

## INTRODUCTION

***Bruce Quek***

*Hearing Images and Seeing Sounds*: for some appreciable fraction of the population, this sentence would appear to be syntactically valid, but semantically void, or ambiguous. In literal terms, to hear images and see sound is to experience synaesthesia, an umbrella term for a broad group of conditions in which a sense impression is produced by the stimulation of another sense--and of those aware of this condition, some scant few might fall within the 1% of the population<sup>[1]</sup> with some variety of the condition.

For artists, writers, musicians, and others, the allure of transcending the boundaries between senses, producing unimaginably new experiences, has long proved irresistible. The 19th century poet Charles Baudelaire, for one, proposed that not only was it possible for the senses to intermingle, achieving such a synthesis was eminently desirable.

Whether in search of some unified aesthetic experience at the fundamental roots of all sensation, or venturing forth into hitherto unknown aesthetic territories, synaesthetic enquiries continue apace--or perhaps faster than ever, given technology's capacity to augment or derange our senses. Curiously, there exists a significant correlation<sup>[2]</sup> between the facility of perfect pitch--the ability to identify or produce any given musical note--and the phenomenon of chromesthesia, the variety of synaesthesia which permits one to "see sounds." Insofar as *Hearing Images and Seeing Sound* amplifies the interrelation between these sensory domains by way of technological augmentation, it holds some potential for ramifications of greater depth and complexity.

Given that only a minority experience some form of synaesthesia, the project's reliance on expanding sensory interaction technologically follows naturally, principally derived from Dirk Stromberg's techniques of sonification. Sonification, as the term implies, involves the translation of non-audible phenomena or information into an audible form. One of the earliest examples of this is the Geiger counter, which augments our sensory suite with some ability to perceive ionising radiation, without having to drop dead or develop a higher risk of cancer. A more complex, contemporary use of sonification includes the detection of gravitational waves in 2016, but the principle is clear enough--translating non-audible sets of information, either complementing or outright supplanting visualisation.

Of course, the information sonified in this project is of a rather different sort, ranging from the line drawings of Joshua Yang, to sculptural haptic interfaces as an instrument of sorts in its own right, and so on. This breadth of possible inputs suggests adaptive, evolving schema of

## Texts on Hearing Images Seeing Sounds

translation with multiple degrees of freedom, rather than one-to-one correspondences of, say, the horizontal and vertical displacement of a stylus to pitch and amplitude.

Notions of translation and correspondence also make themselves apparent in Milenko Prvački's dictionary-inspired contributions, as might be apparent from their titles: *Vertical Dictionary 1 & 2* (2016), as well as his *Horizontal Dictionary* (2016). Although the satirical dictionary of Ambrose Bierce<sup>[3]</sup> defines a dictionary as a "malevolent literary device for cramping the growth of a language and making it hard and inelastic," Prvački's experience of these ubiquitous reference volumes is rather the opposite. To him, a dictionary suggests a tremendous freedom in its non-narrative, ordered arrangement of concepts and ideas. This conceptual attractiveness finds itself grounded, additionally, in Prvački's personal experiences of studying and working in countries speaking initially unfamiliar languages, and the inestimable value of dictionaries in such situations.

While the dictionaries we might be familiar with link concepts and definitions--or do so across linguistic lines, in the case of bilingual dictionaries--Prvački's dictionaries are faced with a more abstruse challenge, bridging sight and sound. The horizontal iteration of his dictionary offers a catalogue of possible material/surface interactions, duly activated in one of the exhibition's opening performances, while *Vertical Dictionary 1*, largely played by Casteel's vocal ensemble, owes much to Stromberg's technical expertise in fusing the functions of sculpture and a capacitive audio interface.

However, the exhibition is by not exclusively concerned with exploring the possibilities of synaesthetic artistic work, but also places particular focus on the aesthetic disciplines associated with these senses, and the practices and approaches developed with regard to music and visual art. Dr Robert Casteels, the prime mover of the project, proposes that it constitutes a trans-disciplinary endeavour, quite apart from cross-disciplinarity, multi-disciplinarity, or inter-disciplinarity--all of which are terms somewhat loosely interchanged when discussing work involving more than one discipline. As Casteels puts it, transdisciplinarity involves the practitioners of separate disciplines transcending those boundaries between them, to an extent qualitatively greater than cross-, multi-, and inter-disciplinarity.

By way of speculative analogy, if space is the concern of the visual artist, and time that of the musician, the area of concern examined when the relevant boundaries have been transcended would then be spacetime, with all its attendant capacity for non-intuitive weirdness. Within the social sciences, similar notions have emerged in the framework of time geography<sup>[4]</sup>, which proposed the integration of the temporal dimension as a resource in further understanding evolving social, ecological, and other processes.

While the notion of transcending the boundaries between senses, and between the practices of visual and musical art may seem somewhat fuzzy and prone to semi-mystical speculation, a

## Texts on Hearing Images Seeing Sounds

video by Hilmi Johandi lays bare some of the processes involved. Drawn from the collaboration of Hilmi, Yang, and Prvački, the substance of the video marks a point at which their processes of working approached the fusion of drawing, videography and sculpture, with each process and element feeding back into another. Completing the loop, as installed and performed for the exhibition, is Stromberg's haptic interface, the Sphere, played by Casteels to control elements of the video.

In addition, it is somewhat unusual for a visual art exhibition--excepting those centred on performance art--to feature so many performances as part of a greater whole. However, this emphasis is altogether in line with its trans-disciplinary focus, with each object and image being part of a greater whole: visuals feeding into sounds and vice versa, in an intricate mesh of causal inter-connectedness. With the availability of performance documentation online, linked within this publication, the project exceeds also the spatio-temporal boundaries associated with organising an exhibition in a given venue, simply by remaining accessible far beyond the time and place of the show.

## Eye for Ear, Ear for Eye

*Dr Robert Casteels*

%&%

The project *Hearing Images & Seeing Sound* has unveiled new possibilities for true interaction between visual and performing artists. This article touches upon the premises and the protagonists of the project, and the modus operandi of the research leading to the opening night of the eponymous exhibition.

%&%

Premises: from cross- to multi- to inter- to transdisciplinarity

When I was studying orchestral conducting in the 1980s, I had the opportunity to attend numerous orchestral rehearsals by Pierre Boulez. These rehearsals ended with fascinating impromptu monologues. I remember Boulez reflecting on the respective roles of the eye and the ear in the creation and perception of an artwork. He introduced me to the writings of Paul Klee. Being a talented practising musician and a brilliant painter, Klee wrote eloquently about the behaviour of the eye and the ear<sup>[1]</sup>. His approach was cross-disciplinary as he viewed one discipline from the perspective of another. My own work as a conductor in the world of opera and music theatre was multi-disciplinary as the artists interacted across their respective disciplines. *No Face*<sup>[2]</sup> (1999) at LASALLE-SIA College of the Arts was the first of a series of inter-disciplinary projects in which all of the involved artists used a real synthesis of approaches and integrated their respective knowledge and methods. My desire to bring this interaction to another level of integration in which disciplines would truly transcend each other led to a long journey. Two performing arts organisations and one visual arts organisation turned me down: the former had no time, hence no money for paintings and the latter, no space, hence no money for music. These established organisations could or would not understand that my project is *not* about a painter listening to a new piece of music and responding with a new visual artwork, nor about a composer looking at a new artwork and responding with a new composition.

Visual artists are obsessed with space. Time is the musician's obsession. A painter can structure his painting in such a way that the viewer's eye is at first sight drawn to a specific point on the canvas, after which the painter can, so to speak, induce the viewer's eye to travel towards a vanishing point. However, nothing obliges the viewer to follow that spatial sequence: he is free to start looking at any point on the artwork and meander visually *ad libitum*<sup>[3]</sup>. The listener has no choice but to listen to the unfolding sonic discourse along an imaginary timeline from the present to the future, each present moment immediately becoming a past sonic event.

## Texts on Hearing Images Seeing Sounds

Space is to the visual artist what time is to the performing artist<sup>[4]</sup>. I wanted to create an artistic team in which each member comes together to exchange ideas, find solutions and create together *ab initio ex nihilo*. The National Arts Council's (NAC) Creation Grant enabled the five artists involved in this project to transcend one another's disciplines to form a new holistic approach, with an outcome that is a truly trans-disciplinary project. *Hearing Images & Seeing Sound* was born. To hear images and to see sounds was an intentional deviation of the ordinary usage of language in order to convey a different sense of perception. I strongly believe that creativity is the ability to make connections between seemingly unconnected things. Somewhere, somehow, everything is connected.

%&%

### The five protagonists

It so happens that Milenko Prvački, Joshua Yang, Hilmi Johandi, Dirk Johan Stromberg and Robert Casteels share a connection: the LASALLE College of the Arts.

Milenko joined the College in 1994, myself in 1995. We both hail from fractured European countries, Yugoslavia and Belgium. The first composition I wrote in Singapore, entitled *Ludus Tonalis* (1996) includes a non well-tempered percussion instrument which I called the mirophone by combining the first syllable of our respective first names: mi(lenko) and ro(bert). Although *Hearing Images & Seeing Sound* is our first artistic collaboration, Milenko and I have followed each other's artistic journey, attending each other's exhibition openings and concerts. Milenko developed his visual dictionary. Much on the same concept of a non-narrative discourse, I developed an aural dictionary. The grammar of music evolved from spectralism, to gamelan-fuelled microtonality and, more recently to neo-modality.

In 2008<sup>[5]</sup>, Joshua Yang made a site specific drawing, *The Impossibilities of the Superstring Theory* (2008), inside a dilapidated art deco colonial building on South Beach Road. This startling drawing, which consisted of a single line, caught my eye. In 2009, I asked Joshua to create an original drawing for the cover of my composition *A line runs away*<sup>[6]</sup> because I thought that Joshua's infinite line drawing corresponded beautifully to the opening line of the poem<sup>[7]</sup> that constitutes the subject matter of this composition. That same year, Joshua also made an original drawing for the cover of my *Song of the Open Road*<sup>[8]</sup>; Joshua's infinite lines corresponded to the subject matter of that song, an invitation to embark on a journey of shared joy. In May 2015, Joshua invited me to participate in a workshop entitled *Drawing as Draft* that was organized by Vertical Submarine<sup>[9]</sup>. Enter the next protagonist, Hilmi. Joshua<sup>[10]</sup> and

## Texts on Hearing Images Seeing Sounds

Hilmi<sup>[11]</sup> both graduated from LASALLE College of the Arts. In the process of working together, I discovered Hilmi's figurative painting and concept of fragmentation of cinematic frames.

Last but not least composer, performer, improviser and music technologist Dirk Stromberg teaches audio production at LASALLE College of the Arts. Dirk has been the system designer, engineer and e-luthier for each *time:space*: project since its inception. In 2014 Dirk was the real-time sound processor of my monumental orchestral piece entitled *Hanging Gardens*<sup>[12]</sup>.

%&%

### Course of action

My personal challenge in *Hearing Images & Seeing Sound* was that I played a dual role of producer and co-creator. Being awarded an NAC grant, I bore the responsibility for wise and transparent spending of taxpayers' monies. Conversely, orchestral conductors have to drive with authority. I was apprehensive that my duties as producer and *modus operandi* as conductor would nip creative ideas in the bud. I decided to adopt a heuristic approach in which the most appropriate solution of several found by alternative methods was selected at successive stages of the project for use in the next stage of the project. Intensive collective sessions in Milenko's studio<sup>[13]</sup> and in Gillman Barracks<sup>[14]</sup> alternated with separate individual incubation periods. In other words, for months the producer allowed a creative chaos whilst remaining deliberately vague about his own creative input. Coming out of the woods is literally what happened: two months prior to the completion of the project, I ascended Mount Rinjani. The sight of intricate exposed roots of trees triggered my creative thinking: in forests, trees and fungi exchange carbon dioxide forming an ecosystem based on cooperation rather than competition that scientists called "the wood wide web". I knew what I would do with Joshua's art work and Dirk's sonification of a vocal ensemble. Eurêka.

### Show time!

The performance-installation that took place on 14<sup>th</sup> December 2016 in the Dhoby Ghaut Visual Arts Centre was the public outcome of our one-year long transdisciplinary research. This well attended performance-installation opened the eponymous five-day exhibition. The performance consisted of seven segments<sup>[15]</sup>, a criss-cross of collaborative endeavours, with Milenko being involved in three segments, Joshua in six, Hilmi in four, myself in five and Dirk in all seven.

The first segment was a performance directly on the surfaces of Milenko's *Horizontal Dictionary*. This sculpture was laid out horizontally at the entrance of the gallery, as a welcoming limen, inviting the viewers spatially and the audience temporally. Milenko, Hilmi, Joshua and myself

## Texts on Hearing Images Seeing Sounds

played directly on the surfaces of the sculpture with an array of objects that were created by Milenko and sonified by Dirk. I was observing and listening to my fellow performers, so as to consciously execute different rhythmic patterns contrasting with Milenko's ostinato and Joshua's and Hilmi's colouristic gestures; meanwhile, Dirk's sonification was enriching the timbral textures. This segment is a continuation of *Sound Journey*<sup>[16]</sup>, a project I conceived and executed in 2006 with a large group of National University of Singapore Architecture Year 2 students in collaboration with Belgian sonic artist Baudouin Oosterlynck. The students designed and built a double-S-shaped pavilion. Three percussionists played directly on the walls of the pavilion. The outcome was a performance on a pavilion designed and built by the students. The following quote by writer Lionel Lye<sup>[17]</sup> on *Sound Journey* remains applicable to the first segment of *Hearing Images & Seeing Sound*: "*Sound Journey* gives Casteels the opportunity to forge new ground by writing for an instrument that has yet to be born, as yet non-existent. The work is then a journey of exploration, into how sound produced by the instrument would develop as work on it progresses".

The second segment entitled *Found Ultrasound*, during which Joshua draws directly on the glass wall of the gallery whilst his visual gestures are sonified by Dirk, is conceptually a continuation of Baudouin Oosterlynck's haptic approach to sound and materials during the above-mentioned *Sound Journey* project: various specially devised listening devices allow us to hear sounds that travel naturally in materials. In my composition entitled *Taman Suara*<sup>[18]</sup>, sounds were created with and from bamboo stems as well as with and from banana leaves.

The third segment is a complex cascading interaction that chronologically unfolded as follows: Milenko created a vertical sculpture<sup>[19]</sup> in his studio; still in the studio Joshua drew on graphite paper the gradually changing shadows<sup>[20]</sup> that were the result of lighting created by Hilmi; Hilmi filmed this process in Milenko's studio and projected the video<sup>[21]</sup> in the Dhoby Ghaut Visual Arts Centre; Robert played the Sphere that interacted with the video thanks to a trigger mechanism designed by Dirk. The Sphere is an electronic instrument built by Dirk in 2014 "to allow the performer to sculpt sound through physical means"<sup>[22]</sup>. I had a ball<sup>[23]</sup> playing the Sphere for this third segment.

Segment four and seven were the most important in terms of performing duration and number of performers. Given that the acoustics of the gallery of the Dhoby Ghaut Visual Arts Centre are very resonant, I chose to work with singers rather than with instruments. I had previous experience with graphic scores<sup>[24]</sup>, but this approach was the more radical so far. I sliced a copy of two of Joshua's drawings<sup>[25]</sup> evenly into eight parts.

## Texts on Hearing Images Seeing Sounds

I distributed these slices clockwise to eight singers<sup>[26]</sup>: two sopranos, two mezzo-sopranos, two tenors, a baritone and a bass. Dirk and I gave the singers a series of sound gestures. Joshua's drawings became the graphic scores for the singers who accomplished a double journey: a vocal improvisation consisting of antiphonal calls, solos, tuttis, climaxes and resolutions as well as a perambulation amongst the audience centrifugally away from the departure and arrival points of Milenko's vertical sculpture<sup>[27]</sup>.

During the sixth segment, the singers performing on the Box<sup>[28]</sup> and I playing on the Sphere engaged in a musical dialogue. The Box is one section of Milenko's vertical sculpture in which Dirk incorporated sound producing designs. In the coda of this segment, I played briefly on Milenko's horizontal sculpture<sup>[29]</sup> to create a overall, arch-like structure.

%&%

Coda<sup>[30]</sup>

For some reason which I cannot explain, I often get musical inspiration by visiting exhibitions of contemporary visual arts. There is much to gain from art forms that are different from the one I am professionally engaged in. At a level of transdisciplinary research, we explored and understood better the ways in which the human eye and ear apprehend sonic and visual art because artwork was developed right from the conceptual stage.

Somewhere, somehow, everything is connected.

---

[1] Dütching, H. (1997). Polyphonic Painting in Dütching, H, Paul Klee: Painting Music (pp. 65-79). Prestel Verlag, Munich. For the artists of the Bauhaus, the impressionists, Kandinsky, Kupka, Cage, Debussy, Mussorgsky, Schoenberg and others, see Vergo, P. (2005). The Music of Painting, Phaidon, London.

[2] No Face, Interface for dancers, actors, musicians and visual artists on "The Flowers of Evil" by Charles Baudelaire.

[3] I purposely use this Latin expression because the term is commonly used in music to indicate "at one's choice."

[4] During this project visual artists seemed to experience time as amorphous and elastic, in marked contrast to performers who treat time as a limited and precious commodity.

## Texts on Hearing Images Seeing Sounds

- [5] For the second Singapore Biennale, entitled *Wonder*.
- [6] Opus 51, trio for kayagŭm, viola and mime (composed in 2006).
- [7] “A line runs away like a thin snake/ A second line pursues quick as light out of darkness/ One after another, other lines bite the petals”, poem by Korean poet Moon Deuk-soo.
- [8] Opus 62 for high male voice and piano (composed in 2008).
- [9] Art collective founded by Joshua Yang in 2003.
- [10] MFA (Sculpture) Open University, UK / LaSalle-SIA College of the Arts, Singapore in 2006.
- [11] LASALLE College of the Arts – Open University, Diploma in Fine Arts (Painting) in 2009 and LASALLE College of the Arts – Goldsmiths University of London, Bachelors of Arts (First Class Honours in Fine Arts) in 2013.
- [12] Symphonic poem opus 105 for large orchestra, electro-acoustically processed sounds and video (composed in 2015).
- [13] DELIARTS Studio.
- [14] Gillman Barracks is a visual arts cluster that was launched in Singapore in September 2012.
- [15] See listing on page xx of this catalogue.
- [16] Opus 53 for percussion trio on a listening pavilion (composed in 2006).
- [17] Lye, L. (2006). Robert Casteels: More than meets the eye/ear, (pp 26-28), Singapore.
- [18] Concoction for theremin, three saxophones, three electric guitars, three keyboards, percussion and Musa Paradisiaca Sapientum sounds opus 62. This piece was composed and created in 2007 as part of project entitled *Music, plants and food* in the Arts House at the Old Parliament with Belgian painter and visual artist Bob Verschueren.
- [19] Entitled *Vertical Dictionary 2*.
- [20] Entitled *Shading the Shadows*.
- [21] Entitled *Echoes: Improv #4*.
- [22] Stromberg, D. J. & Casteels, R. (2016, May). ICMA Array, vol 2016, Special Issue: Proceedings of Si15. (pp 98-100). Singapore, August 2015.

## Texts on Hearing Images Seeing Sounds

- [23] Dirk and I wrote and presented an academic paper entitled *Having a Ball with a Sphere*. Cfr Stromberg, D. J. & Casteels, R. (2016, May). ICMA Array, vol 2016, Special Issue: Proceedings of Si15. (pp 98-100). Singapore, August 2015.
- [24] *Sound Journey* opus 53, *Taman Suara* opus 62, *Bird Songs* opus 66 nr 1 and 2, *No M* opus 72.
- [25] Joshua created these drawings for this project. They are titled *Still Life in Blue Minor No. 1 and 2*.
- [26] Evelyn Ang, Angela Cortez, Melissa Estrella, Daniel Ho, Jeremy Koh, David Ng, Leslie Tay and Felicia Teo Kaixin. I collaborated with this same vocal octet for a 2016 production of *Misa Flamenca* danced by the company *Flamenco Sin Fronteras* led by Antonio Vargas.
- [27] *The Vertical Dictionary 1*.
- [28] Explained by Dirk Stromberg in his article on page xx of this catalogue.
- [29] *The Vertical Dictionary 2*.
- [30] A fitting term that designates in music the conclusive section of a composition.

---

[1] Simner J, Mulvenna C, Sagiv N, Tsakanikos E, Witherby SA, Fraser C, Scott K, Ward J. [Synaesthesia: the prevalence of atypical cross-modal experiences](#). *Perception*. 2006;35(8):1024-33. PubMed PMID: 17076063.

[2] Loui, P., Zamm, A., & Schlaug, G. (2012). [Absolute Pitch and Synesthesia: Two Sides of the Same Coin? Shared and Distinct Neural Substrates of Music Listening](#). *ICMPC : Proceedings / Edited by Catherine Stevens ... [et Al.]*. International Conference on Music Perception and Cognition, 618–623.

[3] Bierce, A. (1911). *The devil's dictionary*. New York: World.

[4] Thrift, N. (1977). *An introduction to time-geography*. Norwich: Geo Abstracts, University of East Anglia.

Texts on Hearing Images Seeing Sounds

## About *Dictionary*

*Milenko Pravkci*

For a long time, Robert and I have talked about Mussorgsky's *Pictures at an Exhibition* and the idea of collaboration between him, as a musician, and other visual artists.

Nothing-new, the art-historian would say.

Historically, there is evidence of "mutual sound" art, a kind of hybridity of image and sound.

A mixture of postmodern incompatibility.

My long-time investigation with idea of dictionaries, an obsession that never stopped for the last 40 years, was a perfect starting point for such an ideal marriage of art mediums. The origin of this specific dictionary-based approach started during my Master's programme in Bucharest, Romania, and was then expanded and developed in Singapore for the last 25 years.

My mother tongue is Serbian; my second language is German. I did studies in Romania (I did not know Romanian so I had to learn it, and I did) and I have ended up in Singapore (I did not speak English previously). In both cases, a little book called the dictionary was my best friend; my reservoir of words that I have to learn, combine and communicate.

Nothing is more valuable and condensed with knowledge than a dictionary. The series of notions in alphabetical order!

It is a great book without any narrative. There is no need for a story to help, to make its content comprehensible. That was a continuous challenge for me, and it inspired me immensely.

Eurêka!

I started an independent project *Visual Dictionary* 20 years ago with the idea of creating a compilation of non-related images in "alphabetical" order, and not according to a narrative logic. Using drawings, paintings, assemblage, mosaic, sculptures and installation as a medium--exploring the impossible. Hearing music helps to learn languages you do not know.

So, in my case, the idea of image and sound was the seed placed in very fertile ground.

### Idea

Having a dictionary-based structure in mind helped me to develop a process in *Hearing Images – Seeing Sound*.

Our first discussions started in meeting rooms at LASALLE College of the Arts, Singapore.

Then, the initial spark started to take a shape during our residency at the Centre for Contemporary Art (CCA) and continued in my studio with many sessions (images), discussions,

## Texts on Hearing Images Seeing Sounds

explorations, as well as unavoidable, yet constructive tensions. It became clear that all of us participating artists in the project were partly placed in an uncomfortable zone, but charged with resonant energy.

The first drawings (image) made their appearance in my studio, and it was like a great icebreaker. Layering different materials similarly to geological layers (alphabetic) and following verticality. Erecting a form that can carry any material, medium, texture, assemblage of various materials connected with just one architectural structure that keeps elements cohesive. (Image)

At that point, I had already got the configuration of the image and I knew what I intended to build up, but I did not yet know how to manipulate the sound, and how to take advantage of my construction in order to generate the sound that will belong to the form and the material itself.

### Development

The first genuine moments of “collaboration” started while we were exploring in my studio with Joshua’s infinite line and Hilmi’s documentation of sculptures “growing up” shadow (filled up by Joshua’s infinite line) and one of my finished sculptures, *Vertical Dictionary 2* (2016). (Image) This video performance received an additional touch of collaboration with Robert’s introduction of his manipulation of the Sphere, and Dirk’s sound creation over duration of the performance. We all felt something magical had happened, opening the path to more experimentation.

In my discussions with Dirk about how to make my dictionary sound like a dictionary, he came up with his brilliant idea for the Box. My *Vertical Dictionary 1* (2016) is made of independent layers. (Image) One of the wooden box’s elements with holes (image sample) attracted his attention, as it reminded of a child’s finger-play with metaphysical (imaginary) space.

Dirk’s sonification, which was sampled from cutting or otherwise manipulating various materials (wood, Styrofoam, sponges, metal, filth, bamboo, rattan), was in fact perfected in a professional studio, together with Robert, even before the sculptures were done. Elements started to unify and get synthesised.

When Dirk’s sonified my *Horizontal Dictionary* in my studio during one of our “rehearsals,” I got the idea to create a sort of a new “percussion dictionary.” This could then be manipulated with object-tools in order to generate tones and sounds authentic to the material interaction. (image). This generated an honest and spontaneous attraction for all members who engaged in the performance. (image)

### Installation, Performance

In this phase of action things started to develop more hurriedly. Puzzles are matching more and more, and “gray” spaces started to get filled up with a visual and aural sense.

## Texts on Hearing Images Seeing Sounds

My *Horizontal Dictionary* started to function as an introduction to the image – object, and one of the “sounds” of our common project was identified, with a demonstration of synthesis of elements and situations.

The activation of Roberts vocal ensemble’s final composition filled up the space in a constructive way, making all assembled perceive its purpose of existence. (Images) The ensemble’s singers have demonstrated a high level of visual understanding of how vocal intervention can determinate and extend the fusion of mediums by acting very concisely, integrating their bodies and use of voices in given situation.

We have functioned well, and precisely like a clock. We have condensed and encapsulated several months, long hours of trials and much effort in just 2 hours of action.

## A Theatrical Approach to Collaboration

### Dirk Stromberg

Presented with the artistic vision of representing *Hearing Images & Seeing Sounds* by its nature is a challenge. To me, it was clear that technology could be used to bridge the gap of this transdisciplinary endeavour. I began to look at each of the artists' work to see where there could be an intersection to uncover the project's title within the works.

There were a few approaches that are worthy of mention, as well as how technology was used to tie the work together as a production.

### Unravelling Sonic Drawings

I first began working with sonic drawings in 2012 with visual artist John Stewart Jackson. The work began with live manipulation of John Stewart's drawings with pencil and paper on a hollow wood base as a resonator. The artist had a very physical style and was very musically sensitive. The result was compelling and did capture the attention of other artists and musicians. The short coming, in my mind, was that the music was made from a manipulation of the sound rather than created as a direct result of the artist; or, more simply, I wanted sonic drawing to behave like a transdisciplinary musical instrument.

The goal of the process had begun to be formulated. A sonic drawing instrument would take the original signal of the drawing and process it. The processing would be applied through the analysis of the physical and sonic gestures.

In the summer of 2016, I found myself in an Artist-in-Residence programme at Sloss Furnaces with John Stewart Jackson. We were now putting together a full-scale, site-specific production show with Dance, Visual Arts and Music entitled *Convergence*. A portion of the work included sonic drawing. The revival of the work allowed for a reinvention of the process, and to slowly make it come alive as I had always wanted. This rendition involved three visual artists making marks on 3 large, suspended sheets of metal. The works were very physical in performance, and once again each performer was very animated and sonically sensitive. The medium of large metal sheets also lent itself to a broad sonic palette naturally, even more so than pencil on a wood. Most importantly, for myself, I had achieved an independent instrument within the process of sonic drawing.

To me it was clear that sonic drawing was the ideal approach to unravel the concept of *Hearing Images and Seeing Sounds*. The issue came as the medium was marker on glass. It was clear that there were issues with translating the process from sonically rich and loud sources to delicate and monochromatic sources. This led to a number of issues: a lack of sonic diversity and a low threshold between the noise floor and the input audio signal. In response I had to

## Texts on Hearing Images Seeing Sounds

develop the software further to make it more capable of achieving greater sonic diversity, while still keeping the integrity of the original goal of a sonic drawing instrument.

To reinvent the instrument involved more robust noise masking algorithms to help increase the range between the noise floor and the input signal. There was also a further implementation of my audio analysis software to create greater overall control. The result was a more compelling and versatile sonic drawing instrument. The instrument finally became not only autonomous, but also allowed for a greater diversity of sound and a greater portability of mediums.

The challenges posed by the adversity of applying to preconceived ideas – the idea of sonic drawing on my part, and marker on glass on the visual artist's part – led to greater development and a greater artistic success in the end.

### **The Box**

Milenko was creating a number of sculptures that had already been formulated in his mind. He explained his work to me as a series of dictionaries of materials. I hoped that I could find a way of sonifying each of the sculptures by somehow applying the same concept of dictionaries. Fortunately, Robert Casteels had previously made audio recordings of Milenko physically working and creating with the materials, such as: sawing Styrofoam, drilling wood and other means of construction.

It was important to create a new instrument that would stand apart from the other pieces of technology implemented. In particular, it could not be another work of sonification – as this approach had already been taken for sonic drawings, as well as another sculpture by Milenko.

The sculpture that I was working on at this point was a monolithic work with many materials in each layer. The sculpture was also mobile on wheels, so the computer, amplifier, speakers and all had to be built into the sculpture. None of the materials were conductive, so it was not possible to have the instrument directly interface with electronics. Fortunately, there was a wooden box with holes in the center section of the sculpture. I decided to build the audio system as well as computer into this section.

The Box, as I began to call this part of the sculpture, still needed a method of interaction. Through some experimentation, it was decided to make the holes function as capacitance sensors. This allowed the Box to become integrated into a sound system and computer, as well as to have a method for human interaction.

The last piece of the puzzle was the most difficult. To me, it made no sense to build a synthesizer inside the Box. It did not seem to fit the concept of a dictionary. I struggled greatly with what all this technology I had designed and implemented would do – this is rare, as usually I have a sound in my head that I work towards. Finally, I decided that I would build a playback system for the recorded sounds of Milenko, as well as a simple system of manipulation. It was a

## Texts on Hearing Images Seeing Sounds

simple solution, but it allowed for a different sonic palette, as well as representing the idea of Milenko's dictionary.

### **Hilmi Johandi**

Hilmi certainly deserves a mention in the process of tying together Robert's vision. His work with video, as well as our numerous discussions about the project, led to a number of solutions to unveil the breaking down and redefining bounds of disciplinarity.

The most significant of our collaborations was the video he made of Joshua Yang creating his reaction to the assembling of Milenko's sculpture which houses the Box. This video became a centrepiece of the show. Each frame unveiling aspects of the drawing and the sculpture, which also loomed in the room. His desire was to have the video react to Robert's playing of the Sphere. Eventually, we found an aesthetically interesting way of unveiling his whole video through Robert's playing.

We took a simple solution to allow for the audience to understand the relationship between the playing and the video. Working with a suggestion from Hilmi, I created a control network to allow for the video to respond to the pitch of Robert's playing. The end result was dynamic video playback that allowed the audience, per the exhibition's title, to hear images and see sounds.

### **A Production**

As an exhibition and series of work, the installation was a compelling work. The need for it to also be a production created a number of challenges, as well as opening up possibilities for elegance and performance.

I took a theatrical approach to the production. Theatre has developed a deep culture of running shows efficiently and flawlessly. What was needed was a way to have control over each element of the performance to allow flexibility and a dynamic performance.

There were a number of complications, including the inclusion of a number of fixed videos, interactive videos, and the reality that the performance relied on 6 computers, most of which were locally stationed and needed remote interaction. In turn, I planned for and created a network to tie the performance together. The network became the infrastructure to allow for the interaction of various artistic offerings – for example, the ability for one computer to process the audio or video of another – as well as create a seamless tapestry of time through the performance.