

Time Machine

for sensor augmented bass-clarinete, live-electronics and live-video

marko ciciliani 2012/13

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commissioned by ICST in Zürich.

Special thanks to Germán Toro-Perez, Matthias Müller, Sebastián Schiesser and Damian Stewart.

The live-electronics in this piece have been realized with SuperCollider (v.3.6.5), the live-video part with OpenFrameworks (v.0.8).

This piece has been written for the SABRe, a sensor-equipped bass clarinet developed by the ICST in Zürich. The playing of the bass-clarinet controls various aspects of the live-electronics and the live-video.

Legend:

Button 1 of the SABRe starts an analysis of the sound that is just being played. In the score it is indicated with the sign:



Button 2 of the SABRe saves the synthesized sound. In the score it is indicated with the sign:



The number behind the letter **S** indicates the preset number under which it is saved. It increments automatically and does not need to be set by the player.

Button 3 starts Scenes throughout the piece. In the score it is indicated with the sign:



The number behind **Scene** indicates the current number that has to be triggered. It increments automatically and does not need to be set by the player.

Sounds that have been saved with Button 2 can be recalled with special key combinations. In the score this is indicated with the sign:



The number behind the letter **R** indicates which preset number has to be recalled. The presets are saved with the following key combinations:

Preset 1: 18 + 20;
Preset 2: 17 + 20;
Preset 3: 16 + 20;
Preset 4: 15 + 20;
Preset 5: 14 + 20;
Preset 6: 17 + 18;
Preset 7: 16 + 18;
Preset 8: 15 + 18;
Preset 9: 14 + 18;
Preset 10: 16 + 17;
Preset 11: 15 + 17;
Preset 12: 14 + 17;

Key 12 turns on the possibility to bend the synthetic pitches that are being played. When pitch bending is activated, the *tilt* and *heading* positions of the SABRe affect the behavior of the pitch bending. It should always be varied in versatile manners. In section T, the tilting of the instruments also creates drawings on the video screen. Key 12 does not need to be pressed for this to occur.

The electronics for this piece are provided with two documents

- 1) a code file which has to be run in SuperCollider (>3.6);
- 2) a standalone application for the video;

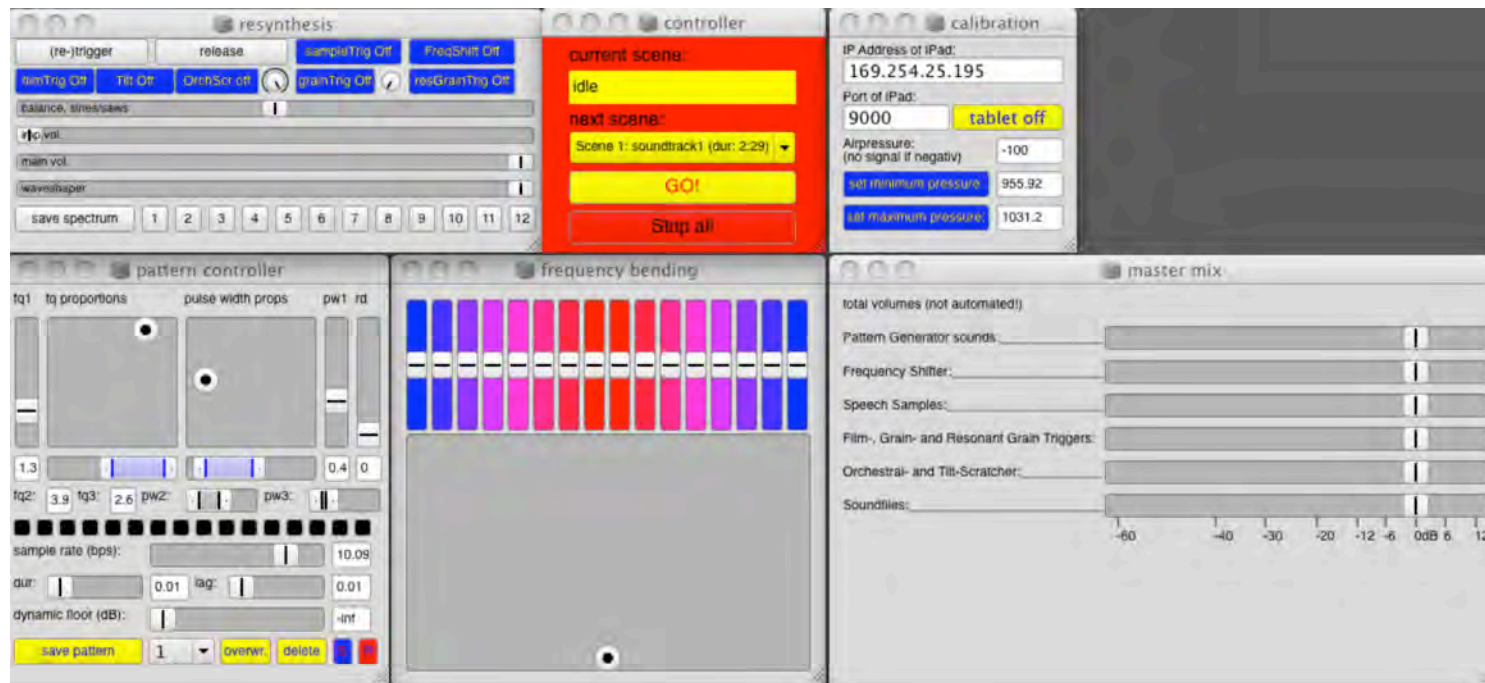
Then the video standalone app is double clicked a black window opens. When the key 'O' (zero) is pressed, it opens in fullscreen mode. If you need to open it in a different window/ screen, drag the app to that screen before pressing 'O'.

When the code file is opened and run in SuperCollider – run it by selecting the text cmd-A and compile it with the jey combination cmd-return – the graphic user interface underneath opens up.

The red window in the middle offers the possibility to select amongst 32 different scenes. The window shows the currently running scene and the next one that is lined up. Hitting the "GO!" Button will evaluate the scene that has been displayed as 'next scene'. It is equivalent to pressing Button 3 on the SABRe.

The small window on the right of the red one provides fields to connect an iPad. A file for running a TouchOSC program is provided with this piece, which will give visual feedback to the performer of the SABRe. The visual feedback includes the names of the scenes (in the same way as in the red window underneath), a display for the position of the SABRe and visual clicks, that are started as indicated in the score. For the iPad communication to work an iPad has to be connected to the same wireless network as the computer, Then the IP address of the iPad has to be typed in and the port number of the application. Finally hit the button 'tablet off' and the communication should be running.

To optimize the response of the wind pressure that the SABRe is played with, the air pressure meter can be calibrated by pressing the 'set minimum pressure' button while the mouth piece is not used and the 'set maximum pressure' while maximum air pressure is blown into it. If the Airpressure is indicated with number -100 it means that there is no communication with the mouth-piece of the SABRe.



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A

20" 70"

sound track from film
 an ascending machine like sound
mf *p*

sound track derived from pop songs
 20" 70"
 a succession of 12 overlapping pop refrains with the title "Time Machine"
f

live-video
 video sequence is started

live-electronics
 trigger the Pattern Generator (PG).
 The PG makes a spectral analysis of the sound received via the microphones (in this case the playback that leaks into the B-Cl. mics). A set of pitches is then resynthesized and rhythmized according to settings in the PG.

Scene 1

20" 70"

Bass Clarinet
♩ = 82

B

±10"

male voice shouting
senza misura

snd.tx. film

snd.tx. pop

live-electr.
 trigger the PG.
 This time the multiphonic is analyzed and resynthesized. Save it (preset 1)

Scene 2
senza misura

B.-Cl.
mp

short phrase spoken by male voice

short phrase spoken by female voice

processed pop song

video trigger release PG

Scene 3

Scene 4

mp

$\text{♩} = 84$

Scene 5 A = alternative fingering ad lib.

speech samples

$\text{♩} = 84$

f

7:3

7 7 7

processed pop song

D

live-vid.

live-electr.

video trigger
Pattern1: PG plays with impulse sounds only, no pitches

hold tempo strictly

Scene 6

Scene 7

Scene 8

B.-Cl.

4/4

4/4

4/4

(hold tempo strictly)

B.-Cl.

E

un poco piu lento ♩ = 74

4/4

4/4

4/4

4/4

un poco piu lento ♩ = 74

mp

Scene 9

B.A.

snd.tx. pop
 live-vid.
 live-electr.

7 8 3 4
 distorted pop song
 video trigger
 VISUAL COUNT IN
 18
 11
 10
 6
 6
 7 8
 hold tempo strictly
 ♪ = 84
 f

F

snd.tx. pop
 live-vid.
 live-electr.

Recall spectrum saved as preset 5
 Recall spectrum saved as preset 1
 (hold tempo strictly)
 ♪ = 74
 harmonic multiphonics (by overblowing) ad lib.
 mf

G

processed male voice (shouting)

heavily stretched and processed pop song

pop song becomes slightly more concrete

video trigger
Pattern3 does not contain any rhythmicizations, only suspended pitches

Scene 10

Scene 11

hold tempo strictly

5/4 4/4 9/8 4/4

snd.tx. pop

live-electr.

(hold tempo strictly)

B.-Cl.

snd.tx. pop

live-electr.

Scene 12

(hold tempo strictly)

speech/image sample triggering activated

B.-Cl.

snd.tx. film

snd.tx. pop live-vid.

film music of old movie played backwards

J

(hold tempo strictly)

A

video trigger

Scene 13

B.-Cl.

snd.tx. film

K

senza misura

senza misura

stop with climactic chord in the film score

T S6

4

mf

B.-Cl.

snd.tx. film

±15"

±8"

T S7

B.-Cl.

L

snd.tx.
film



6 5 5 5 5 6 (4) ±12"

16 16 16 16 16 16 18 18

11 10

B.-Cl.

Musical notation for the B.-Cl. track, including notes, rests, and dynamics.

mp

orchestral music fades out, sound of a siren fades in

snd.tx.
film



live-
vid.
live-
electr.

video trigger

T S8 Scene 14

6 5 5 5 5 6

16 16 16 16 15 15

B.-Cl.

Musical notation for the B.-Cl. track, including notes, rests, and dynamics.

mp

M

♩ = 76
Siren on film soundtrack
(this is already the second siren-sweep)

snd.tx.
film

Musical notation for the snd.tx.film track, including notes and dynamics.

male voice

live-
electr.

Musical notation for the live-electr. track, including notes and dynamics.

♩ = 76

VISUAL COUNT IN

B.-Cl.

Musical notation for the B.-Cl. track, including notes and dynamics.

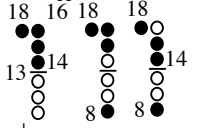
N

snd.tx. film

Pitch Bending
 activated with Key 12 and performed with *heading* and *tilt* of the SABRE.
 The position of the instrument also affects the video image by squeezing and stretching a grid of lines.
 Perform this section while paying attention to variation in the pitch-bending **and** the video image.

live-electr.

Alternate between fingerings. The given fingerings are suggestions. Other ones may be used as well.



B.-Cl.



snd.tx. film

live-electr.

B.-Cl.



snd.tx. film

live-electr.

VISUAL COUNT IN

B.-Cl.

snd.tx. film O
 live-vid.
 live-electr. R7 R6
 B.-Cl. Scene 15 Scene 16

male voice shouting (distorted) *f* video trigger

mf

snd.tx. film P
 live-electr.
 B.-Cl. *mf*

male voice shouting (distorted) *f*

VISUAL CLICK

snd.tx. film
 live-electr. (VISUAL CLICK)
 B.-Cl. *f*

distorted texture

Q

snd.tx. film
 snd.tx. pop
 live-electr.
 B.-Cl.

heavily filtered pop song excerpt
 distorted texture
 (VISUAL CLICK)
 mf f mf f

R

snd.tx. film
 snd.tx. pop
 live-vid.
 live-electr.
 B.-Cl.

cut up pop songs (approximate rhythm)
 ff
 video trigger
 Scene 17

snd.tx. pop
 B.-Cl.

S chopped up pop songs
strongly filtered

snd.tx. pop
live-vid.

4/4 *p* video trigger

Scene 18

B.-Cl.

f

snd.tx. pop

B.-Cl.

snd.tx. pop
live-vid.

ff video trigger

Scene 19

B.-Cl.

snd.tx. pop

B.-Cl.

snd.tx. pop

B.-Cl.

snd.tx.
 pop
 live-vid.
 live-electr.

T
 ♩ = 74
 video trigger

Sample scratching
 In this section the bass-clarinet functions as a controller for scanning across a soundsite of spoken text. When the instrument is tilted to the left side a male voice resounds, to the right side a female voice. By applying very slow movement of the clarinet, single words can be stretched. With faster movement the speech character becomes recognizable. By moving the instrument upward, the voices are modulated with different frequencies. In addition, the motion of the instrument creates drawings on the video. Perform the motions with the clarinet with variety, while paying attention to the sonic and visual result.

LEFT: male voice
 at first scratch very slowly across a single word, then speed up and let the speech character emerge.

RIGHT: female voice
 as before, at first scratch very slowly across a single word, then speed up and let the speech character emerge.

Scene 20
 ♩ = 74
p

B.-Cl.

live-electr.

Scene 21
mf

LEFT: male voice
 similar as before

live-vid.
 live-electr.

video trigger

R8
Scene 22
R7

B.-Cl.

live-vid.

live-electr.

B.-Cl.

U

video trigger

R6

R5

T

Scene 23

RIGHT: female voice similar as before

live-electr.

B.-Cl.

V $\text{♩} = 100$

T

Scene 24 $\text{♩} = 100$

mf

live-electr.

B.-Cl.

W

percussive backward sound

live-vid. video trigger

live-electr.

hold tempo strictly

Scene 25

B.-Cl.

X

orchestral and percussive backward sound

percussive forward sound

female voice: "No, you mustn't"

male voice: "This is a time machine"

percussive forward sound

female voice: "You mustn't"

siren-like sound

live-electr.

(hold tempo strictly)

B.-Cl.

Y

male voice: "This is a time machine"

percussive forward sound

female voice: "No."

male voice: "This is a time machine"

percussive forward sound

male voice: "This is a time machine"

percussive forward sound

male voice: "This is a time machine"

percussive forward sound

Scene 26

RIGHT: female voice same technique as before, at first scratch very slowly across a single word, then speed up and let the speech character emerge. At the end, scratch again slowly.

B.-Cl.

V.S.

male voice:
"This is a time machine"

Z

cut-up female voice emerges and
undergoes timbral variations

snd.tx.
film

a different effect is applied to the bass clarinet.
Depending on the played pitch, an orchestral sound
is granulated. The changes occur in exact
synchronisation with the playing of the bass-clarinet.

Scene 27

B.-Cl.

snd.tx.
film

B.-Cl.

snd.tx.
film

B.-Cl.

snd.tx.
film

B.-Cl.

AA ♩ = 80

pop song is played backwards
bass-clarinet part with the song

snd.tx. pop live-vid.

live-electr.

♩ = 80
hold tempo strictly

Scene 28

B.-Cl.

(no more scratching effect on bass-clarinet)

mp

snd.tx. pop live-vid.

live-electr.

B.-Cl.

(hold tempo strictly)

BB

backward pop song becomes more
upbeat and x-fades with other songs
(also played in reverse)

snd.tx. pop live-vid.

live-electr.

(hold tempo strictly)

Scene 29

B.-Cl.

mf

CC

snd.tx. pop

live-electr.

B.-Cl.

Scene 30
rhythm of the Pattern Generator gradually gets smeared

DD

snd.tx. pop

live-electr.

B.-Cl.

perform pitch-bending in the sustained notes of the live-electronics by tilting the bass-clarinet. Vary the pitch-bending by holding the instrument at different angles in the y-axis.

EE

live-vid. video trigger

live-electr.

B.-Cl.

Scene 31

Scene 32

f