

**A PORTFOLIO OF ELECTROACOUSTIC COMPOSITIONS**

**BY**

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## **ABSTRACT**

This Portfolio is formed of 9 compositions that have been selected in order to reflect the variety of the music I write. It is a journey through my personal approach to sound and writing music using one voice but several compositional techniques. It includes one stereo and four 8-channel acousmatic compositions; they constitute the core of my thesis. Two works are written for both live instruments and electroacoustic medium, focussing on the performance aspect. One stereo acousmatic piece has been written for a choreographer; it is the fruit of a very productive collaboration. The final piece of this portfolio has been commissioned by the Barber Institute of Fine Art; it is an 8-channel acousmatic composition based on a Magritte's painting, to be played in an installation context with the painting.

*Dedicated to Professor Jonty Harrison*

## **ACKNOWLEDGEMENTS**

I would like to thank my supervisor Prof. Jonty Harrison for his support and guidance. Also I would like to thank the whole electroacoustic composers community of University of Birmingham for their help, advises and mainly for their friendship.

I would also like to thank my parents, my sister and my boyfriend whom support have been essential for me to develop my projects.

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Score 1 : 2°

Score 2 : Back to Front

DVD of Works (Audio and Video)

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## **INTRODUCTION ON COMPOSITION**

### **The Art of Organising Sounds in Time and Space.**

This Commentary is a guide to understanding the vision and approach I have to sound, musical composition and the business of being a composer today, as well as explaining the techniques and creative processes I used to create this portfolio of electroacoustic music composition.

‘Creativity is part of what makes us human’.<sup>1</sup>

From a very early age I had a strong desire to create. I first experimented with sounds on tape at the age of 11 when playing with a simple tape recorder. I was recording my voice, experimenting with the hardware. I discovered that if I slightly pressed the pause button when recording it slowed down the tape and when I played the recording back the sound of my voice was modified. This first discovery excited me and I continued to experiment with that device, trying to create new exciting sounds. I would not say that those tapes were my first compositions; I did not regard them as such when I made them. But looking back at them today, I think I can say that they are, in a way, my first sonic creations.

It was when I completed my Masters degree (M Phil) in electroacoustic

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<sup>1</sup> Keith Sawyer, 2006.



music composition in 2007 that I realised that I wanted to be a composer and that I had the capacity to be one. Making this PhD portfolio finally enabled me to be a composer. Even if I knew what I wanted to do and how I wanted to make it, it has been a fantastic journey, full of experiments and discoveries. I had the time to research and learn new techniques, exploring aesthetics that were gravitating around my own concept of composition; and now that I look back on all these years, I can say I have found my path as a composer.

First I will describe what the creative process is for me – making the music. Then I will discuss the experiences I gained during collaborating, improvising and performing. Finally I will speak about the process of presenting this music to the public, often as a performer. These chapters will be followed by short comments on the individual pieces in my portfolio. There is also an appendix that groups together a few other works that I think are relevant in understanding this journey.

The title of this chapter is inspired by a relatively modern definition of what music composition is even though it applies to any kind of conscious composing act mankind has ever done. In the middle of the 20<sup>th</sup> century Edgar Varèse, Iannis Xenakis<sup>2</sup> and Trevor Wishart<sup>3</sup> among others developed

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<sup>2</sup> Makis Solomos, Xenakis-Varèse et la question de filiation, in Edgar Varèse : du son organisé aux arts radio.

<sup>3</sup> Trevor Wishart, *On Sonic Art*.

the idea that composing is the art of organising sounds in time. Even if those composers did not share the exact same philosophy and aesthetics, it is significant that from the second half of the last century, sound becomes a new idiom, and it becomes evident for composers that they need new ways to apprehend sound.

Sound only exists in time and space; therefore it is more than natural that those two fields are the foundation of music. Since antiquity, music has been considered the art of time. Indeed, before the invention of recording, music was a form of art that could only exist in a defined period of time. Moreover, sound is the shaking of an environment and it is this environment that makes it evolve in a certain time and in a certain space.

In this chapter I will speak about my concrete and abstract notions of sound, space and time in the composition of music, as well as the notions of improvisation and collaboration as they constitute the palette of the different compositional approaches that interest me in my approach to composition.

In this context, it seems natural that genres like *musique concrète* and acousmatic music are a major current in contemporary composition. In these genres, the composer works and shapes the material itself. He or she listens

directly to the sound and modifies it until he obtains the desired result. He creates an intimate relationship with concrete sounds or sound objects like the sculptor does with stone or any other kind of material.

Working with the material, the sound itself, has completely transformed my approach to composition. Although I had a developed sense of writing the music I have in my head on paper (when composing for instruments) from an early age, I now always work with sound as a primary material. So it is natural that I mainly compose acousmatic music, exploring sounds, manipulating them, developing this intimate relationship with them and creating new ones. But the instrumental world and live performance on stage still have an important place in my creative desires and I still produce a significant amount of *musique mixte* (using two media, such as live instrument and tape, for example) or live electroacoustic music. Composing acousmatic music transformed the way I now compose “live” music. Indeed, if I have to produce a score, this job is done after that primary work of concrete sonic research (I will explain in detail this kind of approach in my commentary on 2°).

Classifying sound objects has always enabled me to understand them better and it is a process I always go through in order to help me to organise material in space and time. I base this classification on the

research of Schaeffer and Chion, using a diagram based upon and reflecting the ideas of both men.<sup>4</sup> It has to be said that this diagram is not my product but an amalgam of their ideas and I deserve no credit for it beyond the fact that I translated their terminology into English myself (cf. figure 1 on page 11).

Music is the art of time, and time is one of the most important notions for any musician playing any kind of music. But it is probably one of the most complex. I worked with time throughout my PhD; here I will mainly speak about time as a structural element of a sound object and a piece.

Time is one of the main characteristics that enable me to classify a sound object.

When composing a piece, time can be one of the constraints. For example when I composed *Le Goût des Larmes*, the time frame for the piece – between 5 and 6 minutes – was imposed on me. I had to find a way to develop my material within that time frame. Creating a structure at the very beginning of the compositional process was then a necessity. However, the structure, in imposing such a time frame, also guides me through (I will be explaining this process in my commentary on *Le Goût des Larmes*).

When I do not have a time constraint of this kind, it is the

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<sup>4</sup> Schaeffer 1966 & Chion 1983.

fundamental found sound object (the one that prompts me to compose a piece) that gives me an idea of the time frame, and thus the structure of the piece (as explained in the commentary of *Ailleurs*).

In whatever regard, I can say that it is the nature of a found sound object that will determinate the length or/and the structure of a piece or a part thereof, whether fixed or live.

The architecture of buildings such as theatres, temples or churches (places that are often performance spaces) have often been built following acoustic criteria and space has always played an important role in theatrical and musical art since at least antiquity. In music, however, space has very rarely been regarded as a central structural pillar, unlike time.

There are at least four types of spaces with which acousmatic composers work. The following ideas are inspired by Annette Vande Gorne's research into space and my own reflections on the topic.<sup>5</sup> The first spatial element is the one that has been captured when recording sounds. The second "illusion space" is the one created by the composer in a studio, the depth of field. Then we have the sound system space, which is the composed space, reproduced or sublimated during a concert on an acousmonium or a sound system. Finally we have the architectural space,

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<sup>5</sup> Vande Gorne, 2002.

the one of the concert hall itself.

It is during the compositional process in a studio environment that I have really started to explore the spatial element of music. During my Masters I familiarised myself with space within the stereophonic array and I experimented with the 5.1 surround format, but I now engage primarily with the octophonic format (8-channel).

Of course the spatial element of a sound is already in the recorded sound. Therefore it is essential to master different recording techniques in order to capture this primary sonic space. For example, binaural recording techniques are generally used to record sounds that are intended to be listened with a pair of headphones. I also found that the spatial characteristics of this kind of material are of such a nature they demand to be used in multichannel composition, such as 8-channel. I am not going to develop that idea here as recording techniques will be developed it further in the commentary for each work.

When experimenting with the spatiality of sounds, I quickly realised that sounds themselves contain clues on how to spatialise them. Indeed, high frequencies are generally quite localised, as they can be associated with smaller sources like birds, and lower frequencies, an explosion or a car for example, occupy a wider space. Certainly some sound objects are quite

pointillistic and very defined, such as the bang of a hammer. Sounds of this type should be quite localised in space. Sounds that are more textural, like the wind or the constant traffic noise of the city, have to be put in a more diffuse space. Therefore, I can found that time and timbre also guide me on how to spatialise sound objects. When speaking about spatialisation, speed (a time parameter) is an important criterion to consider. If a sound moves or evolves, in terms of height, timbre or intensity, more slowly than another one, even if they are of a very similar timbre, height or intensity constitution, it feels natural to make them move or evolve in space following their primary evolution. Another sonic characteristic that helps me to choose an appropriate sonic space is the ‘stability’ characteristic of the sound object. The question of stability of a sound clearly impinges on how it should behave in space. Indeed a stable object tends to evolve spatially in a much slower or nearly non-existent motion, whereas an unstable sound would move in a more excited manner, creating effective gestures. Once again, the Schaefferian classification and typology of sound objects helps me to understand and classify those sounds and identify how they are behaving spatially, and therefore how to compose them in space.<sup>6</sup>

In practice, I use a broad palette of techniques to spatialise different sound objects. Hard panning and spatial randomisation are very effective

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<sup>6</sup> Schaeffer, 1966.

when spatialising pointillistic objects, whereas granulation, spectral separation or ambisonic spatialisation are often more appropriate techniques to place in space sounds that are textural or more dense.

When spatialising sound during composition, I often prefer to use the stereo or 8-channel (French ring<sup>7</sup>) array. Stereophonic compositions still contain an important spatial element. Although the real space is on one plane (situated between the two speakers), we know that it is possible to create depth by using simple processes such as adding reverb or shaping the intensity envelop of a sound (this is what Annette Vande Gorne calls the space illusion). We also know that our brain tends to associate high frequencies with height. Indeed, a high-pitched sound object will be processed by our brain as being located higher in space than a lower pitched object. For example, if I create a drone that is a glissando going from a low to a high pitch, I will perceive that sound as going from a lower location to a higher location in space. I can therefore create the illusion of a three-dimensional space with only a stereo array. In a concert, when performing on a sound system, I can recreate that space and magnify it into a real surround space.

When composing I also think about the aspect of performance. I anticipate the fact that I will perform my music on a sound system. This

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<sup>7</sup> See figure 2.



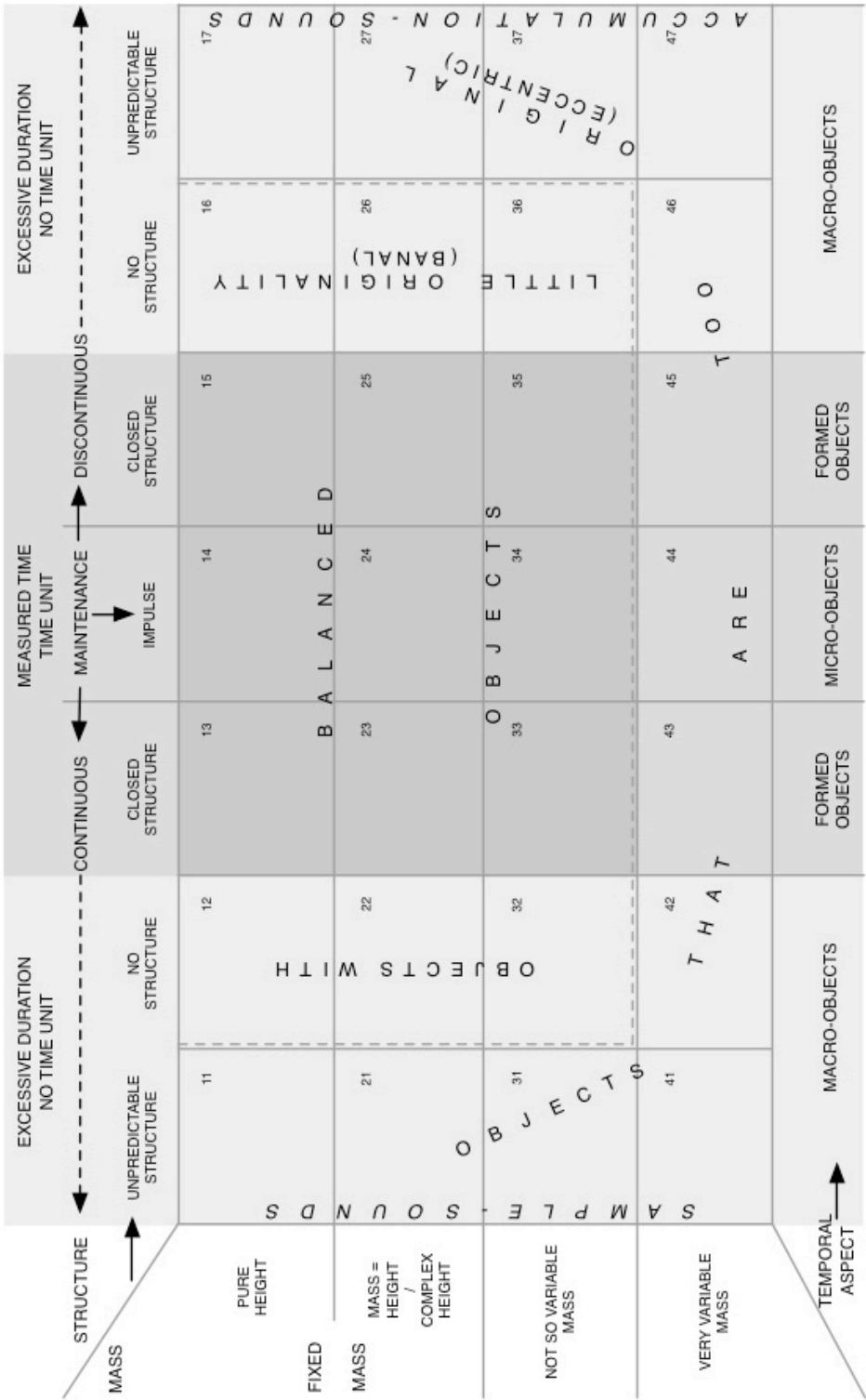
influences greatly the way I compose space. For example, I can decide to add a longer silence so that during a performance I have enough time to change the faders' position to create a dramatic spatial change.

Finally, when composing acousmatic or any electroacoustic music, one needs to consider the fact that it will be performed in a variety of spaces (such as concert halls, theatres, warehouses, etc.). One element to consider is that those spaces are much more reverberant and the acoustic is less controllable than in the studio. It is necessary to be aware of this, among other issues, when judging how much reverberation to add during composition. Space is now considered to be the fifth musical parameter along with pitch, duration, intensity and timbre. Electroacoustic music and particularly acousmatic music, as well as sound systems and acousmonia, form 'par excellence the research laboratory of space' which then becomes one of the most important musical elements in composing and performing.<sup>8</sup>

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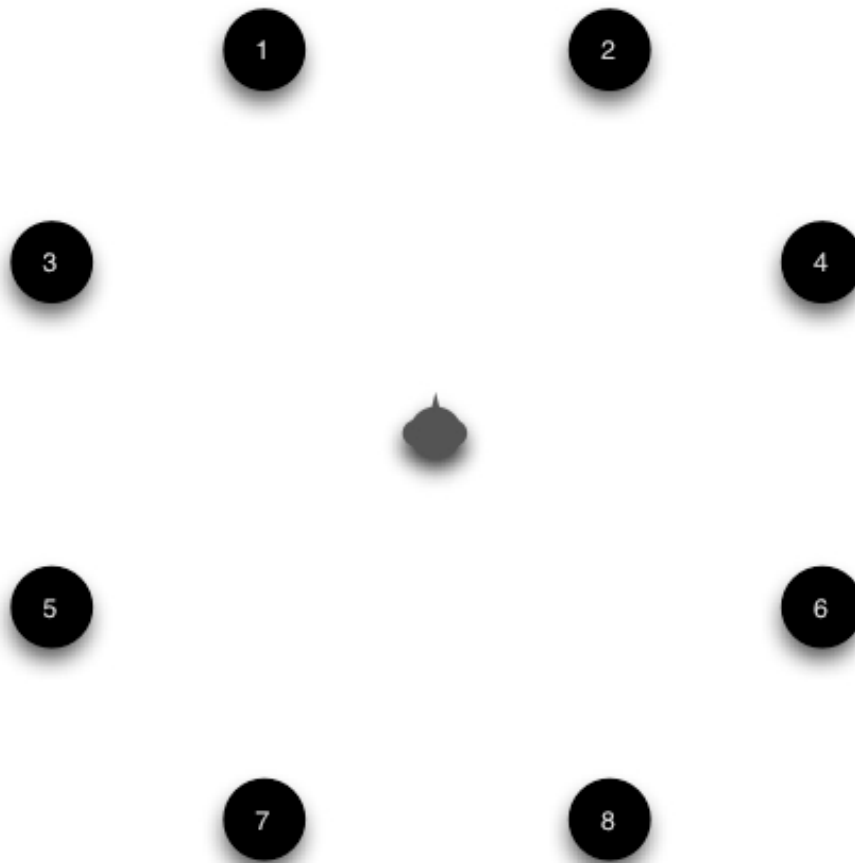
<sup>8</sup> Vande Gorne, 2002.

Figure 1: Diagram of Sound Object Typology.<sup>9</sup>



<sup>9</sup> Based on Schaeffer 1966 & Chion 1983.

**Figure 2:** 8-channel speaker disposition and channel numbering.<sup>10</sup>



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<sup>10</sup> This diagram represents how the speakers should be placed and what channel they should play for any 8 channel pieces included in this portfolio. The auditor is symbolised in the middle of the ring and he is facing toward channel 1 and 2.

‘Creativity has long been thought to be an individual gift, best pursued alone (...) [but] all of us have the potential to be more creative; we just need to learn the secret of group genius’.<sup>11</sup>

We all have to agree that working as a composer often means working alone. I really enjoy those moments when I am in some amazing surroundings; listening to and recording sounds alone or in a studio, in search of the perfect object that will trigger an exciting creative process. In the meantime, I am also always looking to meet other artists and exchange ideas, or even to create new work with other individuals or a collective. From the very beginning of my PhD, I wanted to explore as part of my PhD.

In 2010 I met Les Hutchins, a composer who was doing a PhD in electroacoustic composition under the supervision of Dr Scott Wilson. He wanted to create a laptop ensemble and quickly he assembled a group of six students interested in the project. In January 2011, Jorge M. Garcia, Les Hutchins, Shelly Knotts, Norah Lorway, Chris Tarren and myself founded the Birmingham Laptop Ensemble (BiLE). We worked as a collaborative group of composers, performing and creating interactive instrumental and live electroacoustic music. We met often and regularly to experiment with sounds. Each member of the ensemble brought their own computer programs and musical experience to the group. Each of us had different

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<sup>11</sup> Keith Sawyer, 2007.

backgrounds but were all composing electroacoustic music. This eclectic mixture obliged us to research ways of performing live electroacoustic music together on stage. Our performance was based on physical interactions between members as well as written communication and data/media exchange using a network system, mainly developed by Les and Chris. All of the pieces I composed within that group benefited from the others' experiences or ideas (*Back to Front* and *Sonnation II*). It was an exciting and inspiring experience.

With Dr Annie Mahtani, Iain Armstrong and James Carpenter, I co-founded the composers' collective SOUNDkitchen to promote experimental electroacoustic music. Among other things, Annie and I experimented on intensive field recording and created a live electroacoustic set called *Entre Terre et Ciel* (see appendix for this work). We performed this work during SOUNDkitchen's summer festival SONICpicnic in 2011 at VIVID's Garage (Birmingham, UK).

During the years of composing this portfolio, I also collaborated with documentary director Sheba Saeed on creating music for the film *Beggars of Lahore* and with choreographer Shang-Chi Sun on the composition of original music for his work *Nüwa* (see below for details). I also met with various instrumentalists such as Chris Orton (recorder) or Gwenaëlle Rouger

(piano) with whom I explored extended techniques and new compositional approaches involving performers and their instruments.

Creating this portfolio and during my PhD at University of Birmingham, I developed a strong sense of collaboration in music creation as well as shaping my ways of interacting with other artists. Collaboration is now a substantial part of my work as a professional composer.

When we started to rehearse with the Birmingham Laptop Ensemble, we found that improvisation was the best way of getting to know each other and learning how to play together, thus improving the way we were producing music as an ensemble. Naturally, I started to develop a strong taste for improvisation.

Even if live improvisation is the antithesis of composing on a fixed medium, my approach to it is very similar in the sense that I am still working with concrete sounds: I am in search of perfect sound objects and organise them following the rule of listening. I am now trying to replicate the meticulous work I do in the studio during rehearsals and concerts; I have to make aesthetic decisions 'on the go'.

Improvisation is also a great way to ask performers to be creative. When I compose a piece that has an improvisational aspect, I always create a score. This score is there to guide performers and gives them a structural

frame. I have included two works in my portfolio to illustrate improvisation: *Back to Front* and *2°* (see next chapter for details).

One aspect that I find very attractive in improvising is the instantaneity of creating. It is possible to create a wonderful sound or gesture once but it may be impossible to recreate that moment. Freedom is another important element in this kind of music. And when I compose live music I want those two elements to be present. Even *2°* (which has the most detailed notated score) gives substantial freedom to the performers all the way through the piece.

When composing, the eventual performance is an essential element to be considered.

Acousmatic music is concert music and although it is fixed on a medium, its performance is extremely important. As Jonty Harrison pointed out: *musique concrète* is ‘displaying organic structure and space’ and ‘*not* to diffuse such material contravenes its very nature and is musically unjustifiable.’<sup>12</sup> It is very common for acousmatic composers to perform their own work, as there are very few specialised performers in this field. Sound systems or acousmonia are the performance instrument of the electroacoustic composer and understanding how to exploit these diverse

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<sup>12</sup> Harrison, 1998.

spatialisation systems is of primary importance for the composer so that he can fully be aware of the performance aspect of his music when composing.

It is not only the role of the performer to research new ways of performing music, but also of the composer. It is fundamental for the composer to perform in order to understand the tools (whether a human being, a loudspeaker orchestra or any other entity) that are used to (re)create his music in a concert hall. I have carried out a significant amount of research into acousmonia and sound systems. This research has enabled me not only to be a better performer but I am now in the process of creating my own acousmonium (KLANG acousmonium).

Moreover, I believe that the composer should have some ability as a performer. Indeed it becomes obvious that for various reasons (whether financial or technical), contemporary music needs more and more involvement from its creators. Asking other artists to perform another composer's music demands considerable time and money; and too often, these are barriers to public performances. It is for these reasons that most of the time I perform my own music. Of course, others can perform all of my musical creations, without me being present.

I was 8 years old when I first appeared on a stage and I have not stopped performing since that age. I have developed an ability and a desire



to perform and, when I have finished a composition, I want to perform it in front of an audience (if, of course, I have composed a work that I am able to perform myself, such as an acousmatic piece).

I believe that if the performer is in the situation of being in front of an audience, on a stage it is his duty to give a visual performance to the public. It is especially important to be aware of it when performing electroacoustic music. Too many times I have witnessed performers on stage who are hiding behind their computers, giving a visual impression to the audience that is unrelated to the sound produced. Because they also give the audience a visual focus, this creates a barrier for a deeper listening experience. For that precise reason, I am always trying to develop strong performing elements when composing live music. I was first confronted with this issue when performing with BiLE. As a group, we started to create ways of performing live electroacoustic music using gestural controllers such as accelerometers or visual sensors. These techniques enabled us to relate physical movement to the production of sound. This gave the audience a strong and convincing performance.

To conclude this chapter, I can say that collaborating has broadened my approaches to composition and performance. It has enabled me to

understand the importance of improvising, and it is the element that gave me the possibility of writing live music, beyond the constraints of fixed media. Performing is an essential act that any composer must experience at a professional standard in order to be able to compose concert music. And I believe that it is by putting ourselves in the outside world that electroacoustic music will survive. I do not think it is tenable just to give concerts to other composers, and perhaps we need to find compromises if we want to give concerts to a broader audience. It is why I co-founded, under the initiative of Annie Mahtani, the composers' collective SOUNDkitchen and I am now going to create a charity in Montpellier (South of France) dedicated to the creation, promotion, diffusion and transmission of electroacoustic music through concerts, festivals, workshops and conferences, which will be open to everyone.

## COMPOSITIONS: COMMENTARY OF WORKS

- *Vallée de Glace* (2007) Tape, 8-channel, 8:40
- *Petites Bêt(is)es* (2008) Tape, 8-channel, 8:25
- *De Part et d'Autre* (2010) Tape, Stereo, 8:57
- *Nüwa* (2010) Tape (for Dance Show), Stereo, 7:52
- *Ailleurs* (2011) Tape, 8-channel, 14:53
- *Back to Front* (2011) Live Electroacoustic, Multi-Mono, 11:00
- *Sonnation I* (2011) Tape, 8-channel, 13:09
- *2°* (2012) Live Electroacoustic, Stereo, 13:12
- *Le Goût des Larmes* (2013) Tape, 8-channel, 6:00

This chapter include individual commentaries for each composition, detailing their key features.

## ***Vallée de Glace***

Composed in 2007

Acousmatic, 8-channel

8:40

This work is the first I composed for my portfolio and is my first 8-channel piece. The title translates as “ice valley”. The entire work is based on recordings made in the Pyrenees during the winter of 2006-7, in a little valley perched at 1400 metres above sea level. This impressive environment has always been a great source of inspiration for me and many of my works are entirely based on sounds recorded there. The whole composition forms a soundscape that travels in and out of an abstract sound world.

As one might imagine, at this height and in the middle of the winter, sounds are rare and quiet. Streams are frozen, birds have moved south and most animals are hibernating. I therefore decided to record myself interacting with this landscape formed mainly of ice and snow. I captured the material using a Telinga [parabolic] microphone and a Sound Devices 744T<sup>13</sup>. This microphone is particularly good at capturing quiet sounds and the Sound Devices’ preamplifiers are of a very high quality, reducing any

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<sup>13</sup> For more information about the telinga microphone visit [www.telinga.com](http://www.telinga.com)

electrical noise to a minimum. Listening to the whole recording back in the studio, I identified three main types of sounds: the crackling of the ice and snow, a woodpecker and a areoplane. These materials constitute the basis of the work.

In *Vallée de Glace*, we can distinguish two main categories of sonic material; sounds that have been heavily processed and raw or only slightly processed material. Heavily processed sounds bring an abstract quality to the piece. They have been organised so that they form the background of the work and have a more diffuse or radiant spatialisation. The less abstract and more identifiable materials evolve in the foreground, appearing to be more localised in space. The piece opens with a very low-pitched sound object that is repeated, each time slightly differently. These found objects were the trigger for the whole composition. It is, in fact, a sole knock of a woodpecker on a tree, pitch shifted down with added spatialised delay. This sound object acts like the fingerprint of the piece. It places the listener deep in a dramatic abstract soundscape from the beginning of the piece.

In this composition I explored 8-channel spatialisation using the simple technique of hard panning and randomisation of sound events in space. Sounds that are abstract and more textural (for example, the snow crunching at 4:51) were spatialised in a more diffused manner. Events that

are more accidental such as the woodpecker knocking on a tree trunk at 2:23 are very precisely located.

Composing with this source material was challenging. Indeed, most of the recordings were very quiet as they were recorded from a considerable distance. This piece was my first multi-channel composition. Compared with latter works in the portfolio, I now feel that the spatial element of this piece is rather too simple in some places. This is because my knowledge of spatialisation software and tools was quite restricted at that time. By giving an appropriate spatial live performance of the piece on a sound system, it is possible to correct that element of weakness by carefully combining radiant and directional speakers. I now regret some of the processing, such as the delays used in the section following the introduction. Overall, this work can appear to be quite naïve, but some of the found sound objects remain, in my opinion, very interesting and well crafted. It is a composition I still enjoy performing.

## ***Petites Bêt(is)es: 4 Minuscules Acousmatiques***

Composed in 2008

Acousmatic, 8-channel

8:25

(*Étomon* 2:25; *Nidus* 2:14; *Mutations* 1:45; *Envol* 2:00)

I wanted to create a collection of short pieces (miniatures). The title is composed in the manner that it gives different meanings – either ‘Little Beasts’ or ‘Little Foolishness’, according to whether or not the letters in brackets are included. A Bêtise is also a little popular mint sweet with a stripe of caramel, a traditional French confectionery made in Cambrai, a town situated in the north of France. When I composed *Petites Bêt(is)es*, I wanted to explore space and sounds in an 8-channel speaker array. These miniatures can therefore be considered studies although they were composed to be played in concerts and I am including them in this portfolio as regular pieces. It is possible to play them together or separately.

Regarding the spatialisation aspect, I developed techniques I had used in *Vallée de Glace*. I explored the movements of and within individual sounds using hard panning, creating spatial gestures often evolving from a frontal

stereo image into the surround space of the 8-channel speaker array. A good example of these gestures is the sound door in *Nidus* at 1:16. The creaking door is exposed in the frontal stereo image, only to explode quickly in a gestural manner in the surround array, rotating around the listener.

A musical aspect with which I wanted to experiment was the combination of two different types of sound material. Some materials in the piece were recorded from the real world and others made from synthesis. I had never really explored the world of synthetic sound until this work and I felt it could bring another dimension to my music. It is when I read around the subject of sound design that I realised that I could try to create sounds myself by conceiving simple computer programs.<sup>14</sup> I started to create a series of simple patches in Pure Data (pd), a free programme developed by Miller Puckette<sup>15</sup>. All patches generate either white noise or sine tones, which are either filtered, pitch-shifted or modulated using basic objects and algorithms. The sounds of airplanes, frogs, flies and other insects were all synthetically generated. As mentioned previously, I also used some sounds that were recorded in a studio or in other environments: crickets, doors, cardboard, polystyrene flakes, paper and a metallic grill. All the sound

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<sup>14</sup> Farnell, 2008

<sup>15</sup> M. Puckette's website : <http://msp.ucsd.edu/>



materials appear to be very different but they made sense once I organised them, fitting the idea I had for this work. These four miniatures are very narrative and each sound is like a character recounting its story.

*Éntomon*, the first miniature, presents two different sources, a polystyrene flake that is moving around, interacting with a resonant and metallic percussive sound.

In the second miniature, *Nidus*, I explored the acousmatic ‘cliché’ of a door, playing with its squeaking and rhythmical aspect when opening and closing it. It then morphs into abstract bells.

*Mutations*, the third miniature, plays with all the sounds of the first miniatures but here they are heavily processed and rendered unrecognisable. In addition, I introduced the synthesised sounds of frogs and insects. They all morph into each other, mutating into abstract objects.

*Envol*, the last miniature, is entirely made from these synthetic mosquitoes and flies, moving around as if they were attacking the audience. They transform suddenly into a jet airplane, taking off and disappearing in the sky.

These miniatures can appear anecdotal, and listeners have commented on their lightness and on their refreshing nature.

## ***De Part et d'Autre***

Composed in 2010

Acousmatic, Stereo

8:57

During my frequent journeys between Toulouse and Birmingham, I had the opportunity to gather a substantial number of recordings made in different conveyances, stations and airports; these materials form the basis of this work. In order to emphasise and complement these sounds, I decided to record some additional material, such as cans and bowls rolling on the floor and shuffling paper. These sounds needed to appear in the composition as completely abstract material, obtained by extensive processing, or they had to have some sonic aspect that was similar to the preliminary material. Finally I created a long drone that forms a conclusion to the piece. This drone was made from a recording of the Divertimento No. 1 in D for string quartet, kv 136 (125a), composed in 1772 by Wolfgang Amadeus Mozart and performed by Hiley Strung, the string quartet with which I played. By long and repeated techniques of stretching and granulation, I obtained a long, reverberant drone. A few more harmonies and sound objects were added to give more life and interest to this slowly

morphing drone.

*De Part et d'Autre* can be divided into three major parts. The first part (up to 2:53) is an exposition of sounds recorded in airports and stations on the journey between Birmingham and Toulouse. The second part (2:53 to 6:22) becomes more abstract, presenting abstract material mixed with more concrete sounds. The third part (6:22 to the end) is introduced by the voice of a stewardess wishing us a pleasant journey. It is the flight into a dream.

This composition was created with live spatialisation very much in mind. I have played this piece on many different sound systems in a variety of different places and, in performance, I divide the composition into spatial sections. I open the piece using stereo planes from a pair of referential speakers (référents).<sup>16</sup> I then open the space around the listeners using spatial figures such as crossfading, accumulations and unmasking to reveal different abstract and concrete spaces, changing the depth of the planes throughout the first part. The material of the second part is much less stable, jumping from abstract to concrete sound worlds. It is important to magnify the spatial characteristics of this passage by using a mixture of controlled and random gestural effects such as sparkling, oscillating, appearance, disappearance and explosion figures. In the last part of the piece, the rich nature of the drone makes the diffuser perform slow

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<sup>16</sup> Vande Gorne, 2002.

accumulations and accentuation, using mainly direct speakers, but slightly sustained by radiant ones. Although I have a very precise idea about how it should be interpreted, I have never given any directives to any performer, as I believe it is his or her role to be able to feel what is right to do. He is free to choose which aspect of the musical writing he wants to accentuate.<sup>17</sup>

The pieces *Espace/Escape* composed in 1989 by Francis Dhomont and *Figures d'Espace* (2004) by Annette Vande Gorne have been great sources of inspiration for me to create the spatial characteristics and the sound world of *De Part et d'Autre*.<sup>18</sup> This composition was a finalist in the international composition competition *Metamorphoses* in 2010 in Brussels (Belgium).

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<sup>17</sup> See appendix : Spatial Figures based on practical theory by Annette Vande Gorne.

<sup>18</sup> Dhomont, 1996 & Annette Vande Gorne, 2008.

## **NÜWA**

Composed in 2010

Acousmatic (for dance show), Stereo

7:52

Artists and Cast for the whole performance:

Choreography: Shang-Chi Sun, Dance: Nefeli Skramea, Shang-Chi Sun, Music: Julien Guillamat, Piano: Andreas Kern, Light: Lutz Deppe, Dramaturgy: Shang-Chi Sun, Duration: 50 minutes.

This composition was the fruit of a collaboration with Shang-Chi Sun, a choreographer based in Berlin (Germany). I first met Shang-Chi during a performance of *De Part et d'Autre* at the *Inventionen* Festival 2010 in Berlin. He expressed a strong desire to collaborate with me. The idea was to write a stereophonic acousmatic piece of about 8 minutes. The music was the first to be played in a dance show after a 6 minutes dance performed in silence. Nüwa is a dance show based on Chinese mythology and the story is based on five key words: birth, death, rebirth, destruction and reconstruction. Shang-Chi used some elements borrowed from Tai Chi. The sense of improvised weight and touch is developed throughout a choreographic framework. The dancers transport the viewers into an

imaginary world through physical actions.<sup>19</sup>

Live piano accompanies the piece, with the pianist taking part in the improvisation, interpreting the sound of the Nüwa story. The sound creates characters, depicting keywords in the structure and specifying the quality of sound from the stage, which in turn changes the observer's perspective.

At that time, I was already starting to research sounds for my cello piece *Back to Front*. All the sound material of Nüwa was created from cello samples that I recorded for this composition: Bartók pizzicati, harmonics, crackling sounds made by squeezing the bow's hairs on the back of the cello's body with the stick, bowed open string and bowed bridge. The composition is a slow and simple development of these sounds, framed by an arch-like structure of which the climax is a rich drone. This drone (5:30 to 6:35) forms the harmonic basis on which the pianist improvises later.

I discussed the spatial character of the music with Shang-Chi and I decided it had to be simple. The choreography was based on improvisation, and significant spatial elements in the music would have constrained the dancers in their movements.

The main challenge I encountered when composing *Nüwa* was to work with an artist at long distance. There was no budget for me to travel and we only had two occasions to meet in person. We had to exchange ideas

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<sup>19</sup> Sun, 2010.

on the web, which was difficult. I had to keep proposing musical ideas to the choreographer until we reached agreement, but once I had the general idea of the sound world for the composition, the work was much easier to finish; in the end, Shang-Chi and I were both happy with the outcome. (On another occasion, I had the opportunity to work with different, locally based choreographers, which meant that I could visit them regularly during their rehearsals to understand and imbibe their work. This way I could easily compose appropriate music for the show.)

I love working with dancers. Seeing someone moving with my composition is an act that gives a concrete and direct sense to the music. Since that experience, I have not stopped collaborating with other artists or choreographers.

## ***Ailleurs***

Composed in 2011

Acousmatic, 8-channel

14:53

*Ailleurs* is an 8-channel acousmatic work composed in 2011 in the Electroacoustic Music Studios of the University of Birmingham. The French title means ‘somewhere else’ or ‘elsewhere’.

When composing *De Part et d’Autre* I had the idea of writing a cycle of more or less abstract soundscapes around spaces and places. The sound materials of the piece are recordings made during the dismantling of BEAST after a weekend of concerts at the Midland Art Centre in Birmingham and at the Electroacoustic Music Studios of the University of Birmingham. I used my M-Audio Microtrack and my pair of OKM studio binaural microphones mounted on a Genelec 8030a speaker used as a dummy head.

The problem I quickly encountered when starting to compose *Ailleurs* is that I could not find a way to stage the material. Finally, after a long period of ‘composer’s block’, trying different musical paths, I came to the conclusion that this piece had to be composed in a surround sound format (in this case, 8 channel). It also made sense because of the spatial nature



of the recording.

The spatial characteristic was not the only attribute of the recording. Unfortunately, as predicted, because I had used cheap recording equipment, it was a recording that contained a substantial amount of electrical noise or hiss. This issue forced me to find a way of using the material differently, and I would have made more use of these recordings if they had not been as noisy. I knew this piece would have to be very abstract, so that the noise would be less of an issue. When I started to experiment with granulation, I found the exact sound I desired. *Ailleurs* is almost entirely made of material that has been processed using different techniques of granulation. Dramatic gestural material shapes the piece overall.

The structure of the piece can be divided into six major parts. The introduction (up to 1:06) exposes two of the main materials: loud metallic bangs are opposed to airy textural harmonies. We enter the second part (1:06 to 5:36) almost without noticing; it is the development of the opposing materials of the introduction. This part explores the sound world of drones created by the granulation techniques (highlighting harmonies and chants as well as the granular textures), punctuated by large gestures. The end of the section introduces a sound that is extracted from the granular texture, shaped into a sound object. It takes its life from simple granulation, gaining

more intimate characteristics. During the next part (5:36 to 8:50) this “flying” sound object explores the space in a more directional way. It is also a passage where the ear of the listener can rest from the intensity of the earlier parts. The punctuating silences enable the performer to change spatial perspectives during a live performance. The object develops, giving birth to others and morphing into broader sounds that introduce a transition section (8:50 to 10:11) where granular drones are reintroduced. This transition leads into the fifth part (10:11 to 12:43). Here, I develop the idea of the beginning, building tension toward a sort of climax (starting at 12:18). From 12:43 until the end, the source is revealed, increasing a dramatic tension that is released at the end of the piece by the reiteration of the “bang” gesture.

It is difficult to perform this piece in a concert space because of its strong reverberant characteristics. I first tested it during the research days in the new Elgar Concert Hall at University of Birmingham and I was not convinced – many details were just washed away and lost. I first performed it in public during the conference *Sound Sight Space* in 2013 in the Pace building of De Montfort University in Leicester. This performance space is small and is unusual in that its acoustic properties are very controlled and dry, because of acoustic curtains which are mounted all around the

audience. The choice of whether to perform this composition or not will always depend on the acoustic properties of the concert space and the quality of the sound system. Although I like the sound world of *Ailleurs*, I am now more aware of the problem encountered when using granulation techniques with recordings containing electrical noise.

## ***Back to Front***

Composed in 2011

Interactive live electroacoustic music for amplified solo cello and small laptop performer ensemble.

11:00

It was when playing with the Birmingham Laptop Ensemble (BiLE) that I had the idea to compose *Back to Front*. I had always wanted to write a piece for cello and live electronics but I felt that I was not experienced enough in that field to compose a substantial piece. Sharing my ideas with the group, I started to compose a score for the cello part before the laptop performer parts.

At first the composition process followed a concrete approach. Indeed, I was working with the sound itself, playing my cello and searching for interesting objects, taking inspiration into *Pression* by Helmut Lachenmann.<sup>20</sup> I had already composed a piece for cello solo during my Masters programme (*Atome III*) which led me to do some research into extended techniques on the cello.<sup>21</sup> This research formed the starting point for finding and selecting other interesting sound objects for *Back to Front*: the cracklings of the

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<sup>20</sup> for cello solo, 1969-70.

<sup>21</sup> Guillamat, 2007.

bow's hair onto the cello's body (a technique used by Jonty Harrison during the compositional process of *Force Fields* in 2006), the simple knocking on the body, bowing exactly on the bridge and a bowed high-pitched harmonic.<sup>22</sup> Once I had these sounds I had to develop them, researching how to shape and modify their sonic properties. I used simple dynamic changes, different pressures applied with the bow and sometimes smothering the strings to stop any resonances emanating from them. Then I had to place those sounds in the score, creating new written visual objects to give directions to the cellist. Rhythms and dynamics are notated in an approximate manner, giving some freedom of interpretation to the performer.

I then decided to write the laptop parts in a free manner, leaving to the laptop performer some choices regarding sound processing. I notated what sound they should sample and when. A note preceding the score explains to the laptop performers how they have to process the samples so that they can appear more or less recognisable. Indeed I wanted the laptop performers to begin by playing samples without too much modification, so that the sound clearly emerges from the cello. Then those sounds are gradually processed and shaped giving birth to another sound world.

The composition can be divided into four parts. It starts with the crackling sound produced by the cellist squashing the bow's hair with the

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<sup>22</sup> Harrison, 2006.

stick on the back of the body. This sound is directly sampled by the ensemble which progressively processes it using a range of indicated dynamics. This grainy part is the longest, with a duration of approximately 3 minutes. At around 3:00, the cellist introduces a new sound, a simple bang with his knuckle on the back of cello's body, the cellist's chest still smothering the cello's strings to avoid any pitched resonances. The laptop performers operate in the same manner as part one. At around 4:20, the cellist turns his instrument around to perform with it in a normal position. He still bangs on the body but this time, the strings are allowed to resonate. The laptop performers improvise with this new pitched sample. At around 4:30 all the performers enter an improvised section. They are free to improvise within the indicated dynamic range with any samples they have recorded in the previous parts. The cellist is free to improvise with any sounds based on what he's hearing from the other performers. At around 7:00, a quiet section is introduced. The cellist bows on the bridge, and the ensemble is playing quiet white noise. Progressively, the cellist introduces a high harmonic (an E6) that he is going to stress until the pressure on the bow is so high that the note distorts. The entire ensemble follows him in an intense and chaotic climax that is the most noticeable punctuation of the whole composition.

A great element of freedom is given to the laptop performers in their sonic interpretation throughout the work; they improvise with the samples following a simple rule and the notated dynamics. The laptop ensemble's role is to broaden the cello sound world into something different. In that sense, we can compare this piece with a concerto for a solo instrument and orchestra, not by its form but by its content: it is a dialogue between a solo instrument and an ensemble, both with their own colour and languages, but the latter develops what the soloist announces. The accompanying ensemble is freely formed from between three and five laptop performers. They are strongly advised to develop patches that use gestural controllers such as accelerometers or visual sensors, to reinforce the performance aspect of the piece. The controllers should be programmed so that the gestures made by the performers are related to the sound created. The aim is to create a consolidated relationship between the sound production and the gestural performance which will give the audience a sense of coherence between what they hear and what they see. These remarks are indicated in the score's notes. The use of gestural controllers enables the performers to detach themselves from the screen of the computer, the keyboard or other non-gestural controllers such as faders. It is easier for them to behave like a classical ensemble, looking at each other as well as being able to read

the score.

The score writing is quite simple and uses coloured patterns so that it is easy to read and interpret. Each part contains the cello part to facilitate following it and so that it is easier to sample the correct sounds. Each line has a duration of 1 minute, divided into 3 bars of 20 seconds.

The solo cellist should be placed in the middle of the ensemble (as shown on the diagram on the score). This is to give a greater sonic and spatial coherence and balance to the musical production. The cello is amplified with a microphone to balance the sound of the ensemble. Each performer should use one full range speaker, producing a mono signal, just as each instrument of an acoustic ensemble produces its own localised sound.

The performance of this composition is of a very gestural character. The physical movements of the performers complement the strong sonic fingerprint of the piece. The accumulation towards the end, with the release of tension after the dramatic climax is consciously designed to deliver a real sensation to the audience.

I have to say that *Back to Front* is very much ‘a piece of the moment’. It was mainly composed as an experiment with the Birmingham Laptop Ensemble. It is now evident to me that this piece needs my



intervention (either as a performer or adviser) in order to be performed again. I am conscious that I would need to write a more extended score and built a computer program myself for the laptops to perform with.

## ***Sonnation I***

Composed in 2011

Acousmatic, 8-channel

13:09

*Sonnation I* was commissioned by an anonymous donor through the Circles of Influence programme of the University of Birmingham. It was composed during the summer of 2011 in the University's Electroacoustic Music Studios. The only request from the donor was that the piece had to be acousmatic, over eight minutes of duration and preferably composed using an 8-channel spatial array.

During my Masters programme I recorded the seasonal migration of sheep through the village of Azet in the Pyrenees. Thousands of animals were crossing the street of the village that day and half of them were equipped with traditional bells. They were creating a gigantic sound mass, extremely rich in harmonies and rhythms, a sound that is very surprising and rarely heard. That sound haunted my creative imagination for years and it has naturally become the inspiring source of this work. I had the idea of using 4 cow and sheep bells that I purchased some years ago. This collection of bells included one cowbell and one sheep bell from the Basque

Pyrenees and one cowbell and one sheep bell from the Central Pyrenees. From the very beginning I decided that they would constitute the only source sound material I would use to develop this work.

In the recording studio I set up 8 pairs of microphones to record these bells. I placed 4 AKG 414 in an arc to record sounds containing a rich and diverse spatial image. This technique enabled me to choose between two stereo images, one wide and one narrow, but it also meant that I already had (by using the four tracks interleaved) half of my 8-channel spatial array included in my recordings. I also used a pair of accelerometers (they are equipped with magnets, enabling me to attach them firmly to the bells); these were used to capture the full resonant aspect of the idiophones, recording very pure pitched resonant material. They are small and therefore easy to place anywhere. In addition, I used a pair of DPA 4060 instrument microphones that I mounted with a little piece of foam in between them, attached with some tape; this process allowed me to keep a stereo image but the microphones were small enough to position inside the bells in order to record other aspects of the their sound.

Once I had all the sound material edited, the challenge started. Composing a piece with those unique sound sources was not of great difficulty, as hand-made bells are sonically very rich. For *Sonnation I I*

wanted to explore their sounds as much as possible. I firstly stretched their spectra to produce drones that are harmonically rich and form the basis of the piece. This enabled me to introduce the raw material a little later, blending it into its own spectrum. This technique made the more percussive sound of the bell appear in the foreground of the piece making it easier to introduce more gestural material. I could then start to play with these two elements, the sustainable and the gestural.

One other aspect I developed extensively in this piece is timbre. I had metallic sounds only, but I wanted to introduce other organic sounds. Extreme manipulation of the original sources enabled me to create some woody sounds and even some watery ones.

All of these sounds finally build into a destructive climax, choking them into a dying resonance.

## **2° (2012)**

Composed in 2012

For 13 soloists and interactive electroacoustic device

Circa 13:00

2° was composed for a workshop with the Birmingham Contemporary Music Group (BCMG), the University of Birmingham Music Department's 'Ensemble in Association'. I wanted to compose a live soundscape based on sounds I collected when starting my PhD. This material was partly used in the 8-channel acousmatic work *Vallée de Glace*, the first piece of my portfolio. I remember one of my very first tutorials with Professor Vic Hoyland during my Erasmus exchange programme year; he said to me, "You need to dream about it." I wanted to use the recording of ice as a springboard that would inspire the composition of the score. It was not going to be used as a strict reproduction of the concrete sounds but an abstraction or an impression of it, like something out of a dream.

This recording of ice cracking has been a great source of inspiration in my work and I used it as a starting point for composing 2°. When I recorded this particular sound, what immediately struck me is how harmonically and rhythmically rich it is. This material never ceased to

nourish my imagination and it seemed very appropriate to transform it into an instrumental piece of music.

After a reduced and intense listening session in a studio environment, I started to select appropriate parts of the recording. I had to clean up the material by cutting into the sound and using some filters and equalisers, as well as processing it utilising a noise reduction program because of the environment in which it had been captured.

It was necessary for me to have a deep understanding of this sound in order to start composing. AudioSculpt is a very powerful tool that has been widely used by composers who base their music on spectral elements of pre-recorded sound, such as musicians from the spectral music movement. I started, therefore, by doing analyses such as sonograms, fundamental frequency and partial tracking, chord sequences and peak transient analysis using different parameters for each. I could then identify results that were the most coherent and which were most closely linked. For each analysis I always started by using an average window size. When I used a smaller size, I ended up with results that were more precise in the time domain; with a bigger window size, frequencies were more precise. In the first instance I read results directly from the software's visual platform and from this interpretation I extracted results into lists, which I then tried

to puzzle out directly. Though the material was very rich it was often impossible for me to use all of the parameters within my piece. If I started to simplify the parameters in my analysis, I would lose precisely those characteristics of the material that interested me the most (ie. some sustained harmonics). Now that I had a detailed knowledge of the sound, I had to start making some musical and aesthetic choices.

To elaborate the sound world I had in mind, I needed instruments that were airy and soft with a strong pitch base. I naturally considered the flute, the clarinet and the bass clarinet, the horn, percussion, the piano, two violins, a viola, a cello and a double bass. I omitted double reed instruments because of the nasal quality of their timbre and most of the brass because they are dynamically too powerful and their timbre is quite metallic and dry.

The percussion consists of vibraphone, cymbal, crotales and in order to have more bass, I added a bass drum to the list of percussion and temple blocks for attacks. Two laptops are on stage, live sampling the ensemble and playing back the recorded sounds through a simple granulator Max patch. The electroacoustic part should be as performative and interactive as possible, behaving like traditional instruments in a group. To this end I employed technological resources that have already been

developed by other programmers, and that I modified and elaborated to use when playing with the Birmingham Laptop Ensemble. This program, written in the Max5 software, enables the laptop performer to control the patch using a wii remote control. The two laptop performers are able to control dynamics and pitches using dramatic gestures that relate to the sound they are producing, making, for the audience, a visible link with the other performers. The electronics are there to glue the soundscape together as well as to elaborate the amplitude and frequency range of the ensemble. It also brings a new dimension to the timbre of the ensemble.

The next stage was to translate the scientific results of my research into music. 2° is the representation of a moment in time where sounds are emerging from near total silence, excited by an external element. One main component of the work is the attack-resonance element. At the very beginning of the piece, the attack in the string quartet is created by *pizzicati*, played in the highest register possible of the instruments, each of them triggering a sustained high pitch. These attacks and resonances are the basis of the work. The attacks are sometimes precisely pitched (for example with the piano or the vibraphone), unpitched (with the woodblocks or popping the horn's mouthpiece), or somewhere in between (with the bass clarinet tongue slaps or the key clicking). Playing a *pizz* in the extreme high



register on a stringed instrument also results in a nearly unpitched sound, as the string resonances are being damped by the pressure applied to it by the player's finger. The resonance sound is often a bowed or a blown sound; this can also be more or less pitched or result in a multiphonic. Sometimes the resonance is simply the result of an attack itself (*pizz*, piano, vibraphone). The superposition of sustained pitches slowly creates a rich harmony.

If the pitch material was mainly based on my analyses, I employed much more freedom with the management of time, focusing more on the shaping of textures and the overall form. When I look back at this work, how I thought and composed it, I can certainly relate it to *the concrete instrumental and spectral music* of Helmut Lachenmann.

The action starts rather like a snowball effect, unpredictable and seemingly unstoppable. The first section of 2° (up to ca. 3:40) is based on the principle of accumulation and saturation of pitches and textures. It leads to the first chaotic climax (ca. 3:40) that quickly dies away to enter a very airy section. This dramatic contrast gives an even more unpredictable aspect to the piece. In this second section (ca. 3:40 to ca. 6:40), attacks are separated from their resonances. They are gradually building their own resonances but they quickly become unstable, introducing *glissandi*.

Sustained high pitches are now appearing on their own; these accumulate and develop, not to another climax, but directly into the third section (ca. 6:40). This short section behaves like a fulcrum to move on from the second section. Attacks are gaining the upper hand over resonances, rushing forward in a way that seems to be random and very unstable. This creates an intense and dramatic moment. A short transition (ca. 9:00 to ca. 9:48) acts as a bridge between sections four and five. At around 9:48, flute, horn and bass drum announce the fifth section, an almost totally improvised section using techniques that have been developed previously. The fact that this part is improvised gives a very ephemeral character to the performance. It could be a very dramatic moment, a climax or a soft and relaxed passage; those choices have to be taken by the performers. At around 11:00 *glissandi* are introduced by the strings, leading the whole ensemble to move back into the extreme high register to finish the piece as it started, in a sort of short mirror section of the very opening.

I wished to create a soundscape that would be as organic as possible and 2° is certainly open to interpretation. Pitches and rhythms are notated in a way that they often suggest choices that are to be made by the performer. I chose to use proportional notation in order to give to the whole ensemble a feeling of freedom but also to give the impression of an

organic, though instrumental, soundscape to the audience – even though it is necessary to have some notated cues as some sounds are played exactly together; a written arrow above the staves indicates these cues in the conductor's score and the parts. It tells to the conductor he should give a left hand cue to the players. Some players did not like this aspect of the notation, though some found it very clear and thought that it was a good way of notating the score to express what I wanted to emerge from the music.

There is a precise position on stage for each player in the ensemble. Indeed, it is necessary to locate each instrument within the stage area according to their frequency and amplitude range. There would then be, as much as possible, a symmetrical frequency spread in the space. Therefore piano and percussions are on the same plane, behind the other players. Then we have the three wind instruments with the bass at the centre. The 1<sup>st</sup> violin stays in its original place as the leader so from left to right we have violin 1, cello, viola, violin 2, and double bass (it is more convenient to leave the double bass at its original place as it could obstruct the visibility for other players). The two laptop performers are placed behind the strings on each side of the winds, next to the loudspeakers. The spatialisation of the electronics is panned so that each of the laptop's sounds occupy two-

thirds of the stereo image on their side. This leaves a strong focus on the centre of the stereo, as the sounds from the two laptops overlap.

When composing such a work, one needs to ask oneself if it is feasible to involve extensive use of electronic hardware. A certain amount of time is needed to set up the system and test it before the performers can rehearse and perform the music. For the BCMG workshop, it took me (with the help of an assistant) about 45 minutes to get the system ready, having tested the system before in the studios. This is a very acceptable time frame to set up this kind of complex system.

The conductor happened to be quite resistant to the special notation I used for the score. He also did not feel comfortable with the proportional notation and thought that a regular time notation would be more appropriate, suggesting a 5/4 time signature. It is certainly something that I would consider more in the future. I had to make some changes in my score to help the performers, by changing the way staves were separated in the individual parts of the score. I also made changes in the conductor's score by putting the timing at the beginning of each system and introducing more rehearsal numbers (they are also written in the parts). I also redesigned the systems themselves so they appeared clearer on first glance (e.g. bigger gaps between them and a better way of grouping the

instruments).

Although I received some strong criticism of this notation, I can say that it was a success. In less than 30 minutes rehearsing together, the ensemble was already capable of executing a near perfect performance. Overall, I succeeded in recreating the soundscape I had in mind and I am pleased with the result. I might consider other types of notation, but I think they will always be based on proportionality, perhaps using time signatures and bars. All in all, however, it was a wonderful experience to work with such good musicians as those in the BCMG.

## ***Le Goût des Larmes***

Composed in 2013

Acousmatic/Installation, 8-channel

6:00

This final piece was commissioned by the Barber Institute of Fine Arts for the *Sonic Visions* project. This project required three composers to select an artwork from the Barber Gallery, to be displayed in the Lady Barber Gallery, and compose an 8-channel acousmatic piece of 5-6 minutes' duration inspired by it.

I chose to compose the music for a picture by Renée Magritte, *The Taste of Sorrow*. The title of the composition (*The Flavour of Tears*) is a direct reference to the artwork's title. The understanding of the work, its context and my interpretation of it are important notions to understanding my composition. Therefore, it is necessary for me to give a short description of the picture and my own interpretation of Magritte's masterpiece.

The painting expresses powerful emotions that are a reflection on a chaotic era after the destruction left by World War II and the onslaught of the Cold War. This work shows tobacco leaves morphing into a bird, which is being eaten by a caterpillar. Behind the bird is a red curtain.

In this picture, Magritte employs many of his favourite themes, such as the sky, the curtain and the combination of plants and animals, to create a new creature. This is a common motive he explored and it is the central focus of *The Flavour of Tears*.

The curtain creates an intimate space where the bird can seclude itself from the rest of the world to manifest its suffering. With this curtain, the bird is also hiding from us the true reality behind it – something that must be concealed because of the horrors humanity had achieved. We really can imagine how terrible this reality must be in looking at the central element of the work, the bird. For me the bird has an immense knowledge of this truth. It is not a totem but a living god, the only creature able to grow from this arid land. It is witnessing the greatest tragedy mankind's entire history has seen and it is suffering. The caterpillar is eating the bird's chest - a very shocking image. Magritte has depicted it in order to symbolise the immense and unbearable pain the bird is going through. In the background, the sea is calm and the sky is impressive, immense and dark, but still appears to be at rest. It is a moment of stillness. In my opinion, the dramatic contrast between the powerful and terrible feelings that are emerging from the foreground of the painting and the placidity that is looming from the back is not a contradiction. Like the curtain, the sky

and the sea are hiding a dark reality, but one of the future that could arise at any moment. It is announcing another threat, the calm before the storm. But the bird is incapable of action. It is stuck to the ground, condemned to watch scenes of horror that are passing in front of its eyes.

Musically, I intended to create an abstract soundscape that is directly inspired by the painting without literally quoting it. For sound material, I used close recordings of dried leaves, small branches and soil; these materials are in direct relation with the picture. I also used some chords that I had recorded with the string quartet with which I play professionally, *Hiley Strung*. Those chords have been selected and extracted from Mozart's *Divertimento* No. 1 in D for string quartet, kv 136 (125a), composed in 1772 (the same material I used in *De Part et d'Autre*). This piece of music has accompanied me throughout my PhD. As I rehearsed and performed it I had to think a great deal about how to perfect the way we were interpreting it, and I became quite passionate about that work.

I started next to make a long drone from those chords by shifting their pitches up and down and superimposing the results. I then started to “glue” these chords together to form a succession of shifting harmonies. Through a granulation process I stretched the result and added some reverberation to form the final drone.



This instrumental transmutation forms the main structural body of the piece, as well as providing its main colour or mood. I spatialised it using BEASTtools, recently developed at University of Birmingham, and spat, a Max/MSP object developed at IRCAM.

I then processed the other material that would act as the foreground of the music. I used the Granul8 and Brassage patches from BEASTtools to form a texture in an 8-channel format. I then started to apply some filtering to them and spatialised them, again using BEASTtools and the Max/MSP spatialisation interfaces developed by IRCAM to create these the impression of wave motion in the ocean. These waves evolve throughout the piece, following the progressive tension created by the drone. Finally, a big climax releases all the accumulated tension and finishes the piece, like a huge wave breaking on the shore.

I decided to keep the volume through most of the music quiet, as I do not want the music to overpower the artwork. Indeed even if *Le Goût des Larmes* is a piece that can be performed in a concert, in this particular context it is part of an installation and it is sharing focus with the eye of the listener pointed at Magritte's work.

When speaking about installations, one would normally think of interactivity.<sup>23</sup> Here, at first it seems that there is no interactivity between

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<sup>23</sup> Gibbs, 2007.

the public and the art. In fact, the listener is forced to engage with an internal process of interaction, linking visual emotion with the music. The music has been composed to immerse the listener within an emotional journey that complements the canvas. Also the nature of the project (an exhibition) enables the audience to have a very intimate personal experience. Indeed, listeners are free to come and go whenever they desire; they are liberated from the constraints of a normal public concert. When composing *Le Goût des Larmes*, I had this intimate notion in mind. Most of the time, just a small group or even a single person would be in the Lady Barber Gallery, listening to the installation. Composing music to accompany this major artwork has been a great experience, something I would recommend to any composer and one I would definitely reiterate.



*The Flavours of Tears* (1948), René Magritte

Oil on canvas (116 x 75cm) Barber Institute of Fine Art, Birmingham.

## CONCLUSION

To explore different approaches in composing music has been and still is essential to me. It enables me to understand better what I want to do and why I am doing it. I would like to describe what I felt one day when trying to create a patch to play with BiLE. At that time I was obsessed with a sound I heard in *Forêt Furieuse* by Francis Dhomont.<sup>24</sup> It is like a siren sound that expresses for me a great sense of distress. I was trying very hard to recreate a similar sound when I suddenly realised, that if I were to play that sound live, this strong and precise emotion that was emanating from that object would simply disappear. I understood that sounds that are fixed on a medium cannot change and this is precisely what makes their identity so strong. It is like the particular version of J.S. Bach's Trio Sonatas we listen to at home on a CD player. When we are listening to the works in a concert, of course, we gain a dimension that cannot be reproduced on a CD. In truth, there is another great loss also: that of a particular sound or colour that has been captured, mixed and mastered in a studio. I think this explains the paradox of my music. I am opposing fixed music to live music even more by strongly including more of the element of freedom in the

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<sup>24</sup> Dhomont, 1996.

latter.

I have not written and explained substantively how I create computer programmes or how I am using new technology in a creative process.

Indeed, I am not a computer scientist and technology is for me just a great medium with which to work. It enables me to make accurate analyses as well as processing sound, creating new objects and expanding the limit of my own creativity. It is also a medium I use to develop better ways of performing.

I believe composing is a journey and exploring different forms and genres has enabled me to find the way(s) I create music. When I look at my approach to composition as a whole, I can say that all my music is based on research into sounds: in a studio, during a rehearsal or improvising on stage. I can say that even my most improvised and live music is based on the Schaefferian concrète approach to sound and music; it contains very little that is conceptual or abstract. It is based on the theory of knowledge and the romantic aesthetic concept of empiricism. For me, composing comes primarily from a sensory experience, that of listening. It is the sonic experiment and the experience of sound that are the fundamental elements when I compose. My aesthetic perception is radically opposed to classicism in the sense that I am experiencing the sublime, a concept that is

gravitating around or above those of the beautiful and the ugly (the only two aesthetical values in classicism). The beautiful is conceived with the elements of harmony, symmetry, regularity and order; the ugly is its opposite. But the sublime can be characterised by the dissonance, the asymmetry, the disproportion or the irregularity.<sup>25</sup> In that sense, my relation to sound and music can be described as visceral.

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<sup>25</sup> Burke, 1757.

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## APPENDIX: SPATIAL FIGURES<sup>26</sup>

The interpretation of stereo works on a spatialisation console.

### 1) Crossfading

Slow or imperceptible transition between pairs or groups of speakers. The gesture must be careful not to dig any acoustic "hole". Start to move up the speakers' faders to be faded in before bringing down the first set of faders, and find a balance point.

Musical function: strengthen existing crossfade on the tape. Change plane or depth calibre. Draw a path by successive crossfades if, for example, this sound evokes a moving object (ball, car, plane, etc.).

### 2) Unmasking

Sort of an upside down crossfade from a given mass, we hear the desired speakers' pair or group by reducing the amplitude or removing other speakers. The gesture can be gentle, imperceptible, or brutal, using the mute buttons for example.

Musical function: strengthen existing unmasking effect on the tape.

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<sup>26</sup> Vande Gorne, 2002 (translation by Julien Guillamat).

Change plane or depth calibre. To impose on the sound a trajectory by successive unmasking if, for example, this sound evokes a moving object (ball, car, plane, etc.) and that the starting spatial situation is a *tutti* or a mass encompassing the public.

### **3) Emphasis**

Highlighting a specific location (the soloists for example) or a group forming a particular space, volume or a new calibre, by slightly increasing the amplitude of the chosen speakers without modifying the others. The amplitude of departure (the basis) is important because it determines the overall level. We balance it from the stereo reference pair (also called "the principals").

Musical function: this approach can be applied to a specific passage of the work or to a general strategy of projection, in which case we slightly open all the main faders (which thus provides the basis) and then we increase some points following the structure or sections of the work, the desired effect on the listener's perception. This is the general strategy of François Bayle. Emphasis is a soft, light and relaxed way to play on the console (mixing desk).

#### **4) Sparkling<sup>27</sup>**

Fast cascading highlighting operations (and back) in a given mass. Random play. Play of the amplitude within the acousmonium, play on the spectrum (by filtering) in the context of IMEB's Cybernophone (Christian Clozier, 1973). To ensure continuity, also keep some channels open and fixed.

Musical function: spatial equivalent of *tremolo*, to create liveliness "inside" a thick and smooth mass by digging, or increasing light spectral or dynamic fragmentations. Highlighting a moment composed by micro montage or pointillist (granular) techniques.

#### **5) Oscillation**

Rapid and regular alternation between two speakers or two speaker groups. Dynamic and spectral alternation. The effect of "vibration" given by a very rapid regularity is only possible on an automated console. An LFO (Low Frequency Oscillator) could serve as a controller.

Musical function: spatial equivalent of the trill, agitation preparing an explosion, a burst, or otherwise, making a living reflux, a wait.

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<sup>27</sup> Also known as the "wiggly wiggly" technique (Jonty Harrison).

## **6) Swinging**

Slow and gestural alternation between two speakers or two speaker groups.

Dynamic or spectral alternation.

Musical function: highlighting the composed musical dialogue, delimitation of spatial landmarks, lullaby.

## **7) The wave**

Round trip that runs through crossfades or successive unmasking gestures, a series of speakers in a line, such as from the backstage to the front of the stage, all sides, the back of the room and back again to the front.

Musical function: effect of moving mass and predictable unidirectionality. This gesture has the advantage of joining a known agogic archetype.

## **8) Rotation**

Circular trajectory between four speakers on stage or, more often, around the audience, with a gesture of slight highlight of each points by successive crossfades.

Musical function: evidence of the sound's internal rotation (then we



must keep the pace of this internal motion), creating movements, for example, to give a sense of confinement.

## **9) The spiral**

Circular trajectory on which is applied an acceleration or a deceleration, of which the endpoint would be elsewhere.

Musical function: preparation, announcement, goal-oriented or conclusive trajectory.

## **10) The rebound**

Quick jump from a point in space to another, from one group to another, from a soloist to a group (and vice versa) by effectuating a quick alternating gesture on the console or by using a set of "mute" buttons. The rebound is even better perceived when both poles are distant.

Musical function: (re)launch on a trigger-sound. Going into another spatial region without any transition.

## **11) Insertion / rupture**

In an already established area and in a sufficiently long period, sudden shift

or overlap (by unmuting) of a characteristic space and/or different calibre.

For example: in a large and diffuse mass, insert a directional solo (narrow calibre).

Musical function: rhetorical figure, highlighting written inserts on the tape, accentuation. The rupture can be used as an abrupt and contrasted deviation to another state.

## **12) Appearance / disappearance**

Unprepared burst or closing from a different spatial state, superimposed on or following the preceding state. The use of mute buttons is the best way to proceed.

Musical function: surprise, "magic", awakening the listening.

## **13) Explosion**

Sudden passage from a narrow or directional space to a large and environmental space, not diffused.

Musical function: highlighting an eruptive mass, a characteristic and energetic morphology.

## **14) Accumulation**

Successive addition of planes and/or calibres on top of each other to achieve a spatial *tutti*.

Musical function: Highlight of a corpuscular sound material (grains) or progressive enlargement of a frame.

## **15) Invasion**

Rapid accumulation, accumulative trajectory oriented towards the audience.

Musical function: as "the arrival of the train at Montparnasse station" by the Lumière brothers, effect of subjective aggression.