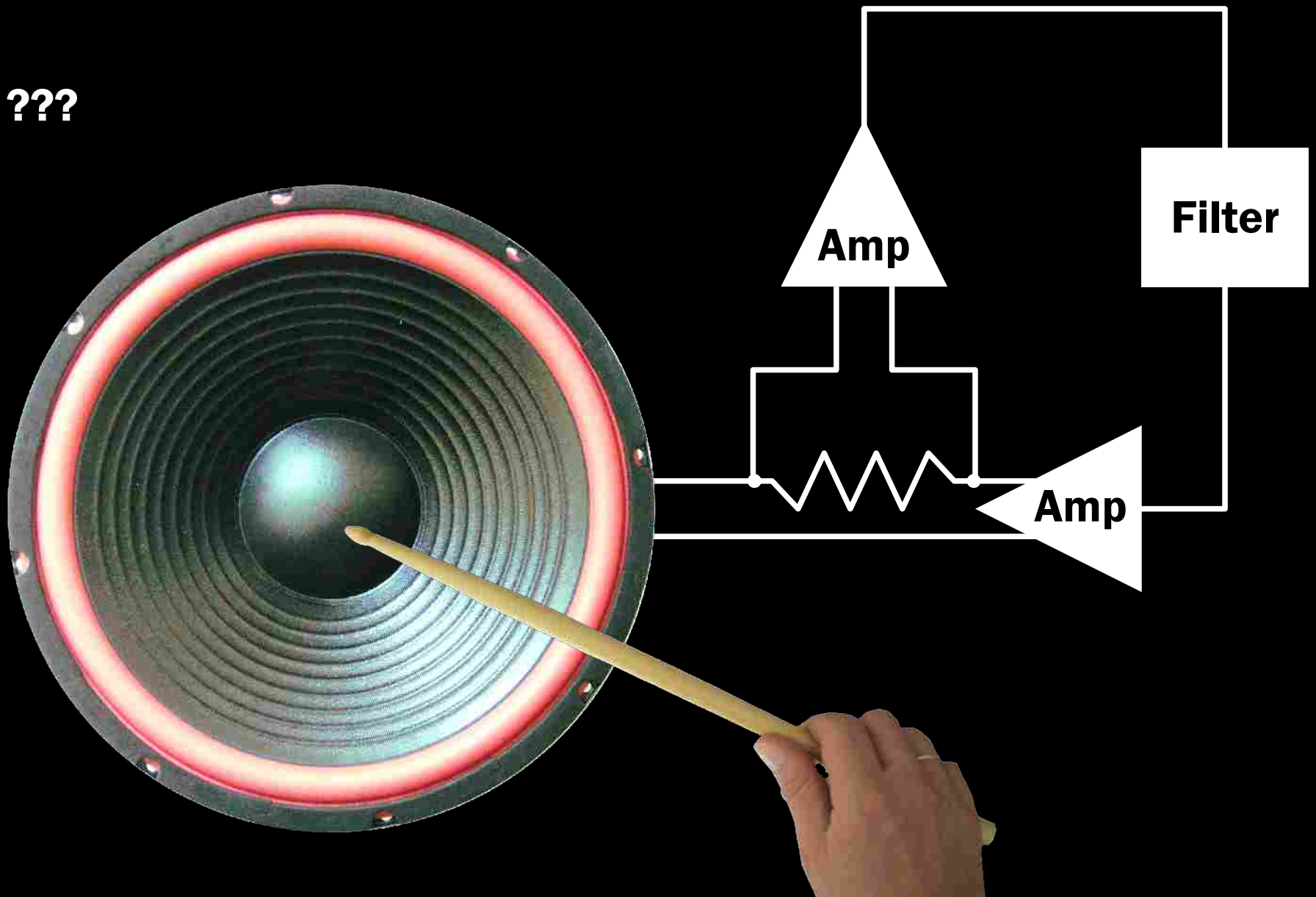
Decoder

↓

1000 Independent Speakers?

Reuniting Sound Control and Sound Generation

with ???



Thanks for your attention!