Luca Francesconi

Animus

1995

Max8 48kHz
2020

The setup and the execution of the electroacoustic part
of this work requires a Computer Music Designer (Max expert).

Table of Contents

Table of Contents 2
Work related information 3
Performance details 3
Detailed staff 3
Realisation 3
Useful links on Brahms 3
Version related information 4
Documentalist 4
Realisation 4
Upgrade Motivation 4
Other version(s) 4
Electronic equipment list 5
Computer Music Equipment 5
Audio Equipment 5
Files 6
Instructions 7
Table of contents 7
Introduction 7
Loudspeaker setup 7
Audio setup 7
On-stage computer setup 9
Midi and network setup 9
Main Patch 9
System calibration and audio tests 10
Audio Input tests 11
Direct-to-disk Test 11
MIDI tests 11
Pedal : 11
Sliders : 12
Display: 12
Simulation Patch (optional) 12
Initialization routine, check-list 13
During the performance: 14
Performance notes 15
Midi mixer : 15
Mixing of electronic treatments: 15
Special events : 15
documentation annexe 15
Program note 16

Work related information

Performance details

- June 15, 1995, Paris, Ircam, Espace de projection

Publisher : Ricordi

Detailed staff

- trombone

Realisation

- Tom Mays

Useful links on Brahms

- ***Animus*** **for solo trombone and live electronics (1995), 12mn**
- **Luca Francesconi**

Version related information

Documentation date: Jan. 30, 2020
Version state: valid, validation date : Feb. 24, 2020, update : May 6, 2021, 3:09 p.m.

Documentalist

Benoit Meudic (Benoit.Meudic@ircam.fr)

You noticed a mistake in this documentation or you were really happy to use it? Send us feedback!

Realisation

- Luca Francesconi (Composer)
- Tom Mays (Computer Music Designer)
- Sandrine Pages (Documentalist)
- Benoit Meudic (Computer Music Designer)

Version length: 12 mn
Default work length: 12 mn

Upgrade Motivation

Upgrade to max8 / sfiles in 48kHz

Other version(s)

- Luca Francesconi - Animus - Max7 (July 27, 2017)
- Luca Francesconi - Animus - AnimusMax6 (Dec. 1, 2013)
- Luca Francesconi - Animus - max5-untested_withdoc (Oct. 24, 2012)
- Luca Francesconi - Animus - AnimusMax4 (Oct. 24, 2012)
- Luca Francesconi - Animus - 2007 (Feb. 1, 2007)
- Luca Francesconi - Animus - doc Battier 2001 (July 1, 2001)

Electronic equipment list

Computer Music Equipment

- 2 MacBook Pro - *Apple Laptops* (Apple)
  OSX > 10.6.8, one for audio processing and the other on stage for displaying the events to the trombone player
- 1 RJ 45 Cable - *Cable*
  to send data to the display computer
- 1 Max 8 - *Max* (Cycling74)
- 1 Fireface 800 - *Sound Board* (RME)
  1 input / 6 outputs
- 1 BCF 2000 - *MIDI Mixer* (Behringer)
  5 faders used
- 1 Pedal - *Pedal*
  for the trombone player
- 1 Midi interface - *MIDI Interfaces*

Audio Equipment

- 1 Microphone - *Microphone*
  attached to the trombone's bell, to get the breathy sounds
- 1 RE 20 - *Dynamic Microphones* (Electrovoice)
  or equivalent.
- 6 Loudspeaker - *Loudspeakers*
- 1 Stage monitor - *Stage Monitors*
- 1 subwoofer - *Subwoofers*
- 1 Mixing Console - *Mixing Console*
  8 inputs / 8 outputs
- 1 Mixing Console - *Mixing Console*
- 1 compressor/limiter - *Dynamic Processors*

Files

File	Type	Author(s)	Comment
AnimusI.dmg	Patch		max patch
animusI_1.pdf	Score	Luca Francesconi	scan of the original manuscript with mixing instructions

Instructions

Table of contents

• Introduction

• Loudspeaker setup

• Audio setup

• Main computer : software installation

• On-stage computer setup

• Midi and network setup

• Main Patch

• System calibration and audio tests

• Audio Input tests

• Direct-to-disk tests

• MIDI tests

• Simulation patch (optional)

• Initialization routine, check-list

• Performance notes

• documentation annexe

Introduction

"AnimusI", is a piece written by Luca Francesconi for 1 trombone and electronics.

The electronics consists in soundfiles and real-time treatments that are triggered by the musician with a midi pedal.

The trombone sound is processed in real-time by the computer, running Max software in which all electroacoustic events are programmed.

The trombonist triggers these events with a midi foot pedal connected to the computer.

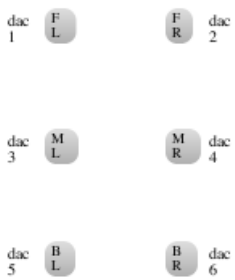
(S)he controls the current event number on the screen of the on-stage computer.

There are 49 events. There is a manuscript score on which events to be triggered are placed on the exact beat.

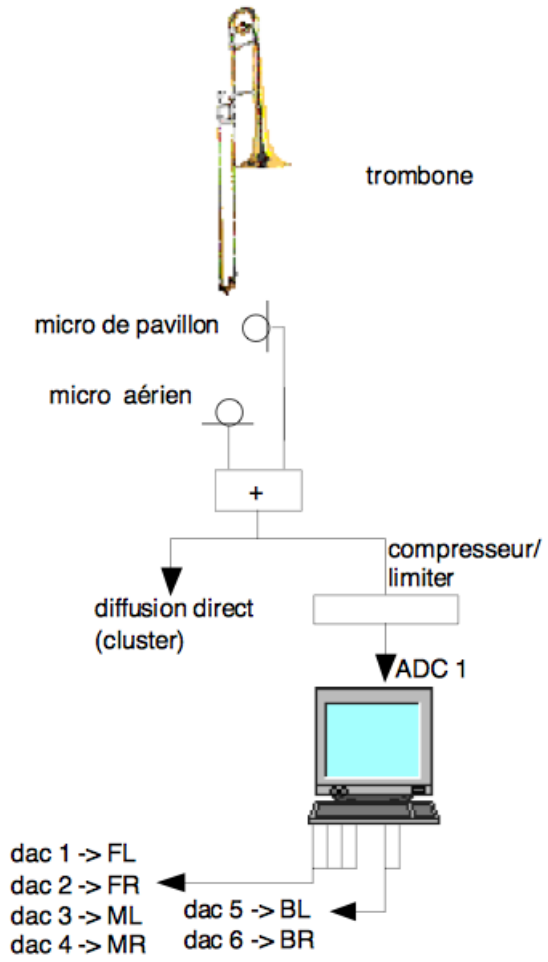
The DSP computer spatializes the processed trombone sound and the sound-files to 6 loudspeakers around the audience.

Loudspeaker setup

6 loudspeakers surrounding the audience :



Audio setup



The aerian microphone is used for the main trombone sound. The clip-on mic is used to add some proximity, specially during the introduction where the trombonist produces breathy sounds.

The sound engineer should find a good balance between the two microphones, mixed into the same adc of the main Macintosh, after using a serious compression and (if necessary) a little bit of reverberation.

This mix can be used for trombone amplification.

The audio from the Macintosh is sent to the 6 loudspeakers, and the trombone sound can be amplified using the central cluster. A good balance between the instrumental and the electronic sounds should be found.Installation:

Main computer : software installation

- Copy everything from the disk image into a folder 'ANIMUSI' on your hard disk.
- Launch MAX8.
- Set the File preferences to :
    - `/AnimusI/animus-main/`
- Choose your DSP Status and check :
    - `` `Sampling Rate - 48000 * ``
    - `I/O Vector Size - 256 *`
    - `Signal Vector Size - 256 *`
    - `Max Scheduler in Overdrive - On *`
    - `Scheduler in Audio Interrupt - Off` *`
    - `Close and Reopen Max ( to save Max settings) *`
    - `Open AnimusI-2020.maxpat ( from /AnimusI/animus-main/)`

The patch is composed of (see figure below 'AnimusI-main'):

- 0- initialisation message
- 1- speaker calibration and audio test patchs (see below)
- 2- event trigerring reception indicator
- 4- next event to be trigerred
- 5- simulation window
- 6- harmonizers / adc / fft windows
- 7- speakers metering
- 8- effects metering
- 9- patches
- 10- current event display

On-stage computer setup

For the on-stage computer, just open max and the patch called animus-laptop.maxpat.

If the network connexion is active, the current section and event numbers sent from the main computer will be displayed instantaneously.

Midi and network setup

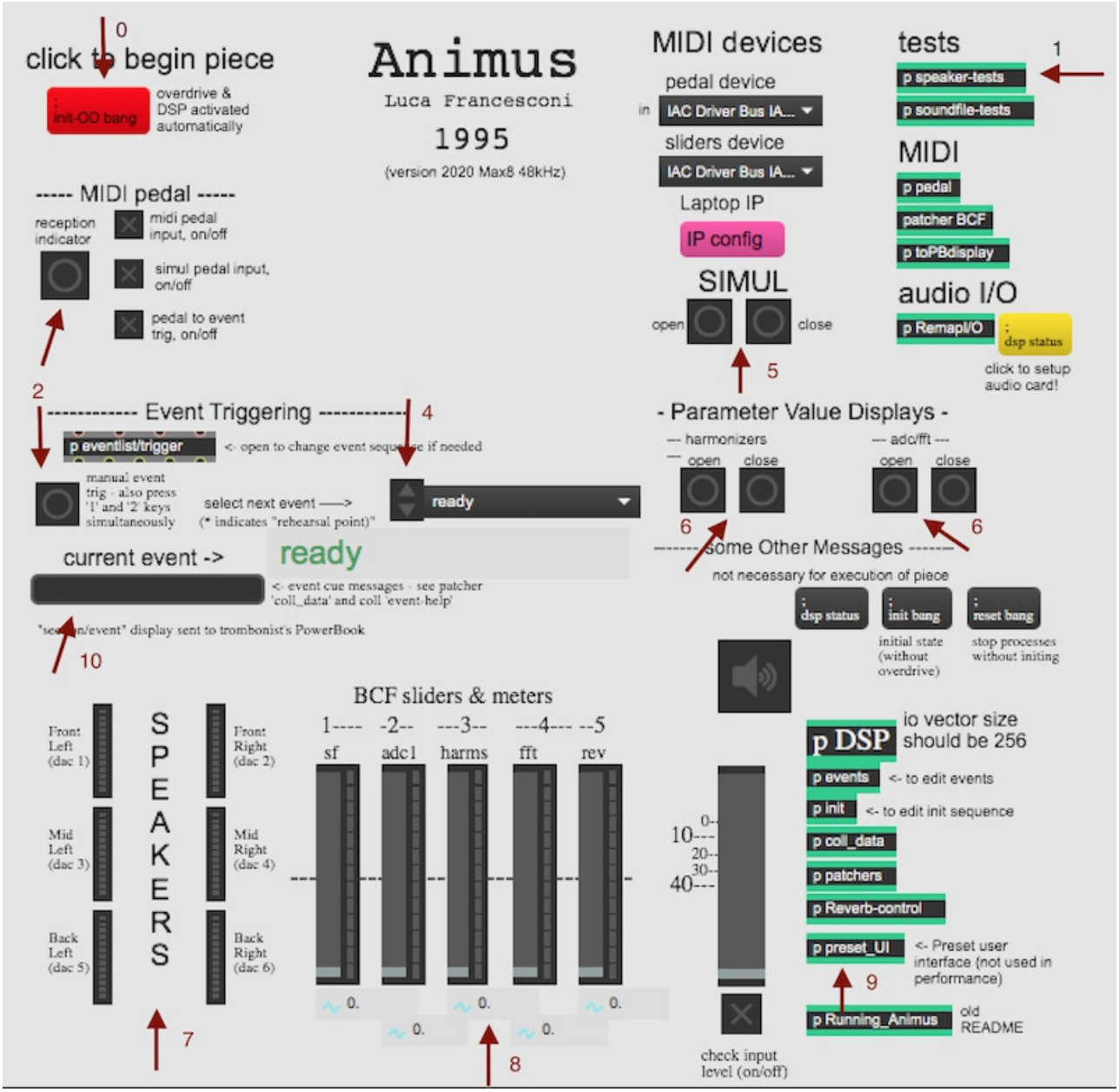
Select the pedal midi port in the “pedal device” menu. The pedal should be on Midi controller number 64 (it can be changed in the “e0-init” initialisation file)

Select the midi mixer port in the “sliders device” menu. The midi mixing is really crucial in this piece: you can see a simulation of a concert mix by the composer in the simulation patch.

Set the IP address of the on-stage laptop by clicking on “IP config”

(NB : these settings are saved with the patch)

Main Patch



System calibration and audio tests

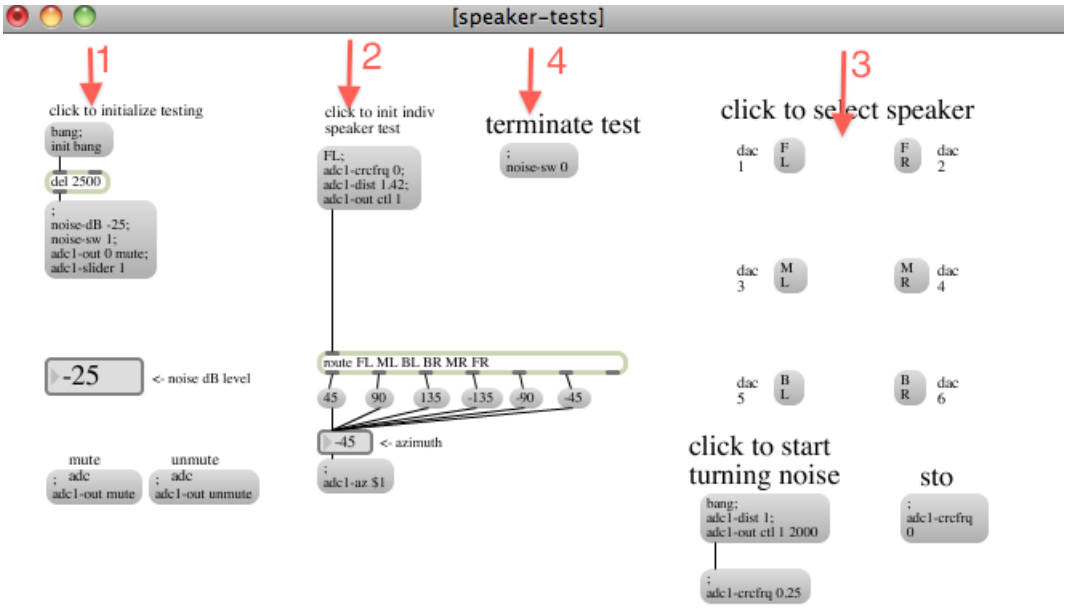
open the “speaker-tests” sub-patch

• 1- Click on the INIT button, wait 3 seconds.

• 2- “click to init individual speaker test”. -25db-White noise should come out from Dac1 (Front Left loudspeaker)

• 3- Check each loudspeaker, individually. “click to start turning noise” will start a rotation to check the balance between the speakers.

• 4- To end the calibration, click under “terminate test” and close the window.



Audio Input tests

Check the “check input level” toggle.

Ask the trombonist to play and mix the two microphone.

Send the signal to the macintosh with a strong compression (ratio between 2:1 and 3:1) and check the “input level” vu-meter.

Adjust the compression and the mix in order to have the softer sound at -40dB and the loudest at -10 dB.

Do a test with the whisper from the beginning of the piece and find the proper balance of the mic mix (add more close mike), you will have to manually amplify the sound to -10 dB in order to have the “roaring” effect at the beginning.

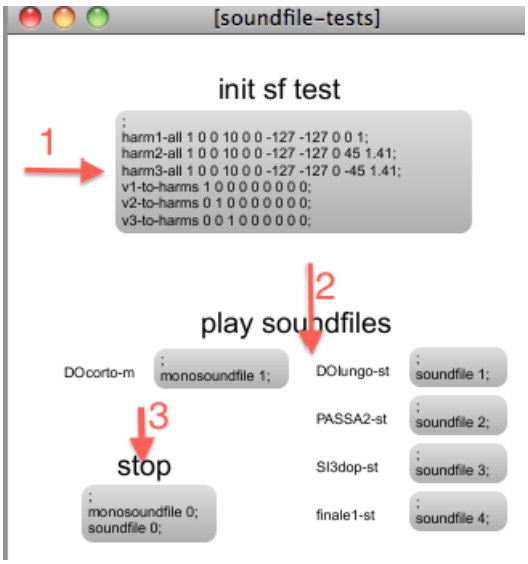
Direct-to-disk Test

• Open the “soundfile-tests” patcher.

• Click on “init sf test”.

• Click on one of the sound-file (1 mono sound and 4 stereo).

• Click under "stop", to stop the playing of a sound file.



MIDI tests

Pedal :

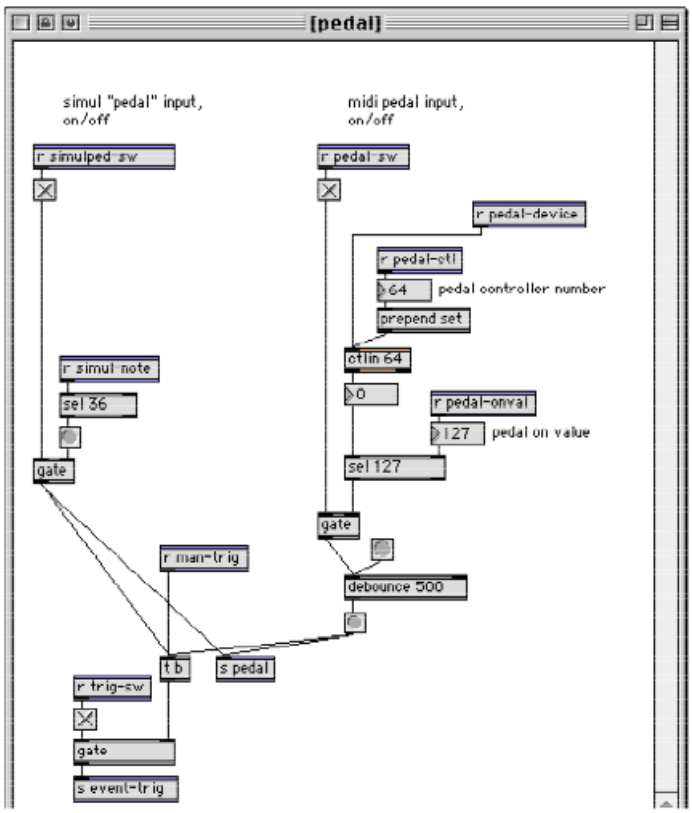
Click on “Init-OD bang” and wait 3 seconds, to initialise everything.

Uncheck “pedal to event trig” under “MIDI pedal”.

Press the pedal and check that reception indicator is blinking. If not, check that the midi interface is receiving the midi signal. The pedal controller number is set to 64 into the “pedal” sub-patch, you can change this value if necessary. You should also check the polarity of the foot-switch; if the pedal pressed gives a 0 instead of a 127, change the “pedal on value” to 0.

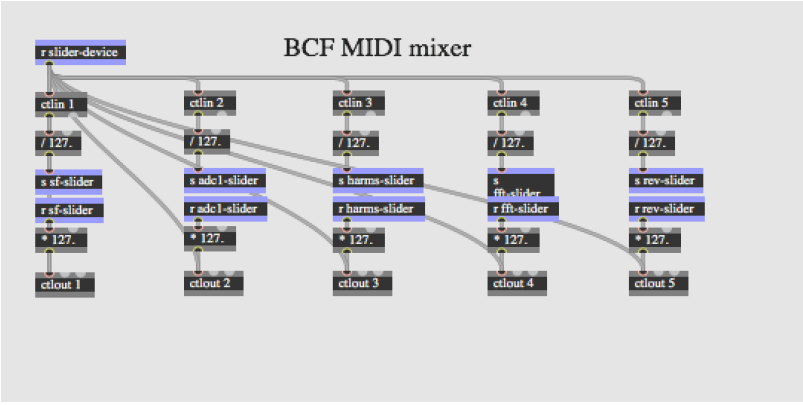
When you press the pedal, it bangs in the MIDI pedals and Event Triggering of the main patch.

NB : the pedal action is protected with a debounce time of 500 ms, to avoid double strokes. Too fast pedal actions will be ignored.



Sliders :

Move the sliders and check that the graphic sliders on the main patch are correctly controlled.



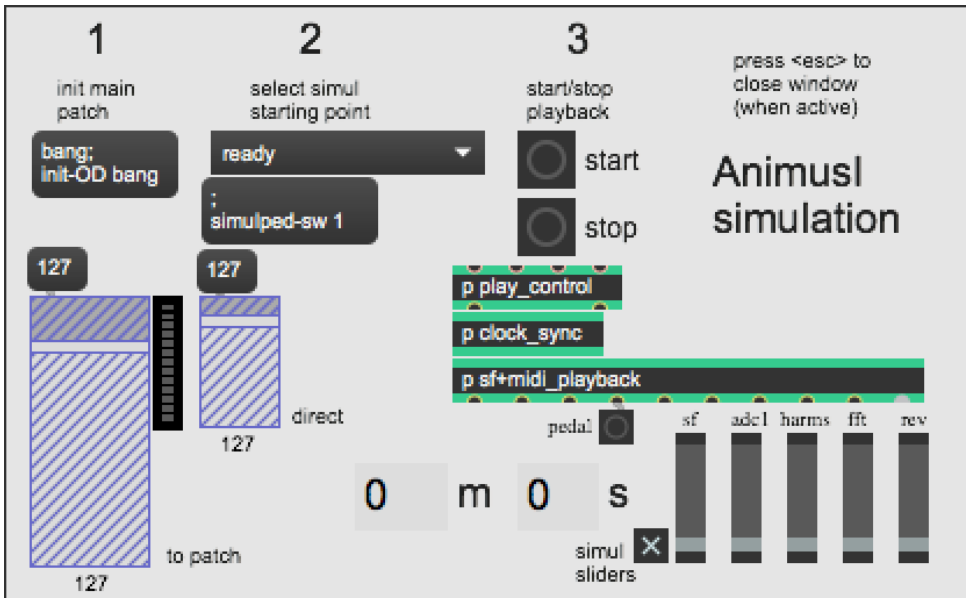
Display:

Recheck “pedal to event trig”, press the pedal to send the first event. “section 1 event 10” should be printed on the trombonist computer screen.

Simulation Patch (optional)

An optional simulation patch contains an audio recording of the trombone and a midi recording of the pedal and midi sliders.

Open the SIMUL patch :



- Click on « 1, init main patch » and wait for 3 seconds
- If you want to start in the middle of the piece, select an event with the « 2, select simul starting point » menu (preferably an event with a “*” that represents possible starting points)
- Click on “start” in the « 3, start/stop playback » section to start the simulation. Time will be displayed in hh:mm:ss, a button shows the pedal actions, the sliders will move automatically in the main patch.
- You can modify the simulation level going to the patch (slider “to patch”) as well as the direct level to dacs (slider “direct”)
- To stop the simulation, press “stop” and “1,init main patch”

Initialization routine, check-list

- Open the main patch in Max on the main computer
- Check that no error appears in the max window
- Start the display patch on the stage computer
- On the main computer click on “init-OD bang” below “click to begin piece” on the top left
- In the max window you should see :

```
*`_init: turn off overdrive_*`

*   `_init: drop sliders to 0_ *`

*   `_init: stop processes_ *`

*   `_reset: bang_ *`

*   `_init: preload soundfiles_ *`

*   `_init: initialize parameters_ *`

*   `_init: set preset menu to 'reset'_ *`

*   `_init: setup trigger pedal_ *`

*   `_init: activate pedal input_ *`

*   `_init: activate Protools simul input_ *`

*   `_init: activate pedal to event trig_ *`

*   `_init: start dsp_ *`

*   `_init: activate adc input vu meter_ *`

*   `_init: set sliders to 0.5_ *`

*   `_init: init event list_ *`

*   `_status: ready for first event_ *`

*   `_init: ----------------- done. -----------------_ *`

*   `_init: overdrive turned back on_`
```

- Check that section 0 event 0 is correctly displayed on the mac 2
- Uncheck « pedal to event trig, on/off »
- Press the pedal and check that « reception indicator » button is blinking
- Check the Midi mixer connexion and put all the faders at mid-course (64)
- Re-init the patch (« click to begin piece »)
- The trombonist can start when (s)he is ready

During the performance:

Follow the score and supervise the cueing of the events :

If the trombonist is supplied with the MacbookPro display showing the event numbers, he should be able to compensate for errors himself. Otherwise, corrections can be made in the following ways:

1. Manual event triggering can be done by pressing the 'manual event trig' bang (Arrow 2 in the Main Patch), or by pressing the '1' and '2' keys simultaneously.

2. If the trombonist advances too far this can be corrected by either turning off the 'pedal to event trig' toggle until after he triggers the next pedal (which will then have no effect), or back up the 'select next event' with the decrement arrow and the next pedal will re-trigger the same event.

3. If the trombonist skips a pedal, catch up with the 'manual event trig' bang, or by pressing the '1' and '2' keys simultaneously.

4. If the pedal triggering does not work, follow the score and trigger the events with the 'manual event trig' bang, or by pressing the '1' and '2' keys simultaneously. You can see that the sound goes through the the different sound effects. (Arrow 8 in the Main Patch)

5. click 'init-OD bang' message box at end to stop and init everything, including the NeXT. (Arrow 0 in the Main Patch)

Performance notes

There is a useful annotated manuscript score ('Animus - a brainstorm') containing indications for the mixing of the piece.

Midi mixer :

Keep a good balance between the DSP groups with the midi-mixer.

The 5 sliders control 5 layers of the electronic part.

1. soundfiles

2. ADC (direct trombone sound)

3. global level of the 9 harmonizers

4. output level of the FFT filter

5. output level of the reverberation

Mixing of electronic treatments:

The sound engineer should follow the levels of trombone direct sound and electronics master, according to the musical indications in the score. The sound engineer mixes the two microphones in one channel that is sent to the laptop for electronic treatments.

By default, he can use the 'attached mic' for amplification and electronic treatments except at the beginning of section1 where the instrumentalist moves towards the overhead microphone in order to raise the level of the input sound that goes to the electronic treatments.

Special events :

• event1-10, this is the beginning;

• event1-130, cut the bell microphone;

• event1-160, open the bell microphone;

• event4-10, this is the end.

---

documentation annexe

Variable names, a patch synoptic and more instructions are available(in french) in the original documentation (cf "doc Battier 2001" version on sidney)

© IRCAM
This documentation is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

Program note

Animus est un mot latin. Il signifie « âme », dans le sens d'esprit, d'humour, de caractère ; mais il symbolise également le souffle vital, la respiration, la pulsation même de la vie. Partout nous assistons à une lutte sans pitié entre l'âme impalpable et cependant si vive et si présente, et la tentative perpétuelle de l'homme de lui donner forme, de la reproduire, de l'enfermer dans une architecture temporelle.

Cet animus, cette essence, de nature à la fois physique et fuyante, constitue la matière des rêves, en même temps que la matière du corps, le souffle : c'est-à-dire ce que nous pouvons nous représenter de plus humain. Chaque fois que nous tentons de « fixer » l'intuition du monde, par le biais d'une œuvre par exemple, nous faisons acte de violence. Mais elle est nécessaire. Chaque fois que nous couchons une note sur le papier, nous nous livrons à une discrétisation obscène de l'expérience : nous commençons à formaliser la trajectoire perceptive.

Il existe néanmoins une frontière, particulièrement mystérieuse et fragile, au-delà de laquelle, subitement, nos signes deviennent parlants ; ils sont en quelque sorte aspirés dans le magma incandescent du monde, et réintègrent le cycle vital. Pas toujours avec succès... Et quoi qu'il en soit, pas de la façon désirée, ni au moment souhaité.

Animus relate donc l'histoire qui se déroule entre un animal (humain) et une pièce de métal. Au début, le rapport entre les deux, purement psysiologique, est fondé sur la plus élémentaire des scansions temporelles : le souffle. Puis, graduellement, la découverte mutuelle conduit à une « invention » de l'écriture, c'est-à-dire une tentative de maîtriser ce qui s'est révélé être un instrument. Cette formalisation progressive devient si étouffante qu'elle finit, à la fin de la pièce, par inhiber la respiration même. L'ordinateur explore ces deux corps, grâce au va-et-vient d'un zoom examinant leur matière organique : la chair, le métal. Puis il les fait exploser dans l'espace. Tente finalement de les recomposer. La discrétisation maximale de l'expérience, qui, à la fin, devient une sorte de machine infernale, voudrait incarner une nouvelle évidence iconique, hypnotique. Mais cela est-il possible ?

Animus a été réalisé à l'Ircam pour Benny Sluchin.

Luca Francesconi

Version documentation creation date: Jan. 30, 2020, 3:28 p.m., update date: May 6, 2021, 3:09 p.m.