

BRAKHAGE SERIES, II

for cello and electronics

Grégoire Lorieux

Program Notes for the Work

Brakhage Series, II for cello & electronics, 2012

This piece is dedicated to Séverine Ballon.

Brakhage Series, II comes along with several pieces exploring a relationship with the experimental cineast Stan Brakhage — its physical approach to the very definition of what cinema is : a play on light. When Brakhage paints, scratches or glues insect wings on the film itself, he is building light with his hands. Another element is the rhythmic play coming from the mechanical devices used in 16mm - slow enough to see each photogram separately, and fast enough to let the short-term memory perceive almost random morphologies.

This piece is an extension of a cello solo in *Passage de la lumière*, for string quartet and electronics. In this previous piece, as in all my recent works, the metaphor of light is the core question. For me, resonance and light are in the same family. Writing music is like putting the bricks of progressive buildings, like resonance islands, that collapse as soon as they have been perceived. In my pieces, this musical elements are not based on any rules of any kind, they come from a quasi-random material (that is taken from the analysis of a digitalized object), in which I work on finding coherence vectors. In music in general, resonances have an existence in space and in time : natural resonance and short-term memory of sound morphologies work together here. When a composer and a musician think about forms and give them breath in their own space, the listener may perceive something like the visual forms of Brakhage.

Grégoire Lorieux

Grégoire Lorieux is a french composer and computer music designer, in charge of teaching at ircam (Paris, France). After musicology and early music, he studies composition with Philippe Leroux and then in Conservatoire Supérieur de Paris, with Marco Stroppa and Gérard Pesson. At ircam, he works on transmission of computer music notions and developps projects for "mixed music". Grégoire Lorieux received the "Young Composer Prize" of Sacem in 2009.

Technical rider

Brakhage Series, II
for cello and electronics
composer : Grégoire Lorieux
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Electronics

PA system

- 4 loudspeakers surrounding the audience (preferred systems : L-Acoustics, d&b), system power must be coherent with venue size
- 1 Low frequency loudspeaker reinforcement is preferred.
- Digital mixing desk (preferably Yamaha DM 1000/DM 2000)
- All necessary connections between the mixing desk and the stage (2 microphone lines minimum + 1 line for the ear-monitor system)

Microphones

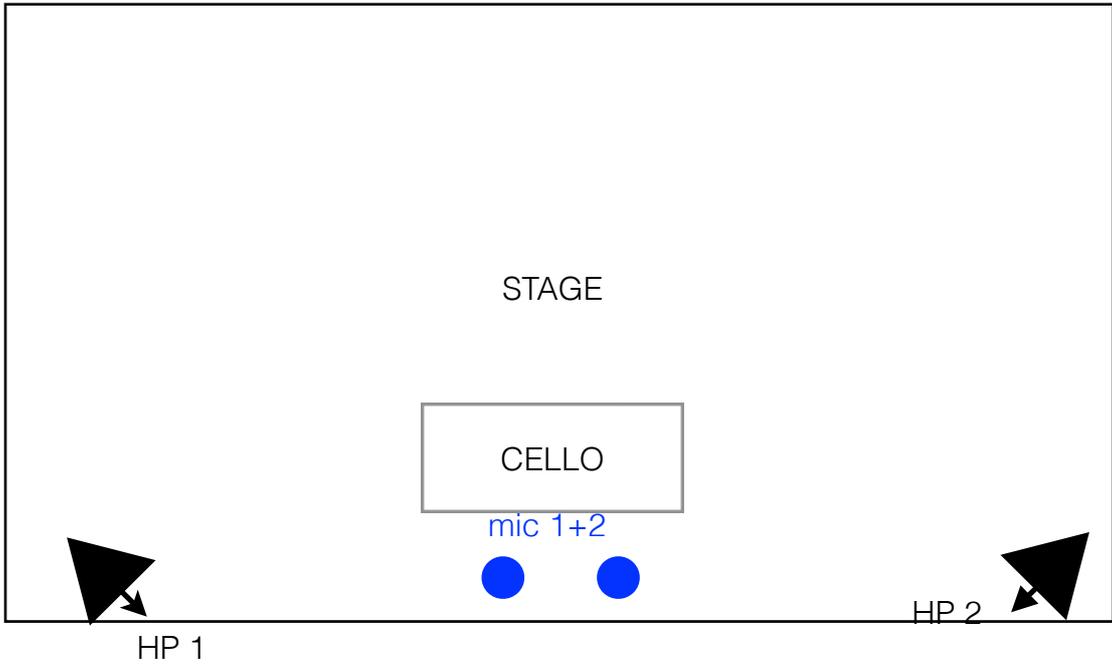
- 1 [DPA 4061](#) with [holder for strings](#)
- 1 quality-microphone for amplification (type KM184 or Rode NT5)

For the instrumentalist

- 1 footswitch pedal (to be connected to the MIDI system)

MIDI and computer system

- 1 computer with all software materials required (see : «Electronics documentation» note)
- 1 sound card (type RME Fireface 400 or equivalent)
- 1 midi interface (type BCF2000) IS required



AUDIENCE



Electronics documentation

Brakhage Series, II
for cello and electronics
composer : Grégoire Lorieux

Hardware/software requirements

- a recent computer with OS 10.7 at least (not tested on Windows), with :
- Max 6 installed, or Max Runtime (version 6.0.5 at least, RunTime is a free software downloadable at www.cycling74.com)
- the materials of the folder "BS2-Electronics"

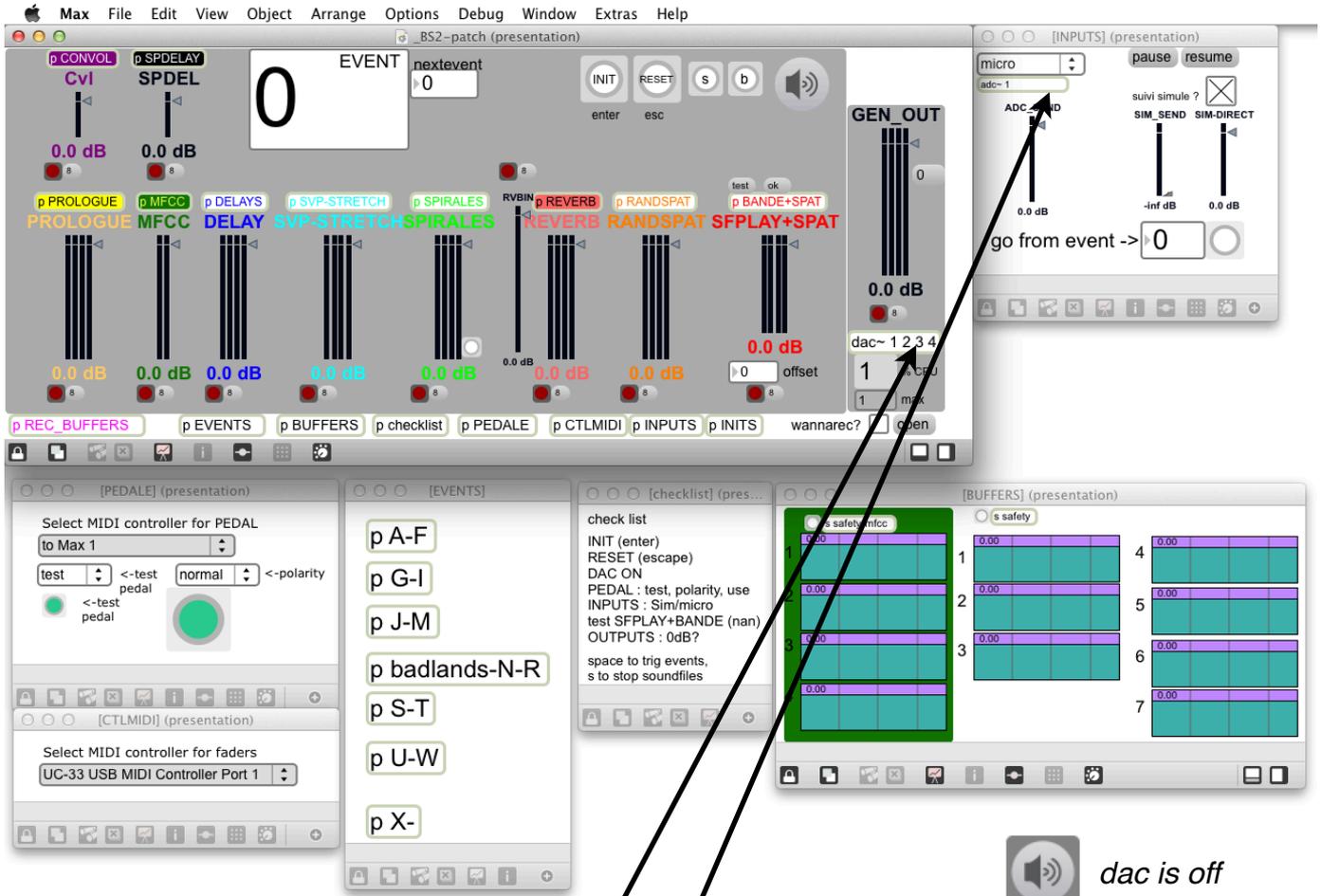
Tested and fully working on a MacBookPro : 2,3 GHz Intel Core i7 + 8 Go RAM, with OS 10.7.3

Opening the Max patch

- open Max or Max Runtime.
- check sound interfaces (do that after having loaded the patch with Max Runtime)
- required Max externals for «Brakhage Series II» are in the same folder as the main patch
- load «_BS2-patch.maxpat»

Max externals (green label) :
Ircam objects :
supervp.play~.mxo (version 2.15.2)
sogs~.mxo
yin~.mxo
irc.fixnan~.mxo
Ircam's Spat, version 4.4.2
spat.oper.mxo
spat.spat~.mxo
ircamverb~.mxo
ircamverb~.control.mxo
zsa descriptors Library
zsa.mel~.mxo
zsa.dist.mxo
zsa.centroid~.mxo
Misc.
multiouts~.mxo
munger~.mxo
fiddle~.mxo
vbap.mxo
sfmarkers~.mxo
goldensection.mxo (Jasch objects)

Presentation of Max Patch and electronics



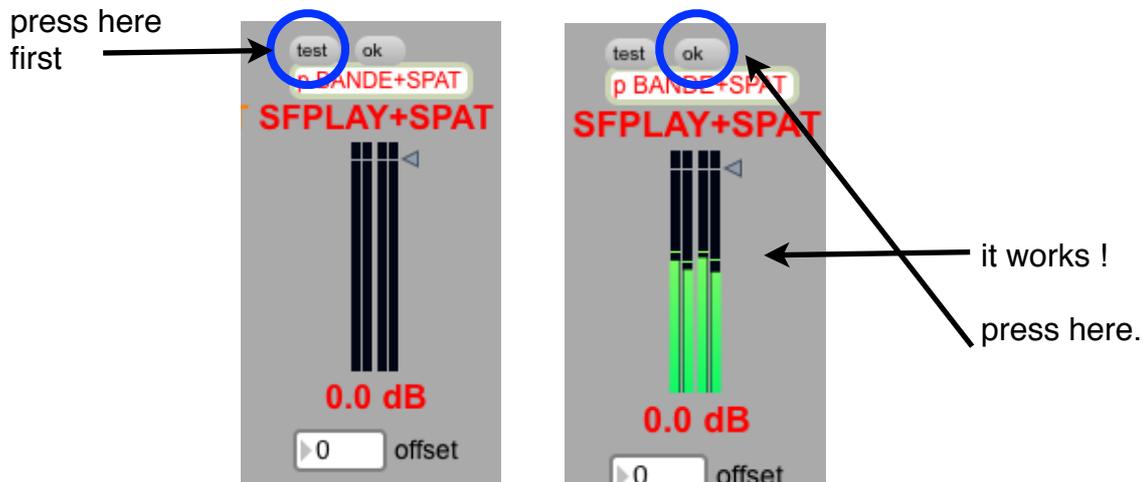
When first opening the patch : follow the check list :

- make sure dac is off
- if Max RunTime : double click on dac~ or adc~ object and check audio Prefs.
- press init (enter)
- press reset (esc)
- put the dac on
- check midi pedal
 - 1. midi pedal device (for example : "BCF 2000")
 - 2. test pedal : little button flashes ?
 - 3. check pedal polarity
 - 4. pedal : use
- set the midi surface controller :
 - 1. midi controller device (for example : "UC-33†")
 - 2. for each controller, use midilearn (see § Mixing) → 
- check the inputs (microphone activated ?)

Shortcuts :
 enter : INIT
 escape : RESET
 s : stop sounds
 b : clear buffers

INIT : sets the midilearn back to the beginning, loads soundfiles, etc.
 So use it once (after launching the patch).

- press «test» in the «SFPLAY+SPAT» part . You should see something coming out from the live.meter~ object :



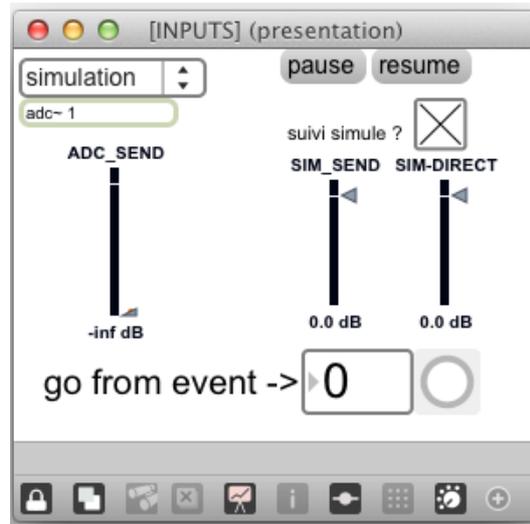
There may be some «nan» issues out from the spat). if something goes wrong (nothing comes out from meter~), follow the check list from the beginning again. If it still doesn't work, close and reopen the patch.

Electronics consist in :

- treatments :
 - CONVOL : convolution with the very model of the piece (Oo.aif)
 - SPDELAY : a nice hand-made spectral delay
 - DELAYS : cool delays with feedback (be precise in launching them)
 - REVERB : wonderful ircamverb
- special treatments :
 - SPIRALES : when an attack is detected, the sound is pfft-frozen and sent in a filter +spatialization process that resembles a spiral
 - RANDSPAT : sound is sent here and spread in loudspeakers according to the centroid of the incoming sound / or randomly. Each output has a different filtering curve.
- pre-recorded spatialized soundfiles: SFPLAY+SPAT
 - 3 stereo sources for the spat : in front of you, behind you, far in front of you. ambient.
- recording cello on-the-fly in buffers and replaying them :
 - with SVP STRETCH : playing them slower
 - with MFCC : synchronizing them with the analysis of the realtime sound, and playing the buffers with 2 kinds of granular synthesis.
- playing pre-recorded buffers according to the analysis of a sound (on-the-fly recorded buffers or real-time sound) like the snare drum in the electronic version of Prologue, by Gérard Grisey (PROLOGUE).

To repeat without instrumentalist.

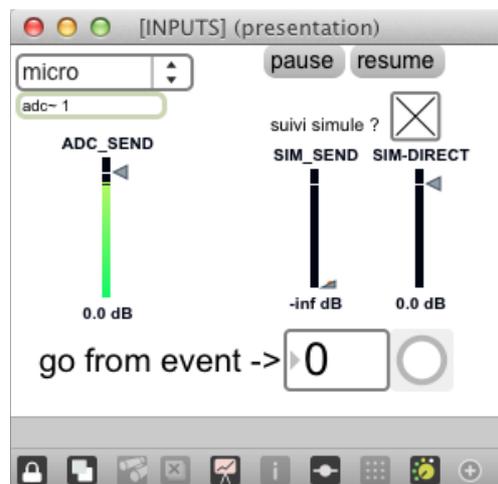
- during the rehearsals without instrumentalist, you are going to play a simulation soundfile (rehearsal recording of the cello without electronics)
- choose «simulation» in the menu in the INPUTS window (see below)
- check box «suivi simule ?» to trig events automatically during the play of the simulation.
- press reset to reset all and stop it, or «pause» / «resume»
- to go from a certain point of the simulation : press reset, enter an event number in the «go from event» number box and press the button besides it.



If you have to stop, use **RESET** (escape key) to stop processes and «s» to stop sounds. (use «b» to clear buffers, if they are not well recorded, or if you go back to the beginning of the piece)

To repeat with the instrumentalist

- inputs come into adc 1 and go into treatments or generative processes.
- choose «micro» in the menu in the INPUTS window (see below)



- press space bar yourself to trig events or let the instrumentalist press the midi pedal.

During the performance

Events :

- The instrumentalist has to press midi footswitch pedal to trig events on moments indicated on the score by circled numbers.

An event can be : launching a process, starting or stopping a soundfile...

- The electronic assistant (e.g. the composer in most of the cases) has to make sure the events are triggered by the instrumentalist. If he/she doesn't want to or miss some, the electronic assistant or someone else presses space bar instead.

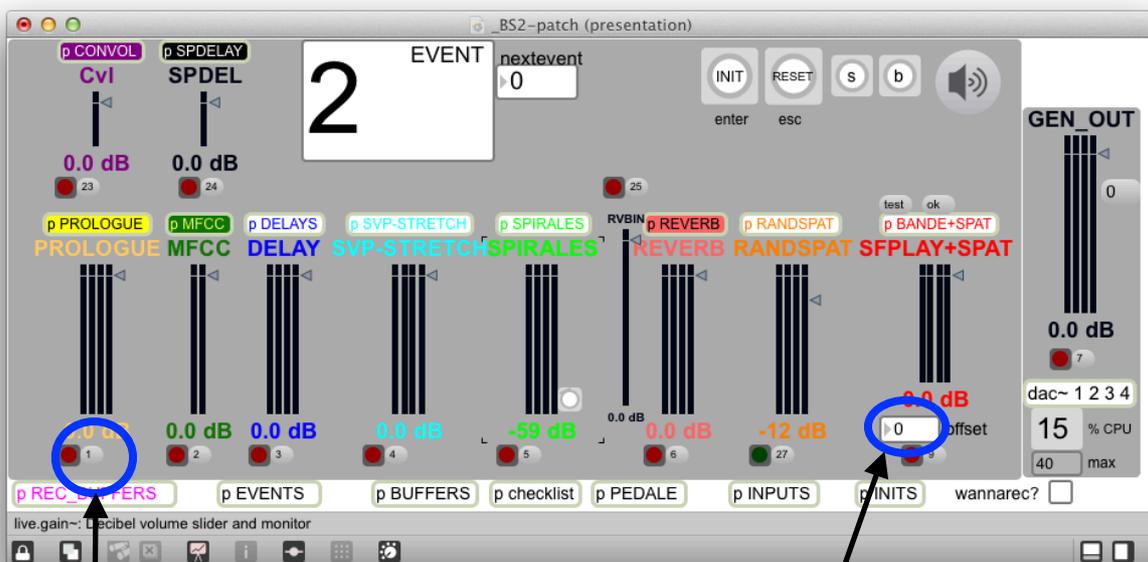
- the next event number box can be used to go back in events. Be careful !

- keep an eye to the CPU peaks too :



Mixing :

The electronic assistant has to mix the different treatments/generation/soundfiles according to the musical context.



This little boxes are here to change the controller number that controls the level of the fader (midi learn). Here are the instructions :

- check the midi connection
- click on a red led : it blinks in red
- move a physical slider
- click again on the led to record : it stops blinking, it's green.

NB1 : the patch has a preset : see the numbers when launching the patch (like controller 7 for general output)

NB2 : Prefer controlling reverb input rather than output.

NB3 : there is an offset level (in db) for the splays. Set it according to the venue size.