

Florence Baschet  
*BogenLied*  
2005  
JIM\_2010  
2010



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

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## Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Work related information</b>	<b>3</b>
Performance details	3
Detailed staff	3
Realisation	3
Event	3
Useful links on Brahms	3
<b>Version related information</b>	<b>4</b>
Documentalist	4
Realisation	4
Comment	4
Other version(s)	4
Electronic equipment list	5
Computer Music Equipment	5
Audio Equipment	5
Musical Instruments	5
Files	6
<b>Instructions</b>	<b>7</b>
Audio setup	7
Audio and sensor connexions	7
Loudspeaker setup	7
Sensor setup	8
Software installation	9
System calibration and tests	9
Initialization routine	9
on the Audio Mac :	9
on the Motion Capture Macintosh :	9
Audio Patch presentation	9
Gesture Recognition Patch presentation	10
Performance notes	11
<b>Program note</b>	<b>12</b>

## Work related information

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### Performance details

- Nov. 26, 2005, France, Dijon, Parvis Saint Jean

Publisher : Jobert

### Detailed staff

- soloist: violin [augmenté]

### Realisation

- Serge Lemouton

### Event

- JIM 2010 - Wed 19 May 2010 - Université de Rennes 2 - journées d'informatique musicale

### Useful links on Brahms

- [BogenLied for augmented violin and electronics \(2005\), 8mn](#)
- [Florence Baschet](#)

## Version related information

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Performance date: May 19, 2010

Documentation date: May 19, 2010

Version state: valid, validation date : May 3, 2018, update : May 6, 2021, 3:10 p.m.

### Documentalist

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### Realisation

- Serge Lemouton (Computer Music Designer)

Version length: 11 mn 40 s

Default work length: 8 mn

### Comment

Version for 2 Macintosh (PPC for gesture recognition and Intel for sound processing)

Solo violin : Patrick Schleuter

### Other version(s)

- [Florence Baschet - BogenLied - 2019\\_CNSMDP \(Feb. 13, 2019\)](#)
- [Florence Baschet - BogenLied - 2014\\_sans\\_capteur \(May 29, 2014\)](#)
- [Florence Baschet - BogenLied - radio-france version \(Jan. 6, 2006\)](#)

## Electronic equipment list

### Computer Music Equipment

- 1 PowerBook G4 - *Apple Laptops* (Apple)  
G5 2\*2,5 Ghz for gesture recognition, called "Motion Capture Mac"
- 1 MacBook Pro - *Apple Laptops* (Apple)  
for sound processing, called "Audio Mac"
- 1 Max/MSP - *Max* (Cycling74)  
version 4.5.7
- 1 Max 5 - *Max* (Cycling74)
- 2 Hammerfall Multiface - *Sound Board* (RME)
- 1 BCF 2000 - *MIDI Mixer* (Behringer)
- 1 WiseBox - *MIDI Converter* (Ircam)

### Audio Equipment

- 1 DPA 4021 - *Condenser Microphones* (DPA)  
on the violin, for sound processing

### Musical Instruments

- 1 Ircam extended bow - *Motion Capture* (Ircam)

**Files**

<b>File</b>	<b>Type</b>	<b>Author(s)</b>	<b>Comment</b>
<a href="#">solo violin recordings</a>	Simulation files	Anne Mercier	Solo violin played by Anne Mercier, recorded during the premiere in Dijon.
<a href="#">MaxMsp patches and libraries</a>	Patch	Frederic Dufeu	

# Instructions

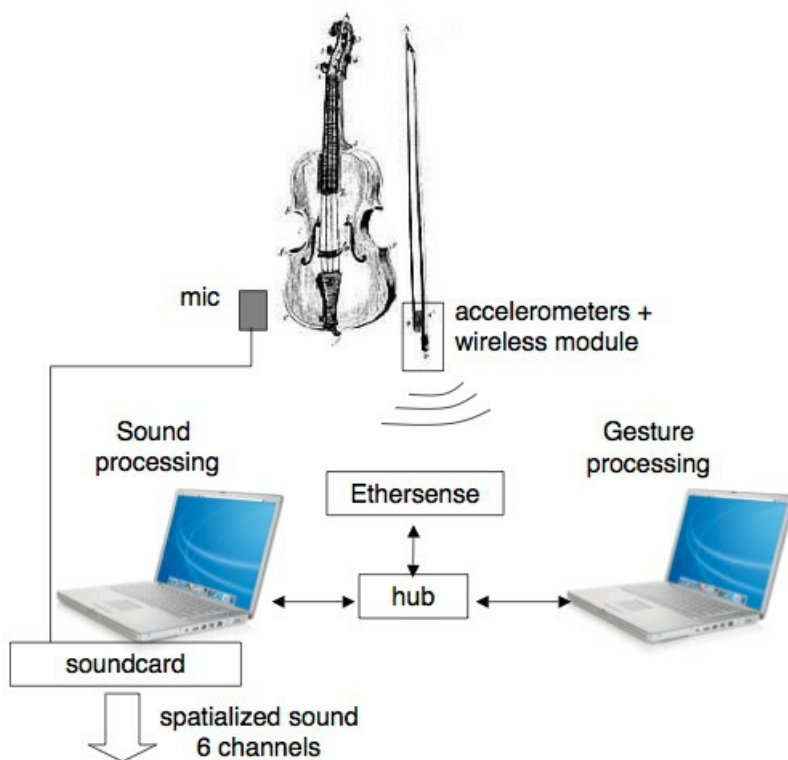
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## Audio setup

Two microphones are required :

- one for sound processing on the violin body (called "Violin Mike")
- the other one, on stand, for simple sound amplification

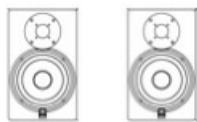
## Audio and sensor connexions



## Loudspeaker setup



HP1



Stereo Amplification



HP2



HP6

### Audience



HP3

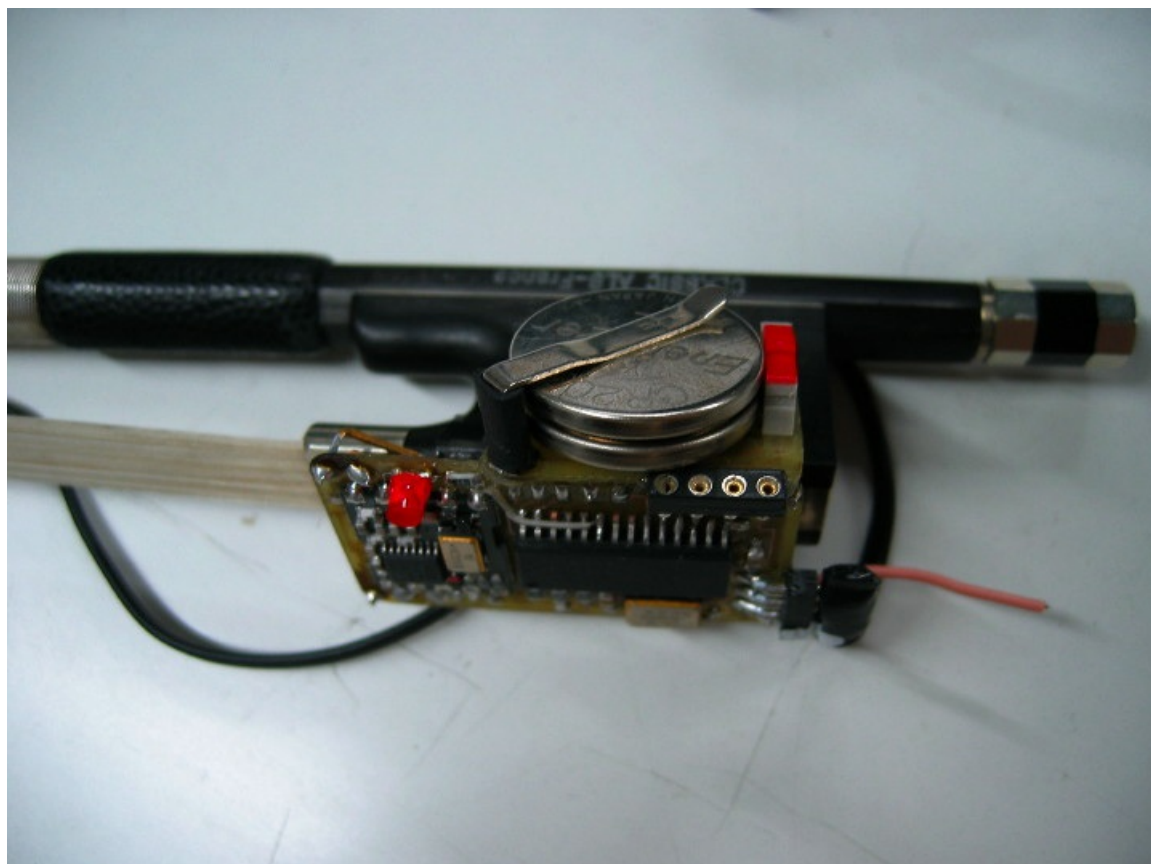


HP5



HP4

### Sensor setup





## Software installation

MaxMSP 4.5.7 on a PowerBook G5 2\*2,5 under mac os X 10.4.7.

MaxMSP 5.1 on a MAcBookPro under mac os X 10.6.

## System calibration and tests

Check the udp communication between the computers.

Check and adjust the bow sensors.

If necessary, the gesture recognition system can be calibrated according to the playing style of the performer. It involves training the knn algorithm written in FTM (in the bogenLied-Recogn28).

## Initialization routine

### on the Audio Mac :

Set the File Preferences to the folders lib/ and snd/.

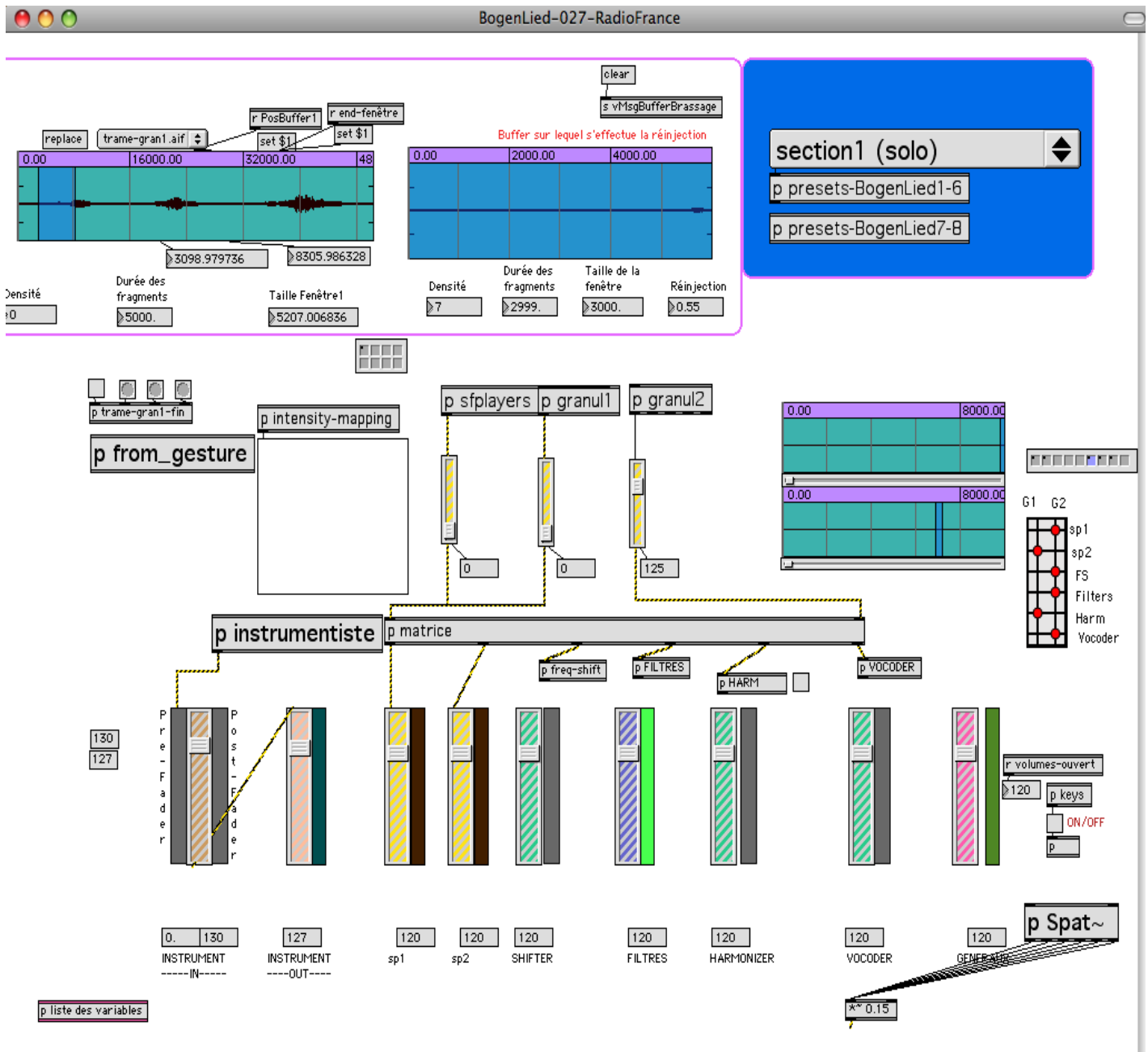
Open BogenLied-027-RadioFrance on the Audio Mac.

### on the Motion Capture Macintosh :

FTM 1.7.7 is required (cf <http://ftm.ircam.fr/index.php/Download>)

Open the bogenLied-Recogn28 patch.

## Audio Patch presentation



The Max/MSP sound patch contains two granular synthesis modules and several effects. The first granulator is used to produce drones (pedal-notes) triggered by the bow strokes.

A separate drone is linked to each bowing styles: G, A, and E for détaché, martelé and spiccato, respectively.

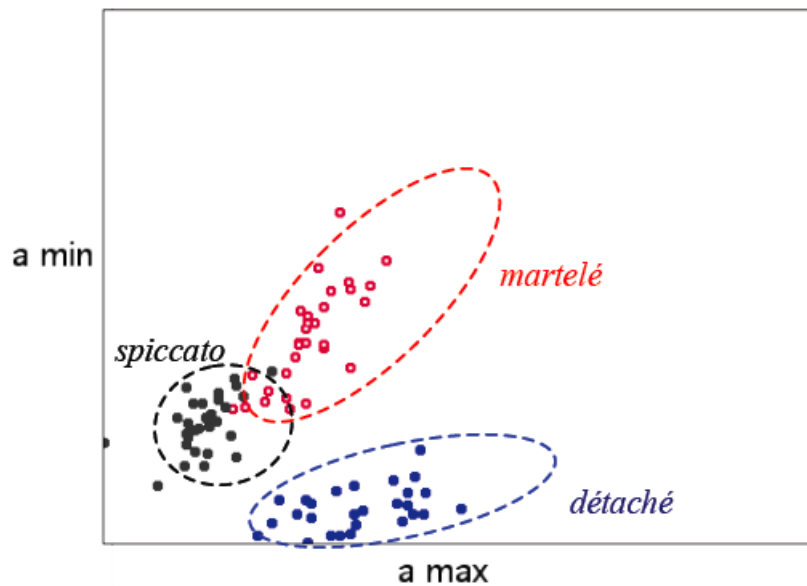
The second granulator is used for real-time processing of the violin sound. The audio signal from the microphone is stored in a 5 second circular buffer~, and 100 to 200 ms grains are played back from this buffer.

The granular synthesis sound is processed through several standard effects: frequency-shifter, harmonizer, filter and vocoder. Different combinations and parameterizations of these effects are used in each section.

Some parameters are controlled in realtime by the gesture data.

### Gesture Recognition Patch presentation

The *bogenLied-Recogn28* is performing a bowing style classification in order to recognize detaché/martelatto and staccato bowstrokes along with a measurement of the gesture energy.



## Performance notes

On the Sound Processing Mac (patch *BogenLied-027-RadioFrance*), you can select the current section with the menu or using the left and right arrow keys on the computer keyboard.


The musical form of *BogenLied* is a simple linear form divided into nine sections, alternatively with and without electronics.

In section II, IV and VI, the musical writing is focused on specific articulations of bow strokes: *détaché*, *martelé*, *spiccato*.

Each of these sections is associated to specific compositional materials, as well as to specific electronic sound processes.

In section VIII, the three bowing styles appear successively, along with their associated compositional material. In this section, the choice of the electronic processes is driven by the recognition system.

In the last section (IX), the performer plays hybrid bow strokes, which sequence appears as a series of “mutations” from one articulation to another one. The electronic sound is then built as a combination of the electronic processes performed in section II, IV and VI

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## Program note

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*BogenLied* (2005) est une pièce pour « violon augmenté » et électroacoustique en temps réel. Ce violon au nom particulier fait l'objet d'un développement de recherche à l'Ircam. Prototype unique, le violon augmenté contient une puce électronique pesant seulement quelques grammes et placée sur la hausse de l'archet du violoniste. Cette puce est capable de capter en temps réel au moment du concert, les phrasés gestuels que le soliste exécute avec son archet sur les cordes, et de transmettre ces informations à l'ordinateur placé au centre du dispositif électroacoustique.

Pourquoi le phrasé gestuel de l'instrumentiste est-il à ce point intéressant ? je répondrai qu'il est l'outil qui élabore le son, celui qui façonne le timbre de l'objet sonore par de multiples qualités de célérité, d'énergie ou de position de l'archet sur la corde. Ce qui m'intéresse donc en tant que compositeur, c'est de placer mon écoute dans ce lieu réservé de l'instrumentiste, de capter ses phrasés gestuels et de créer à partir de ces données, un système interactif d'un genre tout à fait nouveau entre l'ordinateur et le musicien. Car ici, l'espace sonore électroacoustique est entièrement piloté par le coup d'archet du violoniste.

*BogenLied* est la première pièce écrite pour violon augmenté, commande de l'Association Cumulus, créée en concert en co-réalisation avec l'Ircam par Anne Mercier, violon soliste de l'ensemble L'Itinéraire. Réalisation informatique musicale Ircam : Serge Lemouton. Technologie violon augmenté Ircam : Nicolas Rasamimanana, Frédéric Bevilacqua, Emmanuel Fléty.

Florence Baschet.

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