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IM-MEDEA:
POSTHUMANISM AND
REMEDIATION IN MUSIC THEATRE

Thanos Polymeneas Liontiris
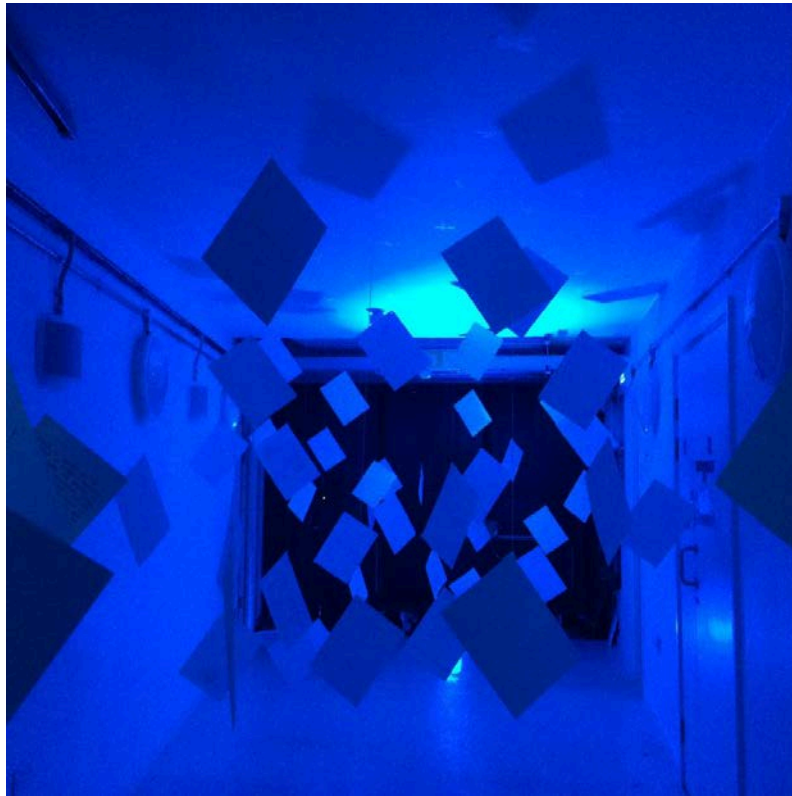
To my Medea, our Jason and the Argonauts,
Without whom this PhD might have finished much earlier,
but it wouldn't have been so much fun.
As always, the journey is what matters!

ACKNOWLEDGEMENTS

UNIVERSITY OF SUSSEX
THANOS POLYMENEAS LIONTIRIS
PHD THESIS IN MUSIC THEATRE

SUMMARY OF THESIS:
IM-MEDEA: POSTHUMANISM AND REMEDIATION IN MUSIC THEATRE

This thesis is the part of a practice-based research on experimental music theatre. It investigates the theoretical notions of *posthumanism*, *cybernetics* and *remediation*, when practically applied on new music theatre. The research aims to address questions such as: "Which theoretical principles of cybernetics and posthumanism could contribute to the compositional practice of new music theatre?" and "Which tools of interactive art and immersive creative practices could be employed for the making of new music theatre?".

The research took place in the period between October 2014 and September 2018 and resulted in this thesis, which is divided into two parts. The first part is an introduction to the theoretical context of this research. It lays out the intentions and rationale of the project; it presents the research questions with the methodology used to address these questions. Furthermore, it analyses the theatre play upon which the practical work was based: Heiner Müller's *Despoiled Shore Medea Material Landscape with Argonauts*. The second part is essentially the presentation of the practical works (i.e. experiments and performances). These works aim to embody the intentions, theory and methodology of the first part. The second part closes with conclusions and recommendations for further research in this field.

This practice-based research is focused on creating new immersive music theatre experiences, involving novel interactive and cybernetic methods between music, technical system, performers and audiences. Its substantial original contribution to knowledge is in the development of a series of methods for devising cybernetic and ecosystemic music theatre performances based on behavioural interactions between performers, audience and technology. Through the new aesthetic and dramaturgical possibilities that emerge from these works, the research contributes a theoretical understanding of the phenomenological and experiential aspects of these interactions. It is a generative type of performance orchestrated by computational and interactive processes, in which the author ceases to be the composer exclusively. The research investigates the new dynamic relationships established between performers, audience and technology in this new performance context. In addition, the theoretical contextualisation situates this type of practice in the wider aesthetic and philosophical milieu.

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PART 1 – THEORETICAL CONTEXTUALISATION OF THE THESIS

1. CHAPTER 1 - INTRODUCTION

1.1 RESEARCH CONTEXT

> "*Methods wear out, stimuli fail.*
> *New problems loom up and demand new techniques.*
> *Reality alters: to represent it,*
> *the means of representation must alter too*".
>
> Bertolt Brecht

Contemporary theoretical observations suggest that the Enlightenment's anthropocentrism is being replaced by notions of posthumanism (Braidotti, 2013). In this new context, humans are not seen anymore as inherently superior to their environment (both natural and artificial) but rather as part of it. Any human action can cause series of reactions that could eventually have repercussions on them. Therefore, old structures based on hierarchical models and defined by linear processes are replaced by complex multidimensional and multidirectional networks, and the old anthropocentric narratives crumble.

Recent theories present the human as a node in a larger ubiquitous material-semiotic network (Latour, 2005) comprised equally by human and non-human actors. Also, technological developments challenge many notions regarding the human condition. Humanity finds itself in a process of redefinition, following philosophical observations (such as those of Foucault, Butler, or Sloterdijk) and "bio-technological developments of the twentieth and twenty-first centuries" (Ferrando, 2013, 26). In this context, interconnectivity, in different hues and manifestations, has become increasingly prominent in cultural life in the last decades (e.g. the internet, social media, the internet of things). Moreover, users' daily experience through interactions with pervasive

media and ubiquitous computing applications constantly increases in many different contexts (e.g. architecture, transportation, education).

Art is unavoidably affected, undergoing similar processes of change; this may manifest either by the incorporation of new media that challenge the essence of the art form itself, or through new practices that suggest the 'dematerialisation of the art object' through notions introduced by *Object-Oriented Ontology* (Harman, 2018). Opera[1] specifically has always been engaging with the subject of the human condition (Žižek & Dolar, 2002), as this condition is in a process of change, opera makers engage in artistic research involving new media in their practice. Examples include network operas, *Auksalaq* (Burtner & Deal, 2011), mobile and site-specific operas, *iOrpheus* (Davidson et al, 2007), virtual reality operas, *Cathedral* (Duckworth, 1999), social media operas, *Twitterdammerung* (Morrison, 2010), virtual stages for opera, *Virto/Stage* (Hugill, 2016), Machinima operas, *Libertaria* (ibid), digital gaming/virtual environment operas, *Operacraft* (Bukvic et al, 2013), Hyytiäisen and Nousiainen's QR coded video opera-app, *You are here* (2014), Rieser and Hugill's, Web operas, *Rossum Universal Replicants* (2014), vocaloid operas, *The End* (Sousa, 2016). However, the works cited here do not fully engage with some of the most prominent posthuman principles that derive from cybernetic theories such as "self-organisation" and "auto-poiesis" (Hayles, 1999, 16) or "sympoiesis" (Dempster, 2000; Haraway, 2016). On the contrary, they often present anthropocentric approaches and on certain occasions they evidence a lack of critical engagement with the semantic properties of the media used. In other cases, the works appear to proliferate the intellectual properties of the old humanities' narrative, evidencing "transhuman"[2] (Ferrando, 2013) tactics.

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[1] In this context, the term Opera is considered to be a synonym to music theatre.

[2] Transhumanism has its roots in rational humanism. It can be understood as "ultra-humanism" (Ferrando, 2013, 27). It is essentially a disguised anthropocentric ideology, whilst posthumanism is an overarching philosophical umbrella for different theories. Transhumanism is a means to an aim rather a critical observation of the human condition. It suggests that the human kind should prevail and exist forever even

Moreover, what I find problematic in the above-mentioned works is the voice aesthetics that they employ. The voice use does not appear to reflect the medium and space they are composed for, on the contrary, it continues to maintain the character suitable for late 19th century opera houses. Whether these works are composed for mobile devices, for the web or for virtual reality, even if they employ extended instrumental techniques for all other instruments, the voice in these works maintains romantic aesthetics. Such lack of adaptation of the voice to the new media and —virtual or real— spaces reflects lack of critical engagement with the subject, as it conveys a series of cultural semiotic incoherencies. They propagate noticeable clashes between cultural properties of 21st century media and the aesthetic and intellectual features that derive from the anthropocentric Enlightenment. It is evident that the qualities of late romanticism operatic voice seem to be at the core of the current conception and definition of opera and music theatre. However, any attempt to include such qualities in new opera works without acknowledging the cultural significances these might carry can prove counterproductive for the work itself. Hence the paradox: in order to venture into the realm of new opera one might have to first redefine the notion of opera itself. In order to connect opera to its future one might have to challenge some of the most critical aspects of its past.

In other neighbouring art forms, such redefinitions have been long undertaken. Edgar Varese's definition of music as "organised sounds" (Goldman 1961, 133) has empowered artists with creative freedom, far from the traditional restrictions of harmony and melody. Such freedom has revolutionised music, enabling the successful production of outcomes that diversify and proliferate the music landscape. A definition of opera that inspired and contributed greatly to the conceptualisation of this project is the observation of it as an "orchestrated experience" (Till, 2014). There are two

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if it has to colonise other bodies such as new planets after the Earth's devastation through human exploitation.

reasons I found this definition inspiring.

The first one relates to the notion of orchestration as the art of music instrumentation for an orchestra, the combination of different instruments in a composition based on their timbre properties. However, instruments are constantly changing and new instruments have been developed. Current approaches to instrument-making embed human-computer interaction. Such processes of interaction often rely on *technology interaction* e.g. Michel Waisvisz's *The Hands* (Krefeld and Waisvisz, 1990), *BioMuse EMG* (Tanaka, 2011). Methods of *performer-technology interaction* have been successfully applied in new operas: Aperghis' *Paysage Sous Surveillance* (2002), Machover's *Death and the Powers* (2010), Pamela Z's *BodySynth®* and Carl Unander-Scharin's *The Throat* (2014). However, these types of performances often exclude spectators from the interactive processes. Such exclusion prevents posthuman and cybernetic notions of interconnectivity, sympoetics (Dempster, 2000; Haraway 2016) in which the audience has a sort of agency in the development of the experience.

The second reason I found the term "orchestration" inspiring was even more important for this research. Orchestration in informatics is defined as "mechanism that defines how web services work together" (David & Chalon, 2009, 797) it can be understood as a system that arranges, coordinates and manages complex computer systems, a sort of the system of systems. This definition of "orchestration" suggests notions of cybernetics and networking, which made me wonder how orchestration could be applied onto aspects of music theatre. I started contemplating how the music or the theatrical action could be the result of live computational operations and complex conditional algorithms, and whether such processes could be happening live in an operatic context. This hypothesis is conceptually associated with instrumented or responsive spaces based on *spectator-technology interaction* models, which

are approaches used in interactive art.

In these works the spectators immersed in —real or virtual— spaces are offered a kinesthetic experience "orchestrated" by computational processes e.g. *N-Cha(n)t* (Rokeby, 2001), *Map1* (Paine, 1997) and Jordan Edge's *Acclimate* (2017). Similarly, Jason Freeman's performances *Glimmer* (2004) and *Flock* (2007) challenge traditional notions of music orchestration and instrumentation, suggesting a *spectator-technology interaction* in music making. These works rely on audience participation and technological agency (Freeman, 2008a) for the real-time development of the composition. Other works that can be mentioned under the category of *spectator-technology interaction* are Tod Machover's *Toy Symphony* (Jennings 2003), Kevin Baird's *No Clergy* (Baird, 2005), McAllister, Alcorn, and Strain's audience interactive performance using PDAs (2004) and Wulfson, Barrett, and Winter's *LiveScore* (2007). In all these works the audience may contribute to the development of the musical experience in one way or another. In similar contexts, gamification (Burke, 2014) has been a successful method to convert audiences into participants, such as in Cinematrix (Carpenter and Carpenter, 1999), Maynes-Aminzade, Pausch, and Seitz motion tracking systems (2002) and New York University's Movement Lab *Squidball* (2005). However, it is crucial to mention that there seems to be a lack of adaptation and appropriation of such processes in music theatre.

Comparable processes of "orchestration" can be found in the context of theatre, where immersion and interaction do not necessarily involve computational technology. Makers such as Grotowski and Boal have developed strategies to actively involve spectators in the devising of the performance (Klich & Sheer, 2011,176). More recently, Blast Theory with — among other works— *Can You See Me Now?* (2001) and *Kidnap* (1998) have been utilising game strategies to assign agency to the spectators. In the

Punchdrunk production *The Masque of the Red Death* (2007), spectators immersed in the setting are offered the possibility of interacting physically with the performers. Furthermore, in *Last Will* (2008) Punchdrunk combined gamification, immersion and technological interaction.

Therefore, theatre, music and installation art practices increasingly incorporate new challenging and transdisciplinary methods that expand their definitions of art forms. Surprisingly though, there seems to be a lack of similar research in music theatre. Music theatre appears to have difficulty with interactive methods that are now commonly employed in music and theatre on their own. This might be due to the assumption that music theatre relies on a fixed musical-dramatic form and structure. This assumption goes back to Monteverdi, who, in his day, criticised music theatre works in which performers were allowed to improvise part of the opera. Monteverdi, in his letter to Alessandro Strigio in 1616, was advocating the necessity for "one person" to have the overall control in order to create an effective dramatic experience (Monteverdi, 1980). Monteverdi's statement resonates to later understandings of opera such as the Wagnerian gesamtkunstwerk (Wagner, 2008) according to which every element must work to one overwhelming end —with one person having the final executive decision over the overall experience. Such approaches have been challenged in John Cage's music theatre works in which indeterminacy has a very prominent role. However, to my knowledge there are no examples of work in which the music theatre experience is orchestrated through a shared responsibility between audience, performers and technology.

This research aims to draw inspiration and valuable information from the experience of successful processes of interactive and participatory performance, installation and theatre, to contribute to a new music theatre gesamtkunstwerk. My intention is to merge elements of these different art practices in a music theatre context, to devise hybrid audience-immersive and

interactive music theatre installations. Conceptually this merge reflects the process of remediation (Bolter & Gursin, 2000), a concept deriving from Media theory according to which a medium can exist within another medium to convey new experiences. This research contemplates the idea that this process might be transferable and applicable in art: when processes that are used extensively in one art form, may contribute in the remediation of another art form once incorporated in it. Moreover, it aims to fulfill some of the scholarly requests expressed about the need in music (and music theatre) to integrate some of the audience-immersive and interactive processes that are extensively used in contemporary theatre (Benford, 2010).

1.2 INTRODUCTION TO THE RESEARCH

This thesis aims to draw links in the form of a network to different notions and practices. At its core resides the main research subject (technologically-aided audience-immersive music-theatre-making), whilst being linked to the influential theories of posthumanism; theatre and performance studies; the study of systems and cybernetics; Actor-Network Theory (ANT); remediation theory; and the philosophy of technology. One could argue that the amount of disciplines and theories appearing here might potentially disperse the subject of this thesis, failing to holistically theorise the practice. I would invert this argument and pose that it is unavoidable to follow a *transdisciplinary* approach to theorise on the *transdisciplinary* practice of a gesamtkunstwerk. The outcomes that will emerge through the intellectual processes do not aim to observe the subject from a single perspective, each one of these theories is used to translate, decipher, analyse, interpret and reflect on different aspects of the practice and the work, in order to situate it in the contemporary aesthetics, technological practices and wider philosophical spectrum. The work, both theoretical and practical, evidences the postmodern fluidity,

interaction and interconnectivity of concepts, objects and subjects and the role of this analysis is to reflect and evidence these conceptual interactions as they manifest in the practical work.

For this project I worked on Heiner Müller's Medea sequence [3] (*Despoiled Shore/MedeaMaterial/Landscape with Argonauts*) as the material for new music theatre. The practical work comprises nine "phenomenological" experiments on new music theatre. In a way they were a series of present-at-hand (Heidegger, 1962) situations through which I was trying to decipher what these experiments actually appeared to be to me, to the performers and to those who attended them. I was interested in their relevance, their *raison d'etre* and their contribution to the wider arts and humanities context. In this process of evaluating each experiment, I experienced the *measurement problem* (Krantz et.al, 1971) by asking myself the question: "how could I measure the experience (of the audience and performers) in such a way in order to be adequate, efficient and relevant to the phenomenon measured?" The outcomes of each experiment contributed in the experiments to follow, because of that the experiments that will be presented in Part 2 are placed in chronological order.

All the performance experiments had a common point of departure, the abolition of the theatrical *fourth wall* notion (Stevenson, 1995); music theatre spectators became voyagers in the performance landscape and agents in its making process. They engaged in technological interaction and audience-performer interaction, whilst being immersed in the mise-en-scène. The spectator was envisioned to have a hybrid experience between music theatre and interactive/immersive installation. Moreover, the research strived to create a non-hierarchical environment between technology, performers, and audience. In this context, technology facilitated the hybridity of the

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[3] Disclaimer: In this text Heiner Müller's work *Despoiled Shore Medea Material Landscape with Argonauts* will be referred to as Medea sequence.

performance environment while having a prominent role without being a subordinated entity to the one of the performer or maker. The environments were devised on rules-based algorithms, conditional/Boolean processes and flux diagrams of actions and reactions between these three entities (i.e. performers, audience and technology). Conceptually, the project envisioned the development of a "transindividual nervous system" (Birringer, 2004) a sort of material-semiotic network between performers, audience and technology. Therefore notions of interconnectivity and the multidirectional relations between humans and computers were crucial in the development of the experiences.

1.3 RESEARCH QUESTIONS

The more I was researching interactive and participatory processes in theatre and performance, the more questions arose regarding the taxonomies of interactive, participatory and immersive performances, looking at their hues, their similarities, their differences, and their position in the aesthetic and philosophical spectrum. I was trying to understand the phenomenology of these performances. How they are actually experienced and what is their contribution; whether they are gimmicks of our time or whether they are founded on a solid aesthetic *raison d'etre*. In regard to music theatre I have been wondering whether it could potentially be co-authored through audience immersion and technological agency, or whether the term co-authorship was a far-fetched one. I was speculating the role of technology in that context, thinking of the challenges that such performances foster, considering their technicalities and aesthetic specificities; navigating the dramaturgical affordances and semantics that an audience-immersive technologically-interactive music theatre could bear. I wondered how processes used in interactive art could be employed in this context to shape and inform a new

type of music theatre. From a practitioner's point of view though, I felt the need to reply these questions through a very personal manner: by realising practical work whilst operating right at the border of music theatre, using processes and practices from different disciplines, aiming towards a new type of transdisciplinary work, aspiring to expand music theatre's conceptual territory. The actual research questions that accompanied me closely these four years, have also informed both the practical and theoretical contributions of this work.

• Which theoretical principles of cybernetics and posthumanism could contribute to the compositional practice of new music theatre?

• Which tools from interactive art and immersive creative practices could become tools for the making of new music theatre? In particular, how can these tools create a dramatically compelling piece of music theatre that does not depend upon a predetermined and predefined structure?

• How could computational technology mediate between performers and audience without becoming the subject of the overall work?

• Provided that Müller's Medea sequence could be observed as an early utterance of posthuman notions, how can it be portrayed in the contemporary computational technology context?

• How could Müller's Medea sequence be used as material for new music theatre?

1.4 METHODOLOGY

To answer these questions I followed a mixed qualitative methodology, based on a practice-based research. The methods used borrowed principles from

experiential learning methodology (Kolb, 1984) and *ethnomethodology* (Garfinkel, 1984). *"Practice-based Research* is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice" (Candy, 2006, 1, emphasis in original), therefore it aspires to contribute substantially to the advancement of knowledge within or about the practice it engages with, through a process of learning-by-doing. Being an art practitioner working in the transdisciplinary field of music, technology and performance, I felt confident that I would attain much more valuable results through a practice-based research, as I would use technical, technological and practical tools I already had in my disposition.

In order to rigorously assess my ideas I borrowed principles from *experiential learning*, the process of learning through a concrete experience, or "learning through reflection on doing" (Felicia, 2011, 1003). According to this method any *Concrete Experience* in a research environment becomes subject of a *Reflective Observation*, the results of which suggest hypotheses for both the understanding of the experience and the optimisation of the processes employed in it. The hypotheses emerging at this stage are called *Abstract Conseptualisations* and they get assessed during the next stage of *Active Experimentation*. With the realisation of a new *Active Experimentation,* a new *Concrete Experience* is offered, which can be observed and analysed further. This is the so-called continuum process of the *Experiential Learning Model* (ELM). This circular process of observation, assessment, enhancement and retesting contributed crucially in the development and fine-tuning of both the practical work presented and in establishing solid conclusions about the theory behind the practice. This method could be considered as a constant process of optimisation of both processes and concepts.

The other methodology I borrowed methods, principles and inspiration from was *ethnomethodology* (Garfinkel, 1984), another reflective-based

methodology deriving from social sciences that takes in consideration the personal experience of the participant. *Ethnomethodology* observes the user in a natural situation to gain data from what the user notices whilst in a process. It is therefore a reflective process based on the observations of the users themselves. In *ethnomethodological* enquiries the understanding of a situation results from the observation of the situation itself rather than any larger methodological scheme applied to it. Questions like: "how do they react to the environment and the stimuli?", "what do they feel they have to look out for whilst in it?", "what does it mean to them?", "how do they engage with it and what do they seek while in this process?" are normally the ones shaping the project during an *ethnomethodological* enquiry. The reason I was interested in this rather than any other methodology (for example ethnography) was because I wanted data that derived from the audience and performers' feedback on the experiences, rather than having them responding on my views about the work.

Any collected data from a previous observation, through critical reflection informed the experiments to follow. The research methodology was therefore a circular, cybernetic process per se, based on feedback. The observation stage of this circular process encapsulated the main ethnomethodological aspect of the research including the recordings of my observations, and the participants' interviews and surveys. The methods of documentation and evaluation included: a logbook for my personal critical observations, audiovisual documentation, surveys and interviews of all the participants (both performers and audience).

The entire research timeline could be divided into three periods: First Period: Introductory Research - Initial Observations and Reflections; Second Period: Concept Development and Application (the Reflective Cycle); Third Period: Final Observations & Theoretical Outcomes (Figure 1).

First Period								Second Period... →→→→→	
Oct '14 - Mar '15	4-6 Apr '15	2 Jul '15	Nov '15	25 Nov '15	Jan '16	24 Jan '16	29-30 Jan'16	9-11 Mar '16	
Introductory Research	Experiment 1	Experiment 2	Residency	Experiment 3	Residency	Experiment 4	Conference/ presentation	Conference/ presentation	
Literature Review	Creativity Zone, University of Sussex (UK)	The Impact Calculator, Theatre Studio, University of Sussex (UK)	Blast Theory, Brighton (UK)	IM•Medea, Blast Theory, Brighton (UK)	Kalamata Dance and Music Conservatoire (GR)	Standing Swimmers, Kalamata Dance and Music Conservatoire (GR)	Exeter University: Audience, Experience, Desire (UK)	University of Malta: 21st Century Performance and Research (MT)	

...Second Period									Third Period
13 May '16	15-17 Jul '16	18 Nov '16	2-3 Dec '16	13 Feb '17	19-20 May '17	15 Jun '17	24-27 Aug '17	31 Aug -1 Sep '17	Sep '17 - Sep '18
Experiment 5	Experiment 6	Experiment 7	Experiment 8	Experiment 9	Symposium/ Presentation	Symposium/ Presentation	Conference/ Presentation	Conference/ Presentation	Thesis Writing
The landscape may be a dead star, Creativity Zone, University of Sussex (UK)	The impostor's Syndrome, Kalamata International Dance Festival (GR)	Asbestos, Benaki museum of Contemporary art, Out-Topias Festival, Athens (GR)	Quicklime, Modern Body Festiva, The Haguel (NL)	A magnificent crossbreeding of Protein and Tinplate, ACCA, University of Sussex (UK)	The Operatic, University of Sussex (UK)	Robot Opera - Opera takes a robotic turn, University of Sussex (UK)	6th International Scientific Meeting for Sound and Musical Instrument Studies, Porto (PT)	TaPRA, University of Salford (UK)	Final Obsservations & Theoretical outcomes

INTRODUCTORY RESEARCH
EXPERIMENT
RESIDENCY
CONFERENCE
THESIS WRITING

Figure 1

1.4.1 FIRST PERIOD: INTRODUCTORY RESEARCH

The PhD study took place in the period between October 2014 and September 2018. My research set off with a literature review and analysis of Heiner Müller's (1981) postdramatic (Lehmann, 2006) theatrical text *Despoiled Shore/MedeaMaterial/Landscape with Argonauts* (*Medea sequence*), as this text was my canvas for the development of new music theatre. During that first period of the research process, I surveyed the academic literature dedicated to Heiner Müller, his postdramatic works and particularly *Medea sequence*. This first stage was also dedicated to the critical analysis of compositional strategies employed in contemporary performance and installation art practices with a particular focus on the role of technology, interaction and participation in these contexts. Last but not least, as this is a practice-based PhD inspired by different theories I reviewed technologically-centered theoretical literature, with a particular focus on works on posthumanism, cybernetics, actor-network theory and phenomenology of technology. After I acquired the first theoretical outcomes from this type of literature review I started devising the practical proposals based on my research questions.

1.4.2 SECOND PERIOD: CONCEPT DEVELOPMENT AND APPLICATION

During this main body of the practice-based research, I employed strategies that derived from the first period to conduct different experiments of complex interactive[4] music theatre. During this process, data were collected from the experiments using the methods described above. The data assisted in "measuring" and understanding the participants experience and the efficacy of these experiments as stand-alone music theatre performances. The data was then used to inform new compositional, technological and dramaturgical strategies, for the experiments to follow. In addition, the data contributed in the process of theorising on these performance experiences.

1.4.3 THIRD PERIOD: FINAL OBSERVATIONS & THEORETICAL OUTCOMES

At this stage I compiled the research in the written thesis you are currently reading. I contextualised the results of the creative research, including the technological tools developed and its ethico-aesthetic (Guattari, 1995) contributions. This last period helped me a lot to clarify, crystallise and sum up the totality of this research. It was therefore not merely a process of documenting, but rather a reflective process of the research experience as a whole. This period allowed me to see the work from a distant perspective after working so closely on it for four years. It made me realise that this entire practice-based research was somehow a process of self-discovery, a process of measuring my personal abilities to meet the initial goals. It was an end of a trajectory in uncharted waters. The ethnomethodological enquiry contributed to this self-discovery, as I was scrutinising and theorising my own practice. It was a process of discovery of my work, as much as of myself and of my artistic identity. I realised that my experience in this research was a dynamic process

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[4] By complex interactivity, here I mean a type of multilayered interactivity including but potentially not limited to all the following aspects often even simultaneously: audience-immersion, performer-audience interaction, audience-audience interaction, performer-performer interaction, human-computer interaction and a constellation of cybernetic relationships suggesting the posthuman nature of the work.

influenced by me and my external —to this PhD— agents, as much as I was influenced by it, in a reciprocal, communicating-vessel-like process —yet another cybernetic allegory. It offered me an experiential understanding of Maturana's second-order cybernetics notion of the importance of the role of the observer of a system (von Foerster, 1979) or the uncertainty on the process of observation as described by Schrödinger in the quantum mechanics paradox (Trimmer, 1980).

2. CHAPTER 2 – THEORETICAL FRAMEWORK

2.1 POSTHUMANISM

Posthumanism is a relatively young strand of philosophy that essentially asks the old question of "What is human?" acknowledging the pluralism and complexities of contemporaneity. Since the end of the 1990s works of humanities' theorists like N.Katherine Hayles *How We Became Posthuman* (1999), Cary Wolfe *What is Posthumanism* (2013), Rosi Braidotti *The Poshuman* (2013) and Stephan Herbrechter *Posthumanism* (2013) re-framed the question of "What is human?" in the contemporary milieu, deviating from the anthropocentric understanding of humanity established by the enlightenment.

For years, all the speculations, theories and understandings of the world have been happening through the self-centeredness and self-importance of the human observer, interpreter and narrator of this world. Nietzsche's and then Sartre's existentialism were the first significant voices to subvert this tendency. What shifted the perspective on the viewing of this world and contributed to a less anthropocentric stance was the realisation that as the natural environment existed before human's presence on earth it will most likely exist long after the end of the last human. This perspective puts the notion of humanity in a sort of a temporal bracket that suggests the possibility of a world without humans, in other words a posthuman world. In addition, humanity's malpractice and its negative effects on nature feed back to itself, offering an experiential understanding of humanity's dependency on nature and the importance of the environmental equilibrium.

However, posthumanism can also be understood through the computational technologies and biotechnological developments that question human nature. These developments include artificial intelligence, artificial life, prosthetics and genetic modifications that challenge traditional binaries such as

life and machine, human and non-human, self and other, natural and artificial, organic and technological, subjects and objects. Artificial intelligence in particular, emerged as a computational technology that suggested that consciousness may not be exclusively a human attribute. Through the rational humanism of the Enlightenment, anthropocentrism had been converted into an ideology. However, in the contemporary milieu human life is controlled and organised by series of non-human agents and automation processes in a variety of subjects: from stock-market algorithms, to matching algorithms in dating applications. This echoes McLuhan's notion that contemporary humanity is expanded in vast networks through the media it operates (McLuhan, 1994). Posthumanism expands this notion by acknowledging that humanity nowadays is defined, shaped and organised by networks of natural and artificial nodes that operate beyond human control. This contributes to the understanding that the human being is not independent from neither the natural nor the technological environment that surrounds it. Hence, it can no longer be observed, analysed and understood through reductionist and atomistic anthropocentric approaches.

Posthumanism can be seen as an aggregator of theories that emerged out of different scientific and philosophical strands that were engaged synchronously or asynchronously with the subject of the human interaction with anything non-human and how that interaction contributes toward the re-conceptualisation of the human condition. What posthumanist theories did was to trace the common underlining thread that united these different studies. Some of these strands are cybernetics and the system studies (Hayles, 1999), Simondon's theory of *transindividuation* and *mechanology* (1954; 1958) and Donna Haraway's *Cyborg manifesto* (1991). In this context we should also include theories that re-established the importance of physical matter in the humanist discourse, such as Karen Barad's (2003) New Materialisms departing

from Judith Butler's notion of performativity in *Bodies that Matter* (1993). Also, in a relatively similar direction there is Bruno Latour's Actor-Network Theory, which underlines the importance of non-living objects in the constitution of the social.

2.2 CYBERNETICS

Cybernetics is a major contributor to the emergence of Posthumanism (Hayles, 1999). Cybernetics, comes from the Greek word κυβερνήτης (Kivernetes) which means steersman, governor or captain, a term coined by its conceptual father, the MIT professor of mathematics Norbert Wiener in 1948 in *Cybernetics, or the scientific study of control and communication in the animal and the machine* (Wiener, 1948).

The interdisciplinary study of Cybernetics was observing, among others, the control, distribution and management of information, the similarities in processes between humans and machines; feedback loops and concatenated procedures; structures and processes of causality; organisation and self-organisation of systems. Cybernetic theories have been influential to artificial intelligence, computer science, game theory, electrical and mechanical engineering, neuropsychology, perceptual control theory, neuroscience and evolutionary biology, up to ecology and environmental studies.

Cybernetics is divided in three discrete periods with each period having a different focus of study.

During the first order of cybernetics (ca. 1943-1960) correlations in studies between informatics (Shannon, 2001) and neuroscience (McCulloch, 1943) contributed to the notion that the human brain processes information in a very similar way to intelligent machines: such a notion questioned the existence of essential differences between the two. However, Wiener was suspicious of a possible "reduction" of a human into a machine, as "For

Wiener, cybernetics was a means to extend liberal humanism, not to subvert it"
(Hayles, 1999, 7). The concept of *homeostasis*, a key point for first order
cybernetics, derives from animal studies. It defines the capacity of biological
organisms to maintain equilibrium of their physiological attributes (such as
temperature, dimensions, etc.) when they are in an unsteady environment. This
process of homeostasis can be understood as a feedback loop between an
organism and its environment. Cybernetics applied this principle of
homeostasis to machines by reinterpreting the notion of *feedback loop*,
particularly that of *negative feedback*. Negative feedback in machines is when
the output of a mechanism becomes its input without that causing entropy to
the system itself, allowing the machine to maintain its stability, hence a
homeostasis. In the context of computer science the input and output of the
process is information.

The second order cybernetics (ca. 1960-1980) is defined by the notion of
reflexivity. For Hayles "*Reflexivity is the movement whereby that which has
been used to generate a system is made, through a changed perspective, to
become part of the system it generates*" (ibid, 8, emphasis in original).
Reflexivity can essentially be understood as an infinite amount of self-observing
fractal-like feedback loops. Essential to the understanding of the process of
reflexivity is the notion of the *observer of a system*. According to second order
cybernetics, the observer of the system becomes part of the system they are
observing. The contribution to this notion of the role of the observer is
attributed to the work of Humberto Maturana. Heinz von Foerster, in the
opening of his Cybernetics of Cybernetics, quotes *Maturana's Theorem
Number One* according to which "Anything said is said by an observer"
(Foerster von, 1979, 1) to meditate on it and expand it to what he called as *von
Foerster's Corollary Number One* which states that "Anything said is said to an
observer" (ibid). Essentially, the second order cybernetics uses the previous

homeostatic feedback loops and wraps the observer in it. The apex of second wave cybernetics was reached with the emergence of the notion of *autopoiesis* as it was presented in Varela's and Maturana's *Autopoiesis and Cognition: The Realization of the Living* (1980). Autopoietic systems respond to the environment according to the way they are predetermined to do so, following the way they are organised. For autopoiesis, the previous notion that one reacts and interacts with a world out there different to them, is inverted to the notion that the world triggers changes inside one according to the way one's system is predetermined to sense changes and process them. Autopoiesis therefore stands for a system of self-organisation in which the self has engraved in its system —in a form of sensors and 'processes susceptibility', the capacity to understand the "external world" in a certain way rather than another. Hence, autopoiesis can be understood as the internal interactions of the components of the system, a system that includes its observer.

The third and final period of cybernetics starts approximately in the 1980s and carries on until nowadays, its emphasis is on *virtuality* and *emergence*. Autopoiesis is not merely seen as the process of self-organisation within the internal elements of a system, but it is viewed as the process of emergence. This order of cybernetics is based on the notion that artificial agents such as computer programs can embody attributes that suggest they are alive by giving the impression of being capable to evolve. This evolution may occur through processes of machine-learning or even through errors of the machine, when the program reacts in a completely different way to the one it was originally programmed to. In this context, the objects (machines) morph into subjects (stand–alone entities). Hayles defines *virtuality* as "*the cultural perception that material objects are interpenetrated by information patterns*" (Hayles, 1999, 13-4, emphasis in original). This relationship between matter and information should not be understood as an opposing duality, but as the

processes connecting the two. An example of this is the incorporation of the body and bodily actions in computational processes, as it happens during an interactive computer game. It may be understood as the notion of expanding the human proprioceptive system into the digital domain. Third order cybernetics contributed to the understanding of the world as the merging, interplay and subversion of the false duality between computational information and corporeality.

2.3 INDIVIDUATION AND TRANSINDIVIDUALITY

By 1958 Gilbert Simondon completed the two parts of his PhD thesis *L'Individuation à la lumière des notions de forme et de l'information*[5], and *Du mode d'existence des objets techniques*[6]. He was aware of cybernetics when he wrote his thesis, but as much as he appreciated many of cybernetic principles he was equally sceptical about many of them[7]. This scepticism[8] is portrayed in Simondon's introduction to Norbert Wiener during the conference Simondon organised *Le Concept de l'information dans la science contemporaine*:

> historically, cybernetics appeared as something new directed to achieving a synthesis; in sum, we find ourselves brought back to the time of Newton, or to the time when the great philosophers were mathematicians or scientists in the natural sciences and inversely. This is doubtless the context in which it is now possible to listen to what Professor Wiener has to present to us.

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[5] Individuation in Light of the Notions of Form and Information.
[6] On the Mode of Existence of Technical Objects.
[7] Particularly to what concerns first order cybernetics. However, there are many similarities between second order cybernetics and Simondon's work.
[8] Simondon could not accept that observations on the relation between humans and machines could come from the field of hard sciences. On the contrary he advocated for a philosophical engagement with the subject and more specifically for a phenomenological perspective.

(Simondon 1980, iv)

According to Simondon, "[—first order— cybernetics] has accepted what every theory of technology must refuse: a classification of technological objects according to pre-established criteria and following genera and species" (Schmidgen, 2005). Simondon on the other hand was interested in the phenomenological and ontological understanding of the technological objects and he aimed to decipher machines' existence by developing a phenomenology for the technical objects.

One of the most important contributions of Simondon was his interpretation of the notion of individuation, a philosophical and psychological notion that portrays the ways through which a subject is self-distinguished by its surroundings. For Simondon, individuation is the process that essentially shapes the individual; it is the individual or collective human process that defines one in distinction to the other. For Simondon, the individual is the result of the process of individuation rather than the opposite. Therefore, individuation is not a static process, but rather a constant process of *becoming*. Before and after individuation the individual pends in *metastability*, during which the individual is charged by extreme potential for further individuation.

Moreover, Simondon defines the artifacts present in the context of the individual as "technical individuals". The process of individuation of a living being is described as *theatre of individuation*, because the context[9] of a living being does participate in the being itself (Simondon, 2005, 27). In this milieu the technical individuals play an extremely important role in the process of individuation, through what Simondon calls *transindividuality*.

In transindividuality the technical individual contributes to individuation as a platform for human relations. *Transindividuality* is the inter-human relation

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[9] Simondon defines context as *associated milieu.*

generated through the intermediation of the technical object (Simondon, 1958, 248).

The concept of transindividuality has been further developed through the work of Hansen and Stiegler into *transindividuation*. As Hansen claims "transindividuation, [should be] understood as a distinct individuation from the individuation of the living, is both *made necessary and made possible by the technical distribution of psychic individualization*" (Hansen, 2012, 45-6, emphasis in original) and he continues

> If twenty-first-century media harbors an affinity with transindividuation, it is not simply because of its predominant social dimension, the potential for collective organization and sharing that has caused it to be dubbed, in one of its avatars, "social media." More fundamentally, it is because today's media are able to access —and routinely operate by accessing— dimensions of our experience, of our open and ongoing individuation, that lie beneath the personal or individual level.

(Hansen, 2012, 56)

My interpretation of Hansen's transindividuation is the process that allows the development of inter-human communities of the future in which machines operate exactly on the level of our experience. Rogoff defines Stiegler's transindividuation as a concept "that does not rest with the individuated "I" or with the interindividuated "We," but is the process of co-individuation within a preindividuated milieu and in which both the "I" and the "We" are transformed through one another. Transindividuation, then, is the basis for all social transformation" (Stiegler & Rogoff). In other words, through our interaction with technology or our interaction with other humans through technology, we constantly individuate, i.e. understand and re-define our roles

and ourselves in such dynamic systems experientially.

2.4 ACTOR-NETWORK THEORY

Actor-Network Theory (ANT) is a social theory introduced in the mid 80s by Bruno Latour, according to which non-human agents are seen to play unique and formerly disregarded roles in the construction of the social, as Latour described it, "[these] non-humans —microbes, scallops, rocks, and ships— presented themselves to social theory in new ways" (Latour, 2005, 10). According to ANT often "action is distributed among agents, very few of whom look like humans" (ibid, 50). These non-human agents shall be understood as *actors* in *social assemblages*, and they contribute momentarily during the period of the social assemblage, during which new social relations and associations get established. A more accurate way to call these non-human agents is *participants* as they participate in the processes of social interaction and intermediate social relationships.

For Latour, society is a dynamic network of associations. However, this interpretation of society does not mean for us to understand non-human participants as merely important for their symbolic value. On the contrary, they are important for the actions they impose on us. To explain this, Latour gives the example of a road sign. The road sign on its own has absolutely no social value except for its symbolic one, but by deciding to obey to the indication of the sign, it becomes momentarily a participant into the social structure. It is only then that objects cease to be "simply the hapless bearers of symbolic projection" (ibid, 10) and become participants or actors in the social networks. Hence actors and objects can be heavily politicised. Objects "can sometimes 'express' power relations, 'symbolise' social hierarchies, 'reinforce' social inequalities, 'transport' social power, 'objectify' inequality, and 'reify' gender relations, [however] they cannot be at the origin of social activity" (ibid, 72) as

being participants they do not determine the action.

ANT is a relativist theory in the process of redefining the relationships between parts, full of uncertainties and controversies. It does not recognise the notion of groups but rather a perpetual process of group formations: actors acting, assembling and disassembling groups. ANT's observation of a system does not impose on actors a pre-defined narrative about what they are and what they do, but rather learns from them about "what the collective existence has become in their hands" (ibid,12). For Latour, ANT should be understood as the sociology of associations in which "[g]roups are made, agencies are explored, and objects play a role" (ibid, 87). The process of group formation is extremely important for ANT as the moment groups stop being formed they disappear (ibid, 35). Hence the sociology of associations described by ANT can be understood as a dynamic process of *becoming,* of a constant formation and redefinition in which the option of being static does not exist. In that respect ANT is very performative, as any group and its definition vanish the moment it ceases to perform.

The ANT notions of the *Intermediary* and the *Mediator* —two opposing types of actors[10] that delegate agency in social assemblages— are important for my practical work. The *Intermediary* is a social actor simple in its structure and predictable in its output. One can know what its output would be when fed with a certain input. The *Mediator* on the other hand is much more complex and unpredictable. *Mediators* cannot offer a clear prediction of an outcome based on principles of circumstantiality or precedence. According to ANT's observation of social associations the occurrence of Mediators is more prominent than Intermediaries. That is because generally a Mediator's action is not fully controlled or conscious and it depends on many interconnected parameters, thus a Mediator can be understood as a node of other actions.

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[10] The term actor here derives from ANT and refers to social actors (nodes in the social assemblage), it does not mean to make reference to performance practice actors.

In ANT, action is shared by the others, there is a notion of a collective "I", the idea of interconnectivity between humans and objects. Furthermore, according to Latour "we never know for sure who and what is making us act" (ibid, 52). We also do not know how we will react triggered by an actor because that depends on our internal process, of how that triggering would be interpreted, and as Latour states we do not possess the blue print of behaviour, including that of our own behaviour. To sum up, what is important about ANT in relation to my work is the notion that objects and symbols become part of the social when they somehow interfere into what sociologists call *human dimension*. They become part of the network of human interactions, to which a behavioural output of an actor is not fully predetermined by its input. In my creative work the outcome of interactions between human and non-human actors will operate within the confined musical and theatrical limits of a performance. These interactions will manage, manipulate and organise the entire performance experience and its internal dynamics.

2.5 CYBERNETIC ART

The first, most prominent, exhibition dedicated to cybernetics was *Cybernetic Serendipity: the computer and the art* (Reichardt, 1968)[11]. The works presented set the fundamentals of the relationship between cybernetic theories and aesthetics, some of these works were Gordon Pask's immersive interactive environment *Colloquy of Mobiles* (1968) and Bruce Lacey's anthropomorphic robot ROSA BOSOM[12] (1965). The exhibition was a historically pivotal moment, as it exposed the possibilities provided by computational technologies and generative systems in art.

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[11] Curated by Jasia Reichardt for ICA London in 1968 and then toured in Washington DC and San Fransisco (1969-70).
[12] Radio Operated Simulated Actress Battery Or Standby Operated Mains.

Besides Cybernetic Serendipity, Michael Apter relates art to cybernetics "in three ways: it may be used by scientists in studying art, it may be used by artists to create works of art […] and finally cybernetics may be regarded in certain respects as an art form in it own right" (Apter, 1969, 257). In addition, art in itself has been observed as a cybernetic social system (Luhmann, 2000). There are many cases of art practitioners who expose ways cybernetic processes have been appropriated and influenced their practice (Ascott, 2007; Paine, 2003). There are also cases of scientists/cyberenticians that envision applications of cybernetic theories in art (Pask, 1964). Also, many have written about the relationship between cybernetics and art from a historical perspective (Shanken, 2002; Apter, 1969; Ilfeld, 2012). Last but not least, recently there have been studies that illustrate the revival of cybernetic processes in contemporary art, through an aesthetic defined as *cyberentic existentialism* (Dixon, 2016; Dixon 2017a; Dixon 2017b).

2.5.1 ROY ASCOTT'S LEGACY

Ascott observed art making as a system of information, hence a cybernetic system. His work essentially "redefined art as a cybernetic system comprised of a network of feedback loops" (Shanken, 2002, 3). In his 1967 manifesto, *Behaviourables and Futuribles,* he claimed that "when art is a form of behaviour, software predominates over hardware in the creative sphere. Process replaces product in importance, just as system supersedes structure" (Ascott, 1996, 489).

For Ascott art was a cybernetic system that implied "feedback, dialogue and involvement" (Ascott, 2007, 190). Ascott's approach did not differ much to those of theoreticians like Luhmann who also observed art as a system, a system based on observation, suggesting second wave cybernetics and "the observation of observations" (Rampley, 2009, 120). Likewise, Ascott's

conception of art and practice subverts the relationship between the work of art and the spectator generating analogies to a self-observed system. For Ascott the work of art is a system that includes the spectator, he was particularly interested in the behaviour of the spectator in that system.

> Art is then determined not by the creativity of the artist alone, but by the creative behaviour that his work induces in the spectator, and in society at large. […] The art of our time tends towards the development of a cybernetic vision, in which feedback, dialogue and involvement in some creative interplay at deep levels of experience are paramount.

(Ascott, 2007, 190)

Ascott's cybernetic art should be understood as a deeply behavioural and experiential form of art. This manifests in the way the art object reacts to external or internal stimuli, what should be understood as a *"behavioural structure"* (ibid, 191, emphasis in original). Starting from the point of view that artists are less interested in their own behaviour but rather in the behaviour of the spectator, Ascott coined the term "behavioural trigger" (ibid) to describe the response the artwork may cause to the observer, theorising about the behavioural relationship between spectator and work of art, describing it essentially as a closed feedback system between the two. The audience's actions and reactions that often can be physical, manual, or postural situate the audience/observer in the core of the experience and therefore at the core of the artwork. For example, Ascott's *Video Roget* (1962) had an element of audience participation through an interface at the centre of the piece allowing the audience to manipulate the work instantly. As Ascott states, art as a cybernetic system of information in feedback requires "a total behavioural involvement in which all senses are brought into play" (ibid).

He dedicated his work to applying cybernetic notions in art from his early 1963 solo exhibition *diagram-boxes & analogue structures* at Molton Gallery in London, up to the most recent telematic works like *La Plissure du Texte: a planetary fairy tale* (1983). In 1966 Ascott devised the Cybernetic Art Matrix (CAM), an intricate system with which he aimed to expand his behavioural trigger cybernetic ideas into the wider cultural and social strata. CAM is "a process for generating processes, a self-organising system, a learning organism. This self-creating art form, in which human beings are their own media" (ibid, 196). CAM is supposed to understood as the initiation of

> a dialogue, to involve other people in creative behaviour, engaging more of the senses [...] Presenting not a set of ideas or a personal expression of feelings, but a situation in which other people's ideas and feelings can be set in motion, generating quite unpredictable experience

(ibid, 191).

CAM was an art-making framework; based on a behavioural system, which according Ascott would render the artist redundant (ibid, 196). For Ascott the processes, rules and codes upon which CAM was supposed to run were not to be available or imposed on humans, on the contrary, people should be able to operate freely in it, offering possibilities to evolve "new human values and ritual of behaviour" (ibid), suggesting posthuman notions in the process of art making.

2.5.2 CYBERNETICS IN IMMERSIVE AND INTERACTIVE INSTALLATIONS
Similar to Ascott's *behavioural trigger*, Garth Paine is interested in behavioural reactions of closed feedback in his interactive audio installations. In his works

MQM, *GITM*, *MAP1*, *MAP2*, *REEDS*, and *Gestation* he envisions the audience as co-creators of their experience both because of their immersive as well as their interactive features.

> The viewer takes the role, not only of spectator, but simultaneously of creator; where their behaviour creates the environment, and the environment conditions their behaviour. In so doing they find themselves in a position of contemplation, a position where it is necessary to develop a cognitive map of the relationships between behaviour and environment, between action and reaction, between individual and communal.

(Paine, 1997, 2)

He therefore, creates immersive cybernetic experiences in which the audience's behaviour would affect the environment they are immersed in. For Paine, "[i]nteractive systems offer a unique method of engagement, based on response – response exchange. They offer the promise of a truly immersive experience"(ibid, 1). Paine derives from a composition/sound art background rather than a visual arts one. Sound is the basic material for his work, as "sound is perhaps the best medium with which to achieve a sense of immersion." (ibid, 3). This immersive aspect of sound in combination with the interactive cybernetic principles suggest processes similar to those of immersive theatre. He considers immersion integral to an interactive work (ibid, 5). He intends to immerse and confront the audience with a unique and unexpected situation in which their expectations become irrelevant. The audience is supposed to deal with the moment and the situation by actively discovering the surrounding environment. In these experiences the audience is not merely contemplating the work of art but is asked to co-devise it by customising their experience in it

just as in immersive theatre.

2.5.3 CYBERNETICS IN CONCEPTUAL ART

Etan Ilfeld in his 2012 study describes the large common ground upon which both cybernetics and conceptual art share, drawing similarities between the two. For Ilfeld, conceptual art manages and distributes information through objects that are not selected for their aesthetics but rather for their cultural content (Ilfeld, 2012, 2). Cybernetics on the other hand is essentially the study of information. Similarly, the subject of conceptual art is information, as it focuses on its ability to carry and generate meaning, as well as offer interpretations. Roy Ascott was also strongly influenced by the conceptual artworks of Duchamp. Based on Ilfeld's reading, it is interesting how Duchamp's works bear elements of cybernetic principles that later influenced Ascott. As Shanken states: "Duchamp's *Network of Stoppages* (1914), which can be interpreted as a visual precursor to the decision-trees of systems theory, offered a model for the interconnected semantic networks of Ascott's transparent *Analogue structures*" (Shanken, 2002, 4).

Ilfeld draws parallels between the three cybernetics orders and three discrete stages in art history. He compares notions from the first wave of cybernetics such as homeostasis, feedback loops, circular causality, and the role of information as signal/noise, with concepts prominent in art history from the beginning of conceptual art and the works of Duchamp until the mid 60s and 70s, including the dematerialisation of the art object, the free circulation and primacy of information (i.e. concepts and ideas), as well as the roles of chance, noise and probability. He then explains how second order cybernetics notions of the role of the observer in the system, self-organisation, reflexivity and structural couplings manifest in mid 70s up to mid 90s video art practices. Finally, he draws links between third order cybernetics with practices and

processes in new media art of the mid 90s up until nowadays. The cybernetic principles of virtuality, emergent behaviour functionalities and computational universes, are reflected in works that conceptually suggest emergence, virtual collaboration, the viewer as user, and notions of de-authorship of the artwork. The relationship between art and cybernetics is very strong and there are numerous studies that observe it, as Shanken states:

many twentieth-century artists experimented with process, kinetics, interactivity, audience-participation, duration, and environment, and their work can be explained without recourse to cybernetics, but rather by relying primarily on aesthetic tendencies that became increasingly central to artistic practice in the post-WWII period.

(Shanken, 2002, 6)

Some examples of artworks that were not necessarily made under the banner of cybernetics but can be understood as such are among many others: John Cage's (1952) *4' 33"*, Robert Morris (1961) *A box with the sound of its own making,* Allan Kaprow's Happenings and Fluxus' performances. The conceptual link between the dematerialisation of the art object and the two latter cybernetic orders echo the art theorist Jack Burnham. In his essay *System Aesthetics* (Burnham, 1968) he wrote that "[w]e are now in a transition from an *object-oriented* to a *systems oriented culture.* Here, change emanates, not from *things*, but from *the way things are done*" (ibid, 31, emphasis in original). His statement for a culture in transition suggests the prominence of cybernetic principles in a formerly object-oriented discipline (i.e. visual arts).

2.5.4 CYBERNETICS AND THEATRE

Aside from visual arts, installation art and conceptual art, in the field of

performing arts cybernetics were equally influential. Many works could enter under this category like Annie Dorsen's (2010-2013) *Hello Hi There,* a performance of two chatbots imitating in free-style the 1970s television debate between Michel Foucault and Noam Chomsky. However, one of the most influential works that links cybernetics and performing arts is attributed to Gordon Pask. For Paul Pagano (1993) Pask's overall work can be understood as profoundly theatrical. Nonetheless, it was in Pask's *Proposal on Cybernetic Theatre* (1964) that he theorised on the application of the cybernetic theory in narrative based theatre performances. For Pask, the audience's role in the cybernetic theatre is first and foremost participatory. To implicate this participatory aspect, Pask envisioned the audience to sit in armchairs with a control panel of two buttons. These buttons would work as remote controls. The audience could change the plot and direction of the play by controlling the "thoughts" or "actions" of a performer by conveying predetermined suggestions and instructions to them (Pask, 1964, 5).

Cybernetic theatre would be based on already existing plays, alongside original works custom-made for this type of theatre. There is no evidence of Pask's idea being ever realised beyond experimental stage. However, the audience participatory aspect of his work and the notion of closed feedback loop between audience and performance events resonates with Cinematrix Interactive Entertainment Systems as much as narrative based video games.

2.5.5 MUSIC CYBERNETICS

Gordon Pask's interest in applying cybernetic processes in art was not limited to theatre. One of his very first projects was the *Musicolour machine,* the processes of which are described in detail by Pickering (2010, 313). In the field of interactive music performance, Jeff Pressing (1990) makes a historical survey of a number of works that elude cybernetic principles, referencing works of

among others Cage, Lucier, Oliveros and Neuhaus, to then talk about music control interfaces, interactive and intelligent instruments, augmented instruments and imaginary super-instruments. For Dunbar-Hester the historical continuum of cybernetics in music can be tracked through milestones such as "Pask's Musicolour, Cage's process-orientation, and of course Eno's explicit discussion of autopoietic systems [which] almost resemble Hayles' second wave of cybernetic thinking" (Dunbar-Hester, 2010, 133). Generally, the post-war composers introduce new composition processes that can be linked directly to cybernetics as,

> the idea of composition, involving formalized rules and plans, was challenged by experimental musicians and composers, who were not interested in orienting around a "product" that would be achieved by traditional composition but instead a process of creating music through the interaction of performers, audience, and environment […] the entire process of composition and performance is conceived of as enrolling the performers, the instruments, and the audience into a "system" of experience that is distinct, and experienced as subjectively unique, and yet is part of an ongoing process.

(Dunbar-Hester, 2010, 124-125)

Underlying the relation between music practice and cybernetics, Simon Waters (2007) writes about the development of autonomous musical systems, a series of "hybrid virtual/physical feedback instruments" (Waters, 2007, 1). In his work he does not merely observe the interactions between performer and instrument, but also the interactions and feedback loops generated between instrument and social/acoustic environments (ibid, 3). In order to describe the interactions and intricate relations between performer, instrument and

environment, Waters after Bower used the term *Performance Ecosystems.*

2.6 CYBERNETIC EXISTENTIALISM

In 2016 Steve Dixon wrote a paper proposing the aesthetics theory of Cybernetic Existentialism (Dixon, 2016), since then he has written a series of papers analysing works that can be classified under this overarching aesthetic theory. According to Dixon, both cybernetics and existentialism have been considerably "neglected or forgotten, overtaken by" (ibid, 12) or evolved into new theories. Cybernetics from the point of view of humanities has involved into the theory of posthumanism (Hayles, 1999), whilst existentialism together with phenomenology contributed in the emergence of poststructuralism and deconstruction (Reynolds, 2006). Regarding cybernetics, Dixon refers to notions of communication and control, hybrid synthesised systems based on feedback loops, as much as adaptive, self-organising and autopoietic systems (Dixon, 2016, 11), whilst existentialism refers to the notion of the "experience of Nothingness and anticipation of being-towards-death" (ibid) and relates to the "total rejection of externally imposed codes and morals" (ibid, 15).

The consolidated term of Cybernetic Existentialism describes artworks and practices that reiterate jointly the above-mentioned concepts. However the makers of these works often might not acknowledge or frame their works within the aesthetic confines of Cybernetic Existentialism. A characteristic example is the work of Romeo Castellucci and Societas Raffaelo Sanzio *Genesi: from the Museum of Sleep* (1999). To devise his work, Castellucci employed creative processes (*dis-human* and *dis-real)* that make reference to both existential and cybernetic notions without acknowledging them as part of a single consolidated aesthetic.

Another example of Cybernetic Existentialism is Paul Sermon's installation *Telematic Dreaming* (1992), in which members of audience lying on

two beds in different parts of the world interact and "embrace" each other remotely. Dixon references *Unheimlich* (2006-7) a work he directed with his company The Chameleons Group in collaboration with Sermon. *Unheimlich* is a telematic performance in which the audience could participate by appearing on the stage and interacting with the performers through blue screens. Cybernetic Existentialism places the observing human subject inside the system; it becomes both the viewer and the subject to be viewed. The material observed oscillates between the Sartrean complementing notions of "anxiety" and "nothingness" in a homeostatic manner. Dixon appropriates a number of existential principles such as Nietzsche's "slave morality", Sartre's notion of freedom as much as "being-for-others", "being-towards death", and Heidegger's phenomenology of tools (present-at-hand and ready-at-hand) to describe performance experiences that suggest relationships in forms of systems or networks.

Marina Abramović's durational performance *Rhythm 0* (1974) in which the audience could manipulate her, cut her, point a loaded gun at her, relates to the existential principles of "freedom", "slave morality", the total "existential availability" or "disponibilité" of Abramović, whilst the loaded gun pointing alluded to notions of "Being-for-others" or "being-towards death". Moreover, *Rhythm 0* (1974) was a system of interaction between audience and performers, as much as the audience among themselves, in which the performer was totally objectified and the actions of the audience were the subject of the performance (Dixon, 2017b). According to Dixon many of the works of the Young British Artists explore cybernetic existential systems. Damien Hirst's *A Thousand Years* (1990) is a work that contemplates the notion of Being-towards-death as it manifests in a cybernetic system. In a similar direction are the works of Sun Yuan and Peng Yu's *Body Link* (2000) and *Dogs That Cannot Touch Each Other* (2003).

In certain interactive performances such as the work of Gob Squad, *What Are You Looking At?* (1998) Dixon observes notions of solipsism and voyerism and the power of the gaze to objectify and alienate the subject, and how these notions relate to second order cybernetics and the role of the observer in a system (Dixon, 2017a, 62-63). In Blast Theory's *Kidnap* (1998) he observes the existential notions of freedom and "being-for-others, […in] an extreme [cybernetic] system of 'control and communication'" (Dixon, 2017a, 67). For Dixon particularly in the context of audience interactive/immersive experiences:

> The effects [of cybernetic systems to the audience] are transformative and aim toward a type of transcendence, in the Existentialist meaning of the term. But the results also highlight the difficult balances in life as philosophized in Existentialism: between Being and Nothingness, Self and Other, presence and absence, and separation and communion.

(Dixon, 2017a, 74)

Generally the core aspect of Cybernetic Existentialism aesthetics theory lies on the making of an organism based on feedback processes that questions "the nature of existential Being – who we are, who we can be, how we fit into the world, and how we connect with others" (Dixon, 2016, 27). Therefore, the cybernetic aspects of information, connectivity and interaction are equally important to existential theory, yet approached from a different angle. Cybernetic Existentialism explores the notion of human freedom —a pivotal notion in existentialism— within the constraints of a system —a core notion of cybernetics. Both cybernetics and existentialism essentially scrutinise the "self" in relation to the "other", observing the dynamics such relationships generate.

Cybernetics considered the material entities as immaterial when they

were part of a system, in the same way existentialism rejected subjectivity for intersubjectivity (ibid, 28). This fusion of cybernetics and existentialism manifesting in aesthetics is the result of the realisation of the posthuman condition in which the Heideggerian Being re-evaluates itself through a system of interactions and relationships; a system of relationships between one with themselves, with others and the world, as nodes in a cybernetic network. The material I used for my music theatre work (I.e. Heiner Müller's Medea sequence) and the way I presented it relate directly to the existential anguish and cybernetic principles described in Dixon's overarching interdisciplinary aesthetic theory.

2.7 IMMERSIVE THEATRE

Immersive theatre is defined as a theatre practice in which the audience is asked to transit the theatrical landscape and often interact with the performers, in order to discover and contribute to their personal experience of the plot and dramaturgy. The term "'immersive', developed from computing technology, describes that which 'provides information or stimulation for a number of senses, not only sight and sound'" (Machon, 2013, 21). Indeed, the aspect of immersion is very important in media theory, as it is presented in Bolter & Grusin's work on remediation (2000). This holistic approach towards immersive sensing echoes the importance Ascott gave to visual, tactile, olfactory and oral senses for cybernetic artworks he calls "*behavioural environments*" (Ascott, 2007, 191, emphasis in original), as much as Paine's interactive installations.

Immersive theatre aims towards offering a deep —hence immersive— experience to the participants. Such experiences can be one-to-one or involve large numbers of audience members. The core of the practice resides on feedback processes and the relationships established between audience and performers, as well as similar processes between audience and their

surrounding environment. These feedback and interactive processes suggest strong conceptual links to cybernetics. Often such a relationship is mediated by technology (e.g. Mobile technology, pervasive media, virtual/augmented reality), whilst in others the relationship manifests exclusively in the physical world. The relational and participatory aspect of these works underlines theoretical notions of relational aesthetics (Bourriaud, 2002) and participatory art (Bishop, 2006; Bishop, 2012). The indeterminacy in participation underlines the open nature of these works (Eco, 1989). Immersive theatre practices have also been criticised for audience manipulation (Ranciere, 2009) and consumerism (Auslander, 1999, 47-48).

The reason I decided to follow an immersive theatre practice to present my work relates to the ability these works have to create a performance "in-its-own worldness" (Machon, 2013, 93). Immersion offers a deep sensorial and relational experience accentuating Gertrude Stein's notion of theatrical landscape in a very inclusive manner. For Stein the relational role of the theatrical landscape is a material-semiotic network between objects and subjects, a non-anthropocentric network that permeates the play in a manner that prophesises Latour's ANT. Each object and subject in Stein's theatrical Landscape is merely a node of the overall play, a node in the constellation of meaning:

> The landscape has its formation and as after all a play has to have formation and be in relation one thing to the other and as the story is not the thing as any one is always telling something then the landscape not moving but being always in relation, the trees to the hills the hills to the fields the trees to each other any piece of it to any sky and then any detail to any other detail, the story is only of importance if you like to tell or hear a story but the relation is there anyway.

(Stein, 1995, XLVII - XLVIII)

Stein's landscapes suggest the moment in the history of theatre when the attention to relations becomes the subject of the performance, a relation between objects subjects and events in the spatial-temporality of the play (Lorange, 2014, 144). For Boje "Stein sought to break free of the alternative reality created in developmental storytelling, and instead let the play be the reality that the spectators made sense of in the present moment of performance" (Boje, 2005). The presence in the theatrical landscape prompts the fusion of 'feeling' and 'understanding' enhancing the experience into a very visceral one. This fusion is what Machon describes with the terms *(syn)aesthetics* (Machon, 2009) and *preasence* (Machon, 2013, 43). In these type of immersive performances the "reality [is] not merely interpreted by the audience but first and foremost experienced" (Fischer-Lichte, 2008, 16-17)

Moreover, to me immersive practice echoes the posthuman and cybernetic notions alluded to by its inherent interactive properties. Immersive theatre audiences behave in a very similar way to those of Paine's immersive and interactive —cybernetic— installations. The audience experience in immersive theatre is the result of its own contribution. Audience members are observers, yet they have a strong agency in the performance, as they decide what to observe, how to relate to the events and how to interact. Such contribution from the audience in the process of observation suggests second order cybernetic principles and the participatory aspect of the observer in an observed system. Such artwork cannot exist "independent of its creator and recipient; instead, we are dealing with an *event* that involves everybody — albeit to different degrees and capacities" (Fischer-Lichte, 2008, 18, emphasis in original), an event constituted on cybernetic dynamics of feedback loops. Also, in immersive works the observer often becomes subject of observation. In

this context, the performance evolves navigating through the mutual responsibility and the constantly interchangeable role of observer and observed. Essentially, they are *processes* rather than *content* oriented experiences, as that relational process generates the actual content, offering possibilities for postdramatic practice.

2.8 THE TWO "POSTS" – POSTDRAMATIC AND POSTDIGITAL

Postdramatic (Lehmann, 2006) theatre is a type of theatre that does not focus on the text or the script but rather on the performative aesthetics alluded to by the text. In that respect, postdramtic performances do not attempt to remain sincere to the text but to produce the effect and the theatrical landscape suggested by that text. Postdramatic theatre proposes "a simultaneous and multi-perspectival form of perceiving" (ibid, 16) as a reaction to the authoritarian character of the linear script. Often postdramatic performances do not have any plot, and they are situated beyond dialogues, in the conceptual space where the performer may be understood as both the "theme and protagonist of the play" (ibid, 25). Another strong aspect in these works is often the interaction that takes place between the audience and performers. The audience has a strong agency in these type of works by actively deciphering the staged events, contributing with their interpretation to the meaning-making process. Postdramatic processes in theatre should be understood as a means towards the possibility of opening the structure, incorporating dramaturgical indeterminacy and the non-linear association of the different elements of a performance in order to provide the audience with the opportunity of a much more open interpretation of the presented events.

Although traditional notions of opera and music theatre seem to be very reluctant to engage with postdramtic practices there have been works that operate very close to what Lehmann defines as postdramatic. These may

include works by, among others, Robert Ashley, John Cage, Maurizio Kagel, Christoph Marthaler, Manos Tsangaris, Heiner Goebbels and Johannes Kreidler. These works might be understood as postdramatic for different reasons. They might not employ a linear narrative; the actors on stage might not make reference to any characters other than themselves; the text might be improvised or intentionally imperceivable; and they all might concentrate on the stage actions as the main material for the performance rather than on a predefined text.

Another "post-" notion that influenced my practical work is postdigital aesthetics (Causey, 2016; Berry, 2015; Cramer, 2015). The "post" in this case should be understood as "beyond" digital (Cramer, 2015, 14). Generally the notion of the digital is associated to the sterile and high-tech (Cramer, 2015, 15) whilst postdigital is "retro" and "anti-'new media'" (ibid, 20-21). In postdigital aesthetics the digital is present, however it does not aim to stimulate a new-media 'awe' sensation. Although digital technology was essential in my work, the digital was not the focus of the entire experience, but rather the new inter-human social relationship between performers and audience. The relationship was indeed prompted and fostered by digital technology, but I was interested in doing that in a transparent and immersive manner rather than drawing the audience's attention on the media used.

2.9 REMEDIATION AND ART PRACTICES

According to Bolter & Grusin any medium can be remediated (Bolter & Grusin, 2000). Remediation is the process happening when a certain medium starts to incorporate techniques, practices and approaches available in the *technosphere* (Ihde, 2012). Such processes result in the eventual alteration of the medium itself. The process of remediation is a conflictive process, as Bolter and Grusin explain:

the new medium can remediate by trying to absorb the older medium entirely, so that the discontinuities between the two are minimized. The very act of remediation however, ensure that the older medium cannot be entirely effaced; the new medium remains dependent on the older one in acknowledged or unacknowledged ways.

(Bolter & Grusin, 2000, 47)

For example, in the early days of television, news broadcasts were very similar to radio-news broadcasts, with a person in front of a microphone reading the most important events of the day. Similarly, early online versions of newspapers were simply the digitalised versions of newspaper broadsheets. With time however, and by understanding the specificities of the new media, practices change and unveil the full potential of these media. Nowadays television news incorporate reportages, interviews, videos, etc., likewise online news are populated by video-clips, sound-files and hyperlinks. Hence, media practices change through the incorporation of technologies and processes provided by the technosphere. Could we not say that the same is applicable in art practices? Is remediation not applicable in art?

For example, *The Encounter* (2015) is a theatre production by Le Théâtre de la Complicité. The performance borrowed sound design technologies and processes used in cinema and immersive audio walks. The audience was wearing headphones and all the sound elements of the performance were manipulated live and were reproduced binaurally through headphones. The whole experience had a strong psychoacoustic character.

The Encounter was undeniably a theatre experience, and the sound element in the performance did not become the actual subject. Yet the use of sound made this experience quite specific, unlike any other theatre experience.

Hence it was a performance that expanded traditional theatre notions, suggesting a theatre sub-genre. Because of the sound's role, the performance could be situated under the category of *psychoacoustic theatre* or a similarly defined sub-genre.

One of my intentions in this project is to investigate whether music theatre can be remediated through the incorporation of media and practices used in interactive music, installation art and immersive theatre.

3. CHAPTER 3 – THE MATERIAL: MEDEA SEQUENCE

3.1 HEINER MÜLLER

Müller wrote almost all his work as adaptations of classic works, often making references to contemporary political and historical events. However, he was not interested in the linearity of those events, for him they were just data. Müller claimed not to belong anywhere and this comes across through his characters: Prometheus, Philoctetes, Niet and Medea; he was personifying the split Germany of the time. As Bonnie Marranca put it "[Müller is] a man split in half, is the disembodied emblem of his divided country. At home here or there he lives best in literature" (Marranca, 1988,18). Jane Kramer stated that "he never pretended to be anyone but his several selves" (Müller et al, 1999, 237), something that comes across vividly through his interpretation of Medea. For Kalb, Müller was a chameleon of his time, like Plato, Rousseau and Artaud, who managed to live resourcefully, who, "flourished […] rejecting a singular identity" (Kalb, 2001, 1). Müller was an incurably cynical personality with a strong nihilist trait. Although he was one of the most interviewed individuals in his lifetime, most of his interviews contradict his previous claims, escaping questions with charming virtuosity.

For Müller everything is material, his violent world[13] was a springboard that allowed him to develop his oeuvre. As he claimed "Shakespeare would be inconceivable in a democracy. Living in the GDR meant, above all, living amid rich material." (Kramer, 1999, 242). For Müller theatre, life and politics were inseparable. He claimed that "as long as freedom is based on violence and the practice of art on privileges, works of art will tend to be prisons; the great works, accomplices of power." (Müller, 1979, 57). His work flourished when most restricted: after he was prohibited to present his work to the GDR public,

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[13] As he lived most of his life in two dictatorial regimes (Nazi Germany and GDR).

he started slowly abandoning linear prosaic narrative for collages, so called "synthetic fragments". In the essay "Heiner Mueller Out Of Joint," Žižek depicts Müller as having completely "succumbed to the temptation of catastrophism" (Žižek, 2003). Indeed, Müller's writing is driven by an impulse towards a destructive subject, as he states, a lust for disaster: "Schreiben aus Lust an der Katastrophe" (Birringer, 1990, 93), the total destruction driven by capitalism and the exploitation of consumerism and technology, a devastation that according to him humanity has collectively contributed to. Müller's stance introduces proto-posthumanist notions. Müller's work motifs were:

the rejection of the unconditional drive to productivity, the distrust of democracy, the theatralization of politics, the inevitability of violence — three features which directly contradict the three dogmas of today's postpolitics: the focus on economic growth, liberal democracy, non-theatrical pragmatism, nonviolent tolerance.

(Zizek, 2003)

Unlike Brecht —who inspired him greatly, Müller does not aim to induce hope or to indoctrinate a possible resistance. As he declares: "I am not interested in answers and solutions […] I don't have any to offer. I am interested in problems and conflicts. […] I am neither a dope dealer nor a hope-dealer" (Martin, 2017). Müller's approach —particularly in his later work, does not suggest a larger narrative that can contribute to saving the world. Without aiming to offer any answers, he wants to make us aware of this process of destruction, by presenting the viewer with a devastating and agonising truth, a reality we have caused and belong to. Moreover, Müller replaced the closed Brechtian dramatic form with an open one. This openness of form relates to his interest in removing the author from the picture of the play:

"Work toward the disappearance of the author is resistance against the disappearance of humankind" (Müller, 1979, 57). Such an explanation could be interpreted as a porto-posthumanist notion manifesting in literature, as it references the self-centred process for the salvation of human kind. Moreover, the choice of the open dramatic form echoes Barthes' Death of the Author (Barthes, 1977) and Eco's The Open Work (Eco, 1989).

In his later post-dramatic works —including Medea sequence, different aspects of the material may be staged simultaneously, offering a constellation of possible interpretations, therefore challenging traditional notions of theatre:

> The reader [and theatre audience] is confronted with a simultaneous medley of conflicting stimuli that are all present in their own right, but that do not necessarily contribute a 'meaning of the whole'. Our respective experience is therefore primarily evoked by a synthesis of *sensual perceptions* rather than by an appeal to our analytical and rational understanding.

(Wilke, 1991, 285)

Indeed, these works suggest an emotional, experiential and metaphysical understanding of theatre, challenging the despotism of rationality as it has been traditionally favoured by western culture. Müller presents us with magmatic, timeless and non-linear theatrical landscapes in which "the reality-level of characters and events vacillates hazily between life and dream" (Lehmann, 1995, 88). In these multiverse-like environments he treats the viewer with multiplicities of interpretations requesting us to retrieve, on our own, a very personalised essence of the play, rather than offering us a discrete and authoritative guidance towards the "what" is being presented and "how".

3.2 MEDEA

It is not surprising that Müller decides to use Euripides' Medea as material for his play. Euripides was a radical theatre maker for his time. In his work he poses challenging philosophical questions, such as "why do the good Gods permit the manifestation of evil?"[14], a question that suggests the notion of *theodicy* almost 2000 years before Leibniz coined the term (Leibniz, 2009). Euripides' play revolves around the character of Medea from Colchis, the witch who betrayed her country and her family by helping Jason and the Argonauts to steal the precious Golden Fleece. The play finds Jason and Medea, the parents of two children, exiled in Corinth. Creon, the king of Corinth, offers his daughter Glauce to Jason as a bride. Jason, who contemplates the political power he would gain by such wedding, accepts the offer and exiles Medea and their children to Athens. Medea kills Glauce and Creon by gifting her a poisonous bridal gown and then slaughters her two children. At the end of the play, Medea escapes moral justice in a deus ex machina fashion, by mounting the golden chariot of Helios. The play is still considered very controversial, as it does not comply with the cathartic principles of tragedy. Aristotle in Poetics (Worthington, 1990) criticises Euripides for allowing Medea to escape the tribunal of social and intersubjective consciousness, the theatrical scene, and the audience's judgment.

Euripides' Medea can be seen as a proto-feminist redemption (Messing, 2009), the first gender discourse in drama in the profoundly misogynist culture of ancient Athens. In this perspective, Medea is a woman oppressed by the social structures and institutions of the era. The sacrifice of her own children was a desperate action, the only possible means she had at her disposal to condemn society and punish her oppressors. The fact that Medea was a

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[14] In his tragedies, Euripides questions the divine teleology of faith doubting the importance of human actions and opinion in a fully divinely predetermined future.

"barbarian"[15] prevented her from being integrated and fully assimilated into the society evidencing the strong class and racial segregational structure of the otherwise democratic ancient Athens. Medea can be therefore understood as an early victim of *Intersectionality* (Crenshaw, 1989) because of her gender and ethnicity.

Euripides' play is full of metaphors that depict and compare Medea to seafaring and weather phenomena. These comparisons contribute to a presentation of Medea's personality as a nature-like powerful woman that was driven by her emotions and grounded instincts. Other scholars suggest that there is an androgynous quality in Medea's character, as she operates between both male and female gender-stereotypes (Griffiths, 2006) in the way she kills her victims. Poisoning Glauce's gown, killing both her and Creon, is a rather sophisticated method, evidencing female wit and cunningness. However, she slaughtered her children in cold blood with her own hands, demonstrating a masculine-like emotional alienation, physical strength and authoritative power. Euripides' Medea is an attempt to shock, provoke and trigger reactions (Boedeker, 1997,127-148) in his fellow Athenians about the role of women in their society. The play is an extremely important milestone in feminist literature, as it did manage to challenge, shock and shake the patriarchal establishment of ancient Athens.

3.3 HEINER MÜLLER'S MEDEA

Heiner Müller's Medea sequence is considered to be his last work (Müller, 1984, 46). It is based on scattered and fragmented evocative images, that he calls "synthetic fragment[s]" (Birringer, 1990, 87). For George Aperghis, Müller's texts of that period "are like from different telegraph stripes, patched together" (Aperghis, 2015). Müller's Medea "can be seen as a form of violence

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[15] A term Greeks used to define non-Greeks.

against the hegemony of the drama, a rejection of the western concepts of character and plot" (Campbell, 2008, 98). Müller's states in the play's notes that "[t]he simultaneity of the three parts of the text can be portrayed any which way." (Müller, 2002, 1). Such simultaneity of the different scenes "is another way to subvert the narrative certainty" (Campbell, 2008, 98) and suggests the negation of the author's authority whilst it requests the deep personal interpretation of the material from the performers. That is also alluded to by Müller's instructions who "leave[s] it to the theatre to arrive at the appropriate presentation [of the play]'' (Müller, 1984, 125), suggesting a non-singular inevitable interpretation, but rather the possibility of multiple readings of it. Its fragmentation and multilinearity suggests "dramas that map the failure of drama to take place" (Kalb, 2001, 107). The dialogues in Medea sequence have been reduced to a minimum because there is no sense of historical linearity: there is no past, no present and no future, everything is part of a mechanised magmatic continuum. Kvistad suggests that the multidimensionality of the play's structure does not only challenge Aristotle's cathartic narrative principles (as much as Euripides' play did), but also indicates signs of "departure" from Brecht's epic theatre principles (Kvistad, 2009).

Philip Auslander observes how Müller puts the audience at a "critical distance'' (Auslander, 1992, 78) and compromised position for the text. For Campbell such critical distance is caused by the fragmentation of the text and forces the audience "to reconsider, from an admittedly compromised position, the structures and assumptions of the contemporary world" (Campbell, 2008, 86). The audience's compromised position makes Medea sequence an anti-epic or post-epic play challenging the Brechtian *alienating effects* (Brecht, 2015). It is therefore a "post-Brechtian" work, as it expands the notion of *alienation* by suggesting the very critical inclusion of the audience into the play rather than its critical distancing. Also, because of the audience's position,

Müller underlines the necessity for naturalism in this play (Müller, 1984). As the play is "not only an aesthetic mirror of a decentered subject and its fragmented world, but [..] also stand[s] for a new way in which the subject might come to terms with its own decenteredness" (Wilke, 1991, 280).

For Müller therefore we all are in the text or we are the text, or we are who the text is written for, with and about. We collectively, the human kind, are the performers and audience of the events in the text. My understanding of this version of Medea is that the roles of the performers and audience can be inverted or exchanged. We are all both the performers and the audience at the same time, observers and observants[16]: the performance —as much as life— is herewith perceived as a collective responsibility[17]. The play evidences notions of the Artudian audience inclusion and his *Theatre of Cruelty* (Artaud, 2013). For Müller "Artaud, [is] the language of torment under the sun of torture, the only one which illuminates all continents of this planet simultaneously. Brecht, who saw the new creature which was to replace humankind." (Müller, 1979, 57). Medea sequence is an exemplary synthesis, a cast of both Artaudian and Brechtian principles. The Brechtian influences manifest in subject matter of the play, in the sphere of the political, whilst the Artudian influences are in the point of view of the subject, the position of the observer and the perspective of the viewer in this theatrical landscape.

The fourth wall notion (Stevenson, 1995) separating audience and performers is fractured by the compromised position of the audience. What the viewer sees through this fracture is a juxtaposition of images, images of humanity's future self, abused by itself until its final destruction, when humanity's leftovers become one with the landscape of its own death. The post-apocalyptic environment that the author sets the play in is a dystopic landscape that transcends time and history (Birringer, 1990). Similar to his

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[16] Suggesting a second order cybernetic notion.

[17] Suggesting the posthuman notion of interconnectivity. A type of an extended performance ecosystem.

emblematic *HamletMachine* (1997), Müller's Medea depicts a "machine-world" (Kalb, 2001, 20) humanity as the result of a process, the merge of human and machine. The play aims to bring the audience to a *vis-à-vis* of modernity's destructive face; it is a time wormhole to the viewers' future image. It does not aspire to do anything else except for having them listen to the future desperate cry of the end of humanity. In a way, the responsibility and guilt that is imposed on us by Müller, does not differ much from the responsibility and guilt that Euripides wanted to impose on the Athenian audience for morally siding with Jason. Müller used Euripides' Medea as material. He stripped it out to its bare minimum, removed all coincidental mythological information, to go even deeper than the skeleton of the myth and stay with its essence, the bone-marrow of the story.

For Kvistad, "Müller's Medea [...] [has a] neo-humanist agenda", I on the contrary believe that it oscillates between notions of posthumanism and transhumanism. Nonetheless, Müller's Medea is first and foremost about the notion of landscapes: natural landscapes, theatrical landscapes, artificial landscapes, and human landscapes. It is through this notion of landscapes that it alludes to its posthuman principles. It is about the environment that surrounds us, that surrounds the play, in which we find ourselves immersed in, by reading or attending the play. Effectively, it is about the imagery that the play alludes to, as Müller's "writing [is] a history of imagery" (Marranca, 1988, 18). Müller is fascinated by landscapes, and such fascination occurred a few years before he wrote Medea sequence, when he visited United States for first time. The vast landscapes of the new continent changed his understanding of the world and influenced extensively his forthcoming works. The process of discovering landscapes for Müller was a process of excavation, a similar process he used to dig his material from previous plays, history and mythology to devise his texts:

What was new to me was the discovery that a landscape can be a
political phenomenon, and that I can have a relation to landscapes,
simply because of the dimensions of the landscapes over there. And
because of the fact that they never can become domesticated. There
always remains something more. […] The archaic even anarchistic,
feature of [American] Capitalism I found very interesting.

(Müller, 1984, 14)

For Müller human history is part of the earth's history, yet another
posthuman notion. For Müller "the end of human history, the end of a species,
will first occur as a destruction of the landscape." (Marranca, 1988, 21). In this
context, Bonnie Marranca suggests that Medea stands as a symbol for all
female bodies; she is one with Electra, Ophelia, Alkestis (ibid, 23) and
Cassandra, but also she is the devastated landscape itself, the body of nature
abused by the exploitation of man(kind). As she claims "[w]omen and nature
struggling against the careless myth of the eternal, their bodies landscapes
ravaged over and over again by the germ of warfare. Colonized by monuments
erected to immortality, impossible dream" (ibid). Here Marranca introduces the
notion of *Gyn/ecology*[18] (ibid) regarding the Medea sequence. She draws a
parallelism between femininity and nature; in this metaphor Medea and the
landscape are inseparable. The titled character becomes the *Gaia* and the
landscape, the host of the entire play. Medea is ubiquitous, she is the play, the
nature, the landscape, the mise-en-scène, and she is there to revenge
humanity for abusing and mistreating her.

In Müller's work Woman is spirit nature, womb, Plato's cave, the black

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[18] Gyn/ecology: Gyn from the Greek γυναίκα (gyneka) = woman and ecology.

> hole in space, a prison, a snakepit, a one-way street. She is also the
> landscape of utopia, his grand theme. Woman, like nature made to
> embody the ideology of the eternal feminine, passive, fated. But nature
> is not a still life, the earth not a receptacle.

(ibid, 22)

All the rest of us, readers, audience, humanity, are just the viruses and parasites on this Medea-landscape, we are part of the landscape yet foreign to it, and definitely not under control anymore, devouring and abusing our host. Yet, the Medea-landscape is still alive, she is still powerful enough to demonstrate her total authority. Death would be pervasive; her own "final solution". Müller's Medea is both filicidal and suicidal, as these are the means Medea-landscape has in her possession to vindicate herself and revenge humanity. Under Marranca's reading, Müller's Medea play is a meta-feminist work as much as Euripides' Medea has been a proto-feminist one. Müller expanded the feminist notions that inhabited Euripides' play into maximum dimensions, to the entire landscape of the play, reaching posthuman allegories. Euripides' Medea exit in a *deus ex machina* fashion has escalated to nuclear levels, and the ending of Landscape with Argonauts suggests the eruption of an atomic bomb that sweeps the entire landscape. The posthuman and post-feminist notions of Euripides' play are ubiquitous and underline the entire structure and thematic treatment of Heiner Müller's Medea sequence; it is the whole play.

3.3.1 DESPOILED SHORE

In his introductory notes, Müller suggests that Despoiled Shore can be performed in a peepshow "as part of the regular presentation" (Müller, 1984, 126). In that context, one could wonder who is observing whom, who is viewed

and who is the subject of the performance, who is the peeper and who is to be peeped, who is the audience and who is the performer. In this version of Medea, the hierarchy and significance of roles and relationships is challenged. The scene is what Müller describes as "theatre of images" (Kvistad, 2009, 1). The text offers multiple possible interpretations, it is very sparse, full of symbolisms and allegories. It is a single-page monologue for an undefined character, written in a format that resembles fragmented prose or deconstructed poetry without a rhyme. Certain sentences are capitalised, whilst most of the text is in smaller font; quite often they are interrupted, continuing in a new paragraph, single words are hanging in the vacuum, on their own, whilst they could be perceived as part of the sentence above, the one below or stand alone. Sometimes, the sentences seem to be parallel narrations happening at the same time, as if they were fragments of internal dialogues within the same mind. Scattered words might refer to the original myth and largely to a decaying landscape.

The play starts with a cluster of images of contamination, misogyny, destruction, and decay composing altogether a barren wasteland, the mise-en-scene. Despoiled Shore is the presentation of a dystopia in which the human subject is "a useless by-product of capitalist industry" (Kvistad, 2009, 3). In this apocalyptic transhuman landscape, similar to both Aldous Huxley's *Brave New World* (Huxley, 2008) and to Francis Fukuyama's *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Fukuyama, 2003), technology is even in charge of human reproduction:

Waste pipes

Ejecting Babies in batches against the advance of maggots

(Müller, 1984, 127)

The imagery of babies as waste suggests a society equally guilty for infanticide, yet a mechanically reproduced one. Müller predisposes us for Medea's innocence before she even committed the filicide, her actions do belong to the twisted morality of the inhuman landscape we are situated in. If Euripides finds reason for Medea's actions as a result of the patriarchal and xenophobic establishment, in Müller's Medea the motives are already depicted in the theatrical landscape. The scene engages directly with the main questions of the play: the nature and value of humanity in an era of violent technological reproduction, cruel consumerism and misogyny in which humans have been progressively converted from subject, to object, to waste. Despoiled Shore is the landscape of Norbert Wiener's worst nightmares in the human use of the human beings: cybernetics and society (1988): the violent technological ubiquity and its potential for destruction.

3.3.2 MEDEA MATERIAL

Müller places the second scene "at a lake near Straussberg that is a muddy swimming pool in Beverly Hills or the baths of a psychiatric hospital" (Müller, 1984, 127). Again the landscape suggests decay and devastation. This is the only scene with clear and direct references to the classic Euripidean Medea, and also the only scene with named characters and some sort of dialogue between them: Medea, Nurse and Jason. However, essentially the scene is a long monologue of Medea interacting only at the beginning and the end with the other two characters. It maintains a sort of linear prosaic form, although there are often repetitions of sentences that suggest a sort of chorus or thematic leitmotif. In this scene Müller's intention is to shock us in an Artaudian manner, aiming for the cathartic qualities of violence. As he suggests in the introductory notes this scene should be interpreted "[j]ust as MAUSER presumed a society of transgression in which a man condemned to death can

turn his real death on stage into a collective experience" (Müller, 1984, 126). Yet again the collective and immersive aspect of the work is very prominent. In order to provoke this shock Müller includes us in the play, he puts us in the conceptual centre of the theatre of —human— cruelty: the collective aspect of the scene makes the viewer responsible, a sort of perpetrator of the overall imagery.

Medea seems to be in a sort of mental health clinic, alluded to by the way she speaks: she appears to be unfocused and confused, as if she has been medically —or otherwise— sedated. Medea is labelled mad from the oppressive structure she found herself in. However, she is nothing but a political activist being monstrualised and kept under control by the establishment through a system of power exercised on her. She states her political position about the objectification of women, as she describes Jason's new wife Glauce, as an equally objectified subject, a cogwheel in the machinery of power, a mere present that sealed a bargain between Jason and her father. Moreover, in this scene Müller presents signs of female oppression manifesting through objectification:

MEDEA

Are you crying or laughing Nurse

NURSE

Lady I

Am older than my crying or my laughter

MEDEA

How are you living in your body's ruins

Together with the ghosts of your youth

(Müller, 1984, 128)

Medea resides at the margins of the social landscape, she is a tool, a slave and not even her children or her own life belong to her; a mere instrument for Jason's personal accomplishment and success. Medea's description of the filicide appears to be "practicing […] the anatomy on herself, giving a suggestion the violence she enacts on them is a reversed vector of the same strategy which she would otherwise enact on herself" (Turner, 1999, 209). Medea cannot kill herself, either because she does not have control over herself or because that would be favourable for Jason's plans, so she kills her own children. And by killing them, she is killing a deep part of herself, she is erasing her history, her love, a part of her own life. However, the filicide could also be seen as a process of reversed birth, as it appears in the last two sentences of the passage. In a way, for Medea her children do not die, rather they return back to her, becoming part of her again:

MEDEA

[…] My little ones

My traitors No you did not cry for nothing

I want to cut you right out of my heart

My heartflesh My remembrance My beloved

Give back to me my blood out of your veins

Back to my womb you who are my entrails

(Müller, 1984, 132)

For Müller Medea's filicide was a process of emancipation as much a process of self re-definition. Medea ceases to be the *Constitutive Other* for a society that despises; she does no longer wants to be a reference for the definition of the culture that has abused her. She decides to be the un-referable, and indefinable self.

MEDEA

I want to break mankind apart

And live into empty middle I

No woman and no man

(Müller, 1984, 132)

Despite the linearity and sequential aspect of the scene Müller presents us with a complex and multilayered material. At first, there is the dialogue of the characters, then a deeper reading makes us realise that these dialogues are there to contextualise Medea's monologue, then the monologue offers its multiple readings on the events: whether they happen, whether they don't, whether they are part of Medea's desire or part of her own hallucinations. Furthermore, the deeper layer presents the principles and values Medea represents, arriving at the reading of the layer of Medea as a concept rather than a character. Medea here is a political concept, fighting for her own raison d'être in her contemporary world. She is here to remind us of the moral bankruptcy and hypocrisy of a culture in which the "the human element" and in this context 'women' become expendable and "jettisoned" (Kvistad, 2009, 5). My focus in this scene is the notion of Medea as a concept and the non-otherness of Medea (i.e. Medea between humanity). The idea of Medea as a *no-woman no-man* who lives in the empty middle is an act of freedom and an emancipatory action that resonates with the notion of cyborg (Haraway, 1991).

3.3.3 LANDSCAPE WITH ARGONAUTS

This last scene is the description of a voyage, an expedition, like Argos. However, the expedition is into a dying landscape, a dead planet or, as Müller puts it a "dead star where a task-force from another age or another space

hears a voice and discovers a corpse" (Müller, 1984, 126). The scene is the description of an arrival, the end of a journey of a rescuer, a coloniser, an observer. This arrival is not just the end of a story or the end of the play, but primarily "the end of history", as narrated potentially by "the last [hu]man"[19]. As Bonnie Marranca suggests, in this scene Müller wrote the history of the world backwards, "a history of violence", nothing else but a horror story about "the end of Western civilisation" (Marranca, 1988, 17). This scene is precisely a journey into our dystopic future accompanied by the agonising voice of consciousness, as Marranca would define these type of plays as journeys accompanied by voices (ibid, 19).

Anything that might seem familiar in this world is alienated from an overimposed layer of violent decay. This scene is above all a landscape of "technological violence with which [the work] carries the colonization of the life-world to its end" (Birringer, 1990, 87). Müller underlines the importance of the collective aspect of the scene: "as in any landscape, the I in this segment of the text is collective" (Müller, 1984, 126). Hence, "I" transcends the boundaries and identities of the audience-performers, it resides beyond notions of theatrical intersubjectivity. In this segment, the role of the landscape in which both performers and audience are part of and responsible for is critical. Müller's landscape is an autobiographer, the landscape is the historian of the future, upon her body everything is written: the chronicle and tale of her own devastation. In this scene the character of Medea is the landscape itself, the colonised and exploited body of the world. As Bonnie Marranca implies in her analysis on landscapes and gender oppression "sexuality is its own kind of natural history" (Marranca, 1988, 22), suggesting all female bodies as landscapes. For Müller nature is an extremely political subject, landscape is

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[19] This is a reference to Francis Fukuyama's 2002 The End of History and the Last Man work. Although the work deals extensively with the notion of liberal democracy in a post-Cold War world, one of the main premises of the book reflects a profound pessimism about the future of humanity in an ever-increasingly automated world, suggesting the inability of humans to control technology.

another form of theatre, a most political one and landscapes are the means to bring this subject's allegories and symbolisms on stage. As he claims: "There is something incredibly beautiful about capitalism when it has reached its limit. That limit is the landscape" (Müller, 1982, 183). It is impossible to decorticate the play from nature and its history, the environment-related issues incorporate all other political issues and become the play itself.

This landscape mirrors humanity's tendency for a self-destructive future and eventual end: "LANDSCAPE WITH ARGONAUTS presumes the catastrophes which mankind is working toward." (Müller, 1984, 126). For Müller such a future is unavoidable. The scene acts as a prophecy, without however imposing any expectations on the viewers "the theatre's contribution to their [the catastrophes] prevention can only be by their representation" (Müller, 1984,126). Like in the first scene, the speaker(s) here are unidentified. However there is a much clearer sense of narration:

The voyage had no arrival NO PARKING

At the only crossroads Polypheme

Controlled the traffic with his one eye

Our port was a dead movie house

On the screen the [movie-]stars rotted in competition

In the lobby Fritz Lang strangled Borris Karloff

(Müller, 1984, 135)

In this scene, the limits between subject, object, and context fade out into each other into a material-semiotic mashup.

I a flag a

Bloody rug hang out

[…]

I my sea voyage

I my annexation My

Walk through the outskirts

[…]

The anchor is the last umbilical chord

(Müller, 1984, 133)

This "I" —or We, in that matter— is omnipresent, manifesting in the entire text. The ambiguity of the narrator's subjectivity, in combination with the collective notion of the first person, allow the "I" in this scene to link and transcend the individual (performer/audience) and the subject:

Shall I speak of me I who

Of whom are they speaking when

They do speak of me I who is it

(Müller, 1984, 133)

The scene is extremely politicised through the variety of modernity's failures: "social alienation, political corruption and hypocrisy, imperialism, sexual inequality and environmental degradation" (Kvistad, 2009, 5). Campbell describes this world as in a self-inflicting decay "by its own design" (Campbell, 2008, 94), and the narrator describes it as "planned obsolescence" (Müller, 2002, 7). Time in this scene has stopped, it is pending as a dominant chord, in limbo, waiting for its resolution, the end, the final total destruction, the end of life, the end of the landscape, the end of the play itself. There is no hope, in this landscape only "DEATH STILL HAS A HOPE" (Müller, 1984, 134). Humanity is observing its self-inflicted death and destruction "As Nero stood

exultant above Rome" (ibid). Žižek compares Andrei Tarkovsky's 1979 *Stalker* imagery to Müller's world. Both landscapes are "post-industrial wasteland with wild vegetation growing over abandoned factories, concrete tunnels and railroads full of stale water and wild overgrowth in which stray cats and dogs wander" (Žižek, 2003). Here the narrator sees "A wolf [that] stood on the street as the car fell apart" (Müller, 1984, 134), echoing —or rather prophesying— current studies that claim the unprecedented expansion of wild life in nuclear wastelands like Chernobyl (Wood & Beresford, 2016). For Müller the nature as politics signifies that death of humanity would be a potential victory for other species. As Bonnie Marranca puts it "[i]n the latest view of the apocalypse, the final war will be between species" (Marranca,1988, 22). Humanity is in the process of mastering its own extinction by consuming itself, in a semiotic act of cannibalism. For Müller this apocalypse is to be viewed in HD: "The forests burned in EASTMAN COLOR"[20] (Müller, 1984, 134).

The *hybris* in this scene is committed by the entirety of humanity and its actions, for polluting and devastating the world. In this context the *nemesis* does not come from a *deus ex machina* as it does in Euripides' Medea, but rather from the *dea ex machina*, Medea-landscape herself. Medea is the "machine" itself, the nuclear bomb that will sweep the plateau and the humanity off it, the h-bomb/god:

WHAT REMAINS HOWEVER IS ARRANGED BY THE BOMBS

In the magnificent crossbreeding of protein and tin-can

(Müller, 2002, 7)

The total annihilation is a necessity, a resolution, Medea-landscape will

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[20] Kodak's Eastman Color Negative was used between 1950s and mid 70s for the reproduction of colour pictures.

inflict death on her own body and on whatever inhabits it: humanity (her own children) and all its by-products need to be sacrificed. The arrival of the *dea ex machina* that would obliterate the scene is apocalyptic, yet cynical and picturesquely serene, as it is not just unavoidable, it is even desired:

> The theatre of my death
>
> Had opened as I stood between the mountains
>
> In the circle of dead comrades [...]
>
> [...] the expected airplane appeared above me
>
> without thinking I knew
>
> This engine was
>
> What my grandmother used to call God

(Müller, 1984, 135)

Müller illustrates in a visceral manner the moment the shock-wave is taking apart the body of the narrator/coloniser/observer making it part of the landscape of their death.

> The airblast swept the corpses of the plateau
>
> [...]
>
> I felt my blood come out of MY veins
>
> And turn MY body into the landscape
>
> Of my death
>
> [...]
>
> The rest is poetry Who has better teeth
>
> The blood or the stone

(Müller, 1984, 135)

In this final image of the play Müller makes a reference to the previous scene in which during the filicide Medea describes performing a reversed anatomy (or reversed birth) taking back the blood of her own children, and putting their bodies back among her organs. Here Medea is the landscape, and the dead humanity is incorporated back into the landscape, the nature, its place of origin.

3.4 MÜLLER'S MEDEA AS MATERIAL

My intention for this project was to use Heiner Müller's Medea sequence in a similar way that Müller used Euripides' Medea, as material. With such material I devised a number of immersive and technologically-aided performances. Müller's fragmented text and imagery, the importance of technology in the text, the theatrical landscape and the notion of the collective "I" were the reasons I decided to engage with this work and use it as a an inspiration for the development of a hybrid music theatre environment in which audience and performers would share space, interact directly with each other or through technology, and share a collective responsibility about the development of the piece. I was not aiming to make a literal music-theatrical adaptation of Heiner Müller's Medea sequence, but rather to create an immersive music-theatrical landscape. I imagined a performance that would not have a clear beginning, middle or end, but would rather be a process of magmatic continuum, a theatrical autopoietic or sympoeitic machinery. I engaged with the postdramatic text in an open and very intensive manner, aiming to activate the audience in the process of production and interpretation, in the way Barnett puts it: "[p]roductivity is the ability of a fixed playscript to generate new interpretations by engaging its realizers and its recipients to the most intensive degree possible with the text" (Barnett, 1998, 29).

All of the performances I devised have built into their core, the notion of

dependency between audience and performer, and they all become sympoetic technologically aided performance-organisms, performance ecosystems between performers and audience mediated by technology and shared responsibility.

Inspired by Müller's notes I wanted the first scene to happen in an actual peepshow, a one-to-one type of performance. In this type of peepshow I explored the boundaries and possibilities of the relationship between audience and performer. Such relationship would visually suggest traditional fourth-wall peepshows, but also would bear elements of user interactive devices such as arcade games, mechanical fortune-tellers, or peepshow machine-boxes like kinetoscopes and mutoscopes. The idea of a peepshow as part of the performance or the performance itself being a peep show made me consider the dynamics of power between the audience and performer, as much as cybernetic relationships based on feedback processes between the two. Moreover, as I was interested in exploring the possibilities of transindividual relationships between the audience and the performer I wanted to introduce an element of technological agency to establish that relationship, a type of interactive device that would allow the audience to control or interact with the performer. I wanted to induce a mechanised puppet-puppeteer relationship between the two. In this performance I envisioned the roles of observer and observed to be blurred, inspired by second order cybernetic principles. Like in front of a caged animal in a zoo, this technologically-aided peepshow would be based on bi-directional action-reaction processes, creating an eternal closed feedback relationship between audience and performer.

From the second scene I was not interested in using the dialogues of the scene or naming the presence of Medea. Yet I wanted to use elements from Medea's monologue to present her character as a powerful and omnipresent entity in the landscape. The textual material of this scene inspired me to allude

to Medea as the "otherness" suggested by Wilke: "I am thinking of Müller's use of the voice as the radical Other of the body, which splits in half the traditional notion of the theatrical 'subject' (as represented by the 'actor')" (Wilke, 1991, 285-286). I imagined Medea's presence in this landscape being immersive and pervasive, and I considered that the best way to achieve that was through sound. Medea had to manifest through a powerful and compelling voice, a voice —or voices— without body. Her body would be the entire performance, suggesting possibly that she controls the events of the performance, bringing forth the metaphor of Marranca's Medea-landscape. I thought that the voice should be ubiquitous, sounding throughout the performance (even spilling into the other scenes). I imagined her interrupting any performers' actions in all different scenes whenever heard. In the process of surveying the possibilities of how to emphasise the "otherness" of Medea I contemplated options and possibilities of "gender-otherness" regarding voice. I thought of using digital voices to achieve that with non-gender-binary text-to-speech algorithms and vocaloids. This approach towards a gender-neutral or gender-fluid Medea was intentional aiming to potentially echo feminist posthumanist and postgenderist theories like Haraway's (1991). I wanted to place Medea as Müller did: in humanity's middle "No Woman and no man" (Müller, 1984, 132). Echoing Müller, it was "an attempt to erode the dominant structures of the literary text in order to find the authentic subject which male history has repressed" (Fehervary, 1980, 46). From a posthumanist point of view such representation of the subject attempted to reference the third order cybernetic principle of emergence.

In the third scene I experimented with the collective "I" notion. I was interested in exploring the possibility of creating an audience-interactive theatrical landscape, in which the audience would not necessarily be fully aware of the impact that their actions had on the performance. Yet their

existence in space would bear an extreme significance, similar to the responsibility of a human entering an ecosystem. I intended to use computational technology in a very pervasive manner. The technology would mediate between the audience and performers, however in this case it would measure the actions of the audience and performers, to control the entire structure of the performance. This idea or pervasive technology applied in theatre derives from the "machine-world" (Kalb, 2001, 20) presented in *Landscape with Argonauts*; a world fully automated and autopoietic. The performance would run based on a system of instructions that would act as social actors or non-human mediators (Latour, 2005). My intention in this scene was to create Müller's landscape, by "handing over the keys" of the performance to computational technology and generative processes. I imagined the landscape as "the marriage of man and machine" (Kalb, 2001, 20).

I knew that the performance in this scene would be a responsibility shared equally between all three elements that composed it: performers, audience and computational technology. I intended to challenge hierarchies between audience and performer, as much as human and machine, willing to observe what such type of performance could potentially be offered. In his notes, Müller suggests that "the text needs the naturalism of the stage" (Müller, 1984, 126). Therefore, I did not assign roles to either the performers or the audience. I imagined that somehow they would all receive tasks from certain automated computational machinery and they would all have to execute them pretending to be no other than themselves. As Viktor Shklovski puts it "some kind of elemental process is taking place where the living fabric of life is being transformed into the theatrical." (Buck-Morss, 2000, 144). I did not want the performers to act out, an approach very common in performance art (Fischer-Lichte, 2008, 27). I wanted them to remain themselves becoming

part of a machine, like human cogwheels in the machinery of performance. Finally, my intention in this scene was not to represent a world, but rather to devise a framework for a world to be created and experienced by the audience and the performers.

4. CHAPTER 4 – COMPOSITIONAL AESTHETICS (INFLUENCES AND INSPIRATION)

4.1.1 THE SCORE

The decision over the type of score presents the intentions of the composer and how they envision their role and contribution in the music-making process. A score is an interface between the author and the performer. To find a scoring system that would aid the idea of music theatre I wanted to develop, I was inspired by the scores, processes and systems of several works.

John Cage's (1958) *Fontana Mix,* a score employing indeterminacy and aleatoric processes, became the blueprint for other works like *Water Walk* (1959), *Sounds of Venice* (1959), *Aria* (1958), *Theatre Piece* (1960), *WBAI* (1960) and Cornelius Cardew's *solo for guitar* (1961). Karlheinz Stockhausen's *Aus den Sieben Tagen* (1968), is a score based on instructions, described by Stockhausen as *Intuitive Music* (Kurtz, 1992, 164). Nick Collin's alter-ego, *Click Nilson,* developed a communication system for performance where "[e]ach instruction list becomes a storage mechanism on the network that can be preserved, modified, copied, and transmitted during the performance" (Freeman, 2017).

Digital technology offered new possibilities in score making. Karlheinz Essl's *More or Less* (1999 - 2008) is a computer generative text-based score which outputs a sound quality and a haiku which the performer has to interpret. Other artists incorporate audience decision-making processes to generate their scores. In Kevin Baird's *No Clergy* the audience used web devices to real-time generate a score following stochastic principles (Baird, 2005). McAllister Alcorn and Strain (2004) developed a software for tablets with which members of the audience draw notation for individual performers. In Wulfson's, Barrett's, and Winter's *Livescore* (Wulfson et al, 2007) the audience controlled knobs to

stochastically generate real-time scores. Jason Freeman uses computer vision to generate scores based on the movement of either light sticks that the audience wave in front of cameras in *Glimmer* (Freeman, 2005) or light blobs that the audience wear as hats in *Flock* (Freeman, 2008b).

4.1.2 SCORES IN MUSIC THEATRE

In music theatre indeterminacy and improvisation have also been explored for score making. Robert Ashley in *In Memoriam… Kit Carson* (1963) used a grid-based score that bears a lot of similarities to Cage's *Fontana Mix*. Ashley describes this work as "music in which events of an intrinsic theatrical and dance nature are composed as though they were musical events" (Weingarten, 2008, 29). *In Memoriam… Kit Carson* is organised in an abstract way as though it was music, challenging traditional approaches of fixed dramatic structure and the power of the single author. Here, the sound interactions between performers and equipment/instruments are more important than the narrative, because the sound becomes the narrative.

John Cage's *Theatre Piece* (1960), *Song Books* for solo voice (1962) and *Variations III* (1962), work with similar principles. In *Theatre Piece*, the score parts are for between one and eight performers from different practices. *Theatre Piece* is an indeterminate performance based on time brackets within which an action needs to take place. In *Variations III* the score is actually made by the performers. Cage's *Song Books* were 89 actions based all on instructions as the score of Stockhausen's *Originale* (1961). In *Originale* the boundaries between audience and performers were blurred as much as in Cage's (1952) *Black Mountain Happening* and *Theatre Piece* (1960). Indeterminacy was also important for *Fluxus Group*'s instruction scores (Friedman et al, 2002). Cornelius Cardew's *The Great Learning* (1968) is a staged oratorio and durational performance based on a score that combines

text, graphic notation and indeterminacy. Jani Christou's *The Strychnine Lady* (1967) is a work based on graphic notation with many ad libitum sections. In this work there is an element of audience pseudo-interaction in the style of Luigi Pirandello's (1921) *Six Characters in Research for an Author* or *Tonight We Improvise* (1930), with performers being placed in the audience.

In Eric Salzman's (1964-65) *Foxes and Hedgehogs* the conductor organised the events and signalled to the performers the section to perform in a similar manner to John Zorn's *Cobra* (Bracket, 2010). In *Public Opinion Depends Upon The Demonstrators* (1962), Ashley "reads" the actions and movements of the seated audience as if they were the score while he controls the mixing desk. In all these processes including Cage's chance operations, Stockhausen's intuition music, and Ashley's audience interactive processes there is one common denominator, the review of the composer's role by removing their full control over the process.

4.1.3 ALLEGORIES OF THE CAVE

Classical music and theatre —from roughly 1750 onwards— are primarily perceived as text based forms of art rather than performative ones: the initial material for either the music or the play is materialised in written form, setting a difference from dance or live art that are based on experiential processes. This perspective has contributed to an imbalance, manifesting through the autocracy of the written over the performed. A notion that often derives from the misconception of the script (or score) as the work of a "genius", or the result of a divine inspiration. Such performance ontology confines the performers to the role of interpreters rather than makers. With the processes I utilise in my work I try to critique this tendency.

I find similarities between this hierarchically linear process of art making and the Platonic cave (Plato, 2007): the inspiration (the idea, the platonic *form*)

can be seen by the composer (the wise person, Plato's illuminated, those that have exited the cave) who in turn projects their idea on a paper (cave projections) for the performer to interpret (the enchained human in the cave), striving for the true comprehension of the initial ideal (and thus their liberation). The remnants of this stereotypical romantic notion over the ontology of music follow on until today, as culturally for many the role of the interpreter is deemed as secondary to that of the composer/writer.

4.1.4 OPEN WORKS

My practice aims to break these stereotypes, and it is very much influenced by Roland Barthes' *The Death of the Author* (Barthes, 1977) who declared that the pluralism of interpretations of a text is limited when assigned an author. Michele Foucault's 1969 lecture "What is an author?" —a response to Barthes— questioned the ideological figure of the author for its "authoritarian" function. Barthes in his *S/Z* (Barthes, 1990) also coined the terms "readerly" (*lisible*) and "writerly" (*scriptible*) to describe inclusive artworks that allow the audience to participate in the meaning-making processes through their interpretation, a process of "co-writing" the work, versus works that should have a single interpretation and "reading".

Similar questions in relation to open and closed forms of works and the role of the author have been presented in Umberto Eco's *The Open Work* (Eco, 1989). In this seminal work, Eco engages in a critical survey on the notion of "openness" about works open to be shaped by the public or by chance processes. Eco's contribution lies on the importance of pluralism of interpretation; and the dynamic, interactive and co-influential relationship between author, audience and artwork. Open works request the active engagement of the viewer with the subject in order to deduce meaning from it. The interpretation of the subject is unique for each viewer, as it relates to their

own perspective, understanding and previous experiences, and it cannot be universalised. In my experiments I followed a similar approach, regardless of whether I used text, narration, sounds or actions, the narrative of the performance had to be deduced through the audience's personal experience.

<u>4.1.5 MUSIC THEATRE AS ACTION</u>

In music theatre open works make their breakthrough by introducing openness through freedom of actions and the notion of self-referentiality. Some examples may include Tom Johnson's (1975) *Failing: a very difficult piece for solo string bass*, a piece about a bass player sharing their frustration about playing that piece; Cage's *Europeras* (1987-1992) where opera singers perform themselves; the autobiographic work of Meredith Monk; or Kagel's instrumental theatre, where musicians perform musicians, such as (1967-1970) *Staatstheater*, a compilation of actions that allegorically references life activities, creating a new semiotic universe not dissimilar to Beckett's plays. This self-referentiality resonates with proto-minimalist works like Robert Morris (1961) *Box with the Sound of Its Own Making*. These works are not representational, but they present themselves as autonomous structures. In other cases the lack of verbal narrative, story telling and linearity converts the performance into a lab process. In Dick Raaijmakers' *Intona* (1992) the actor as a mechanic amplifies the sounds of microphones in extreme conditions. In Alvin Lucier's *Music for a solo performer* (1965) the performer lets us listen to the vibrations of his brain waves; in *Vespers* (1968) the blindfolded performers navigate in space using sonars. The narrative in experimental 20th century music theatre is often subverted, regardless of whether there is text, or whether it is based on actions.

4.2.1 THE VOCAL AESTHETICS

In *The Grain of the Voice,* Barthes writes about the "encounter between the language and the voice" (Barthes, 1977, 181) praising the unique quality of voice when it is "in a dual posture, a dual production —of language and music" (ibid). He coins the term *grain* to describe the virtually mystical unification between the body of the performer and the body of the listener. He adapts Julia Kristeva's terms *geno-text* and *pheno-text* (Kristeva, 1975) into music as *geno-song* and *pheno-song.* Pheno-song is when stylistic technicalities and virtuosity —like voice projection— deliver the words and their meaning clearly, a type of performance that is all about perfection. Geno-song is about the embodiment of the text, "melody really works at the language —not at what it says, but the voluptuousness of its sounds-signifiers" (Barthes, 1977, 182), it is about the embodiment of the singing and the *jouissance* of the voice. In geno-songs the blended words and music seem to emerge from the performers' inner depth, from where language, sound and culture reside together. This notion questions the authoritarian aspect of a text over the performance: it is not the words and their projection that matter but rather the embodied interpretation of these words through the singer's performance. It is essentially about incorporating and situating the performer's bodily attributes at the core of the performance.

In both theatre and classical opera there is an integral hierarchy between the person who writes the work (composer/theatre writer) and the person who interprets that work (actress/musician, director/conductor). These two forms of art are undeniably performative, as they are devised to be performed. However, they are treated primarily as works. The original script (score or text) is often deemed as sacred and untouchable, like the "ten commandments", these works are delivered to the world through an artistic and intellectual genius (the writer or the composer). On the other hand, the role of the

performer is to clearly and most accurately deliver and project the text of these works: the music notes, the words or their combination.

Geno-song can be understood as a sort of "distortion" through the performer's vocal specificities, a process through which the artist embodies the text. This distortion becomes part of the subject of the work of art. Hence the subject starts to diverge from the Platonic ideal represented on a paper and becomes self-referential, and about the actual interpretation of the work and the abilities of the interpreter. Moreover, geno-song resonates with the notion of postdramatic theatre (Lehmann, 2006), "beyond dialogue" (ibid, 31) and dramatic plot.

4.2.2 VOCAL JOUISSANCE IN NEW MUSIC THEATRE

In music theatre, text and speech have been considered and treated as i) compositional material as in Berio's *Sequenza III* (1963), Kagel's *Anagrama* (1957-1958), Ligetti's *Aventures* (1963); as ii) musical sound as in Stockhausen's *Gesang der Junglinge* (1955-1956), Ligeti's *Clocks and Clouds* (1972), Berio's *Omaggio a Joyce* (1958); and as iii) the compositional outcome in Schwitters' *Ursonate* (1922-1932) and Hans G Helms' *fa:m' ahniesgwow* (1959). (Salszman & Desi, 2008, 142). In Pierre Boulez's *Le Marteau sans maître* (1955), a work for contralto and ensemble based on texts by René Char, the composition follows advanced serial techniques to the extent that the actual text becomes unperceivable, depriving the listener from acquiring any sort of meaning from it. In Luciano Berio's *Omaggio a Joyce* (1958), a tape work, the voice is dissected, fragmented and abstracted through the techniques and processes, the narrative of the originally narrated text is rendered imperceptible. Both the voice and the text in this case are merely used as material for a vocal soundscape. Cage's *Aria* (1958), a piece for solo voice, explores the use of indeterminism and the aleatoric combination of musical fragments of many

different styles. Cathy Barberian's *Stripsody* (1966) explores graphic notation and the sonification/interpretation of comic strips, to sonify a wide range of clownish sounds. Luciano Berio's *Sequenza III* (1965) uses abstract syllables, phonemes and consonants, and Aperghis *Récitations* (1977-1978) for solo voice, are based on principles of rhythms staggered by monosyllabic words without clear meaning, offering multiple interpretations.

Similar approaches to vocal explorations manifest in the works of others: Karlheinz Stockhausen's *Stimmung* (1968), and György Ligeti's *Aventures* and *Nouvelles Aventures* (1962-1966). However, these works do not necessarily all fall into the category of music theatre; they are works for voice without implying theatricality. Nonetheless, they definitely influenced the development of music theatre works such as Reibel's *Rabelais ou la naissance du verbe* (1995), Eric Sazman's *The 10 Qualities* (1970-71) where the composers almost devised a new language or Battistelli's *Teorema* (1991-1992), a music theatre for a group of singers that do not sing. Inspired by Barthes and the aforementioned works I wanted to explore the possibilities rising from the integration of two additional elements in music theatre: technology and interaction.

4.2.3 VIRTUAL VOICES

New technologies challenge the notion of instruments through VSTs and sound libraries that increasingly become the musical *lingua franca* among composers or producers, particularly in commercial music and film industries (Bennett, 2009, 1-2). They also challenge the very notion of human voice. Following the example of instrument libraries, recent tendencies regarding voice are vocal libraries such as *Exhale* by *Output,* based on sampled voices used for background vocals and choirs in commercial music production. However, a ground-breaking moment in the history of music was when the actual human

voice —always understood as instrument— became available as an "off the shelf singing synthesizer": Hatsune Miku (Japanese: 初音ミク[21]), the first vocaloid. Vocaloids are vocal synthesisers that can be used instead of singers in fixed music media. However, Hatsune Miku performs also with her live band, whilst being represented on stage with her own hologram. She has millions of fans in Japan and worldwide and performed a support act for Lady Gaga's 2014 world tour *ArtRave: The Artpop Ball*. Vocaloids suggest notions of third wave cybernetics, as they are allegories of the concept of "emergence" (Hayles, 1999). The Hatsune Miku phenomenon has instigated research on the phenomenology of vocaloids as a body without organs (Guga, 2014), as much as questions in relation to virtual musicians and machine ethics (Collins, 2011). The first opera written for Hatsune Miku[22] was *The End,* an existential opera on the subject of death, in which Miku is the only character appearing on screen (rather than on stage) without featuring any human performers. The existential as much as the cybernetic aspects of *The End* underline the Cybernetic Existentialism aesthetics proposed by Dixon (Dixon, 2016). The project was a collaboration between the composer Keiichiro Shibuya, illustrator YKBX, fashion designer Marc Jacobs, artistic director of Louis Vuitton and librettist/director Toshiki Okada and was presented at the Theatre du Chatelet Opera House in Paris in 2013. Hatsune Miku inspired me to use a vocaloid as a virtual opera singer in one of the scenes in the final work of this research. The use of a vocaloid in a music theatre performance aims to explore the possibilities offered by the *jouissance* of the virtual voice, including its aesthetic, musical and dramaturgical affordances. It also aims to both reflect and challenge concepts from third order cybernetics and cyborg theory.

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[21] In a loose translation her names means "the first sound of the future".
[22] *The End* was not the first opera for a vocaloid. *The Memory Palace* of Matteo Ricci (2010), a production by Zuni Icosahedron, music by Steve Hui Ngo-shan and libretto by Diana Liao, was the first one to my knowledge that included a singing synthesizer. In this case the virtual singer was sharing the "stage" with other performers while it was represented on screen with an Open GL animation of a moving head.

PART 2 – THE PRACTICAL EXPERIMENTS

INTRODUCTION TO PART 2

This part presents in chronological order the practical works realised for this PhD. Each chapter contains two experiments; in most cases the first experiment is relatively larger —in terms of audience attendance and importance of findings— than the chapter that follows. This is not applied in two cases: in Chapter 8 where both experiments, 7 and 8, were equally important, and in Chapter 9 where only one experiment is presented. In some of these chapters additional theory —to the one presented in the first part— is introduced. However, all chapters aim to reflect in a practical manner the theories introduced in Part 1.

5. CHAPTER 5 – EXPERIMENTS 1 & 2

5.1 EXPERIMENT 1 — THE GRAIN OF THE MECHANICAL VOICE

This first experiment focuses on the musical and dramaturgical possibilities emerging when a text is remediated (Bolter and Grusin, 2000) into speech and song whilst being cloaked by computational sound processes. I was interested in the *jouissance* of the technologically mediated voice. The experiment observed the relationship between technology and voice from the perspective of coexistence, interaction and synergy. In addition, I investigated the use technical tools that derive from interactive art as much as from immersive theatre that would empower the audience to have a sympoietic role in the performance by controlling the electronic sounds applied on the singer's voice.

5.1.1 *DESPOILED SHORE*: DEVELOPING THE MUSIC MATERIAL

I started by analysing Müller's *Despoiled Shore*, deciphering its inherent musicality. I read the text at different speeds, following the melodic gestures of the phrases. I looked for the distinct qualities the voice could potentially have, the natural rhythmicality and intonation of the syllables, the articulation of the words. I was not interested in a voice with operatic projection qualities. On the contrary, I was trying to find ways to enhance the grainy aspects of the voice, the soft noisy sounds of teeth and lips, the voice's *jouissance* as Barthes described it. The fragmented aspect of the text, inspired me to treat it in similar manner musically, by assigning a unique musical quality to each fragment, creating a musical patchwork —or a music palette.

Using modal scales, I gave the sections written in capital letters a more lyrical colour (Figure 1).

Figure 1

I applied rhythmically fast and erratic musical gestures to the sections that appeared as bombardments of consecutive dissociated images. These sections were based on instructions and were given melodic freedom (Figure 2).

Figure 2

Other sections were based on graphic scores. In these sections I was interested in sound textures that could become prominent when amplified: whispering sounds, the sounds of lips or breath (Figure 3).
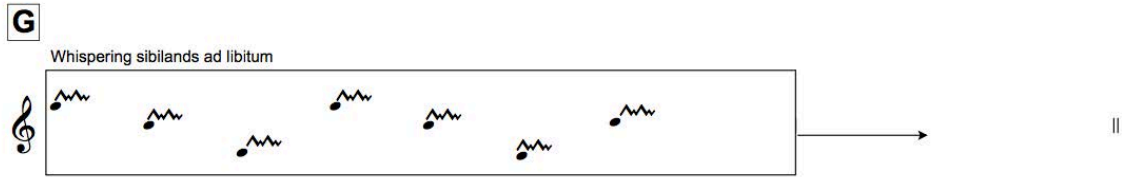
Figure 3

Others were treated as *recitativi* during which the singer had to follow designated rhythmical indications, without being restricted on pitches (Figure 4).
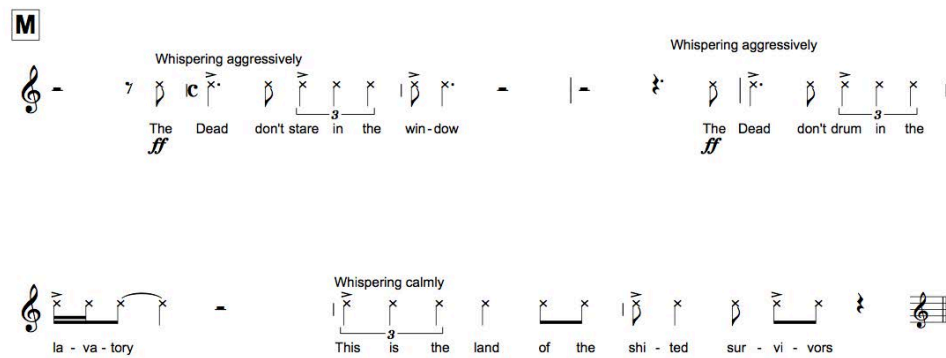
Figure 4

Eventually, the entire text was divided into a total of fifteen music sections. Alongside writing the score I was also developing the sound, processing algorithms that would manipulate the singer's voice. Some of these processes utilised the live voice as *materia prima*, whilst others were independent from it. All the processing options were grouped in ten different electronic soundscapes, called scenes. Each scene could be applied on each of the fifteen sections of the score.

5.1.2 *DEAS'* HAND *EX MACHINA*: THE TECHNOLOGY FOR *DESPOILED SHORE*

In experimental music technologies there have been different versions of

instruments known as music gloves, data gloves or cyber gloves. These interfaces are based on the expressive abilities of hands, and include: Michel Waisvisz's *The Hands* (1984), and their earlier version *MIDI Conductor* (Tanaka, 2011, 250) both developed at STEIM; Serge de Laubier's *Meta-Instrument* (Laubier, 1998), Laetitia Sonami's *Lady's gloves* (1991) a MIDI controller using STEIM's *Sensorlab box*; and Elly Jessop's *VAMP*[23] (Jessop, 2009), developed in MIT's Opera of the Future research group. The latest developments of glove-based controllers include the *Mi.mu gloves*[24], the music gloves [25]used by the artist Imogen Heap. Similar approaches are Robert Knapp's *BioMuse* used extensively by Atau Tanaka (Tanaka, 2011, 250), and Marco Donnarumma's *Xth Sense* (Donnarumma, 2011), both of which use biosensors to track muscle activity.

Similar devices have also been used extensively in music theatre. The Viennese music theatre group K&K Experimentalstudio has developed a similar interface called *moviophone* (Salesman & Desi, 2008, 165). In *Luna Park* (2011) Aperghis uses a software of concatenative speech synthesisers created by Grégory Beller at IRCAM (Beller & Aperghis, 2011) that were controlled by *SpokHands®*, a type of hand midi controller (Beller, 2014). Grégory Beller uses the same interfaces for his augmented musical theatre *Babil-on* (2013). For its updated version *Babil-on V2* (2015) Beller added to it a CV[26] tracking device. Pamela Z, in her performances, uses the *BodySynth®* data glove. Carl Unander-Scharin devised a number of digital interfaces for his operas including different versions of data gloves called *The Throat* (Elbaus et al, 2014). In Tod Machover's opera *Death and the Powers* (2010), the main character wears sensors on his arms and with gestures and breathing he controls both the sound and the set-design. What all these devices share is the use of the bodily

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[23] Vocal Augmentation and Manipulation Prosthesis.

[24] http://mimugloves.com/

[25] http://www.imogenheap.co.uk/thegloves/

[26] Computer Vision.

gestures of fingers and hands to make music. Also, often the versatility of these instruments suggests that the user does not necessarily need to have a profound previous training in order to make these devices generate sound, simple hand movements are enough to cause complex and evocative sounds.
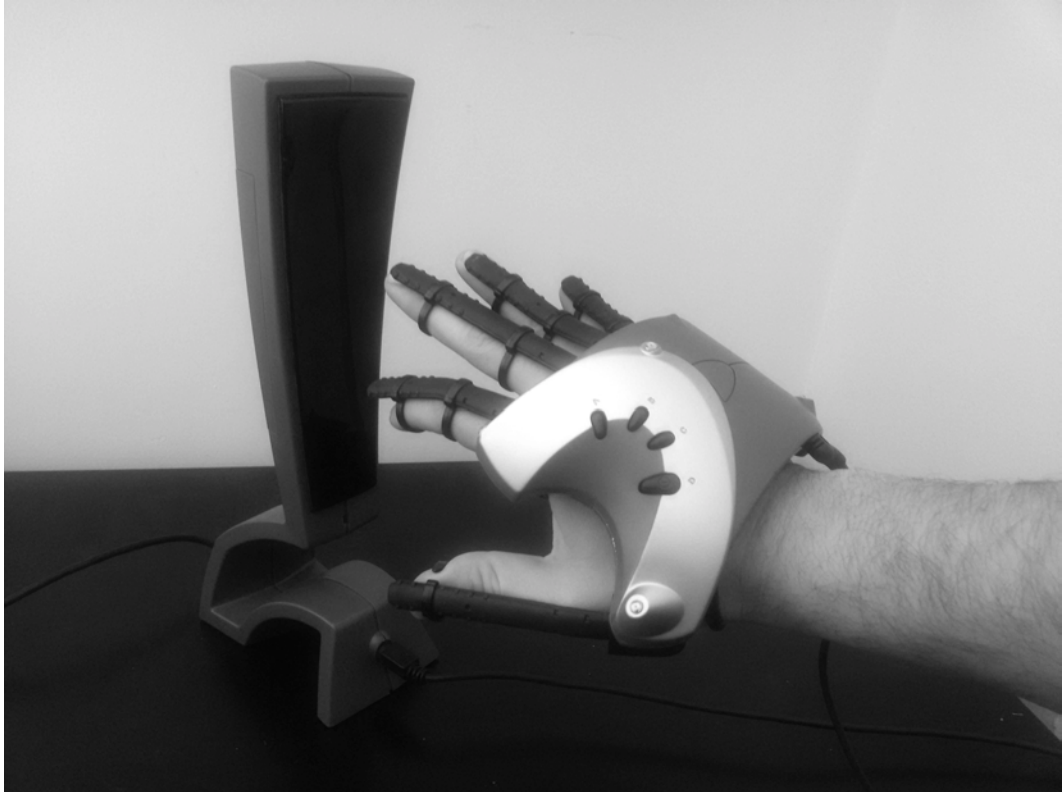
Figure 5

I believed that if an untrained audience member were to interact and manipulate electronic sounds, a data glove could be the ideal interface. The audience member would merely have to move their fingers without the need for former practice. Because of that, I converted an old *P5* glove game controller (Figure 5) into a musical interface. The communication between the glove and SuperCollider was based on *Open Sound Control* (OSC) and specifically the *P5OSC*[27] platform designed by *Simulus*[28]. The glove controlled

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[27] The P5OSC platform was imperative, as the P5 glove on its own functioned as a mouse interface when connected to the computer and any movement of the index finger was translated as a mouse click. Such feature obviously interfered destructively with the process and had therefore to be bypassed: the only successful solution I found was that of the P5OSC platform.

[28] http://www.simulus.org/p5glove/

five parameters of the sound using the flex sensors placed on the fingers. It also featured three buttons that allowed the user to navigate through the sound processing preset scenes. For the monitoring of the sensors' movements a Graphic User Interface (GUI) was also designed in SuperCollider (Figure 6).
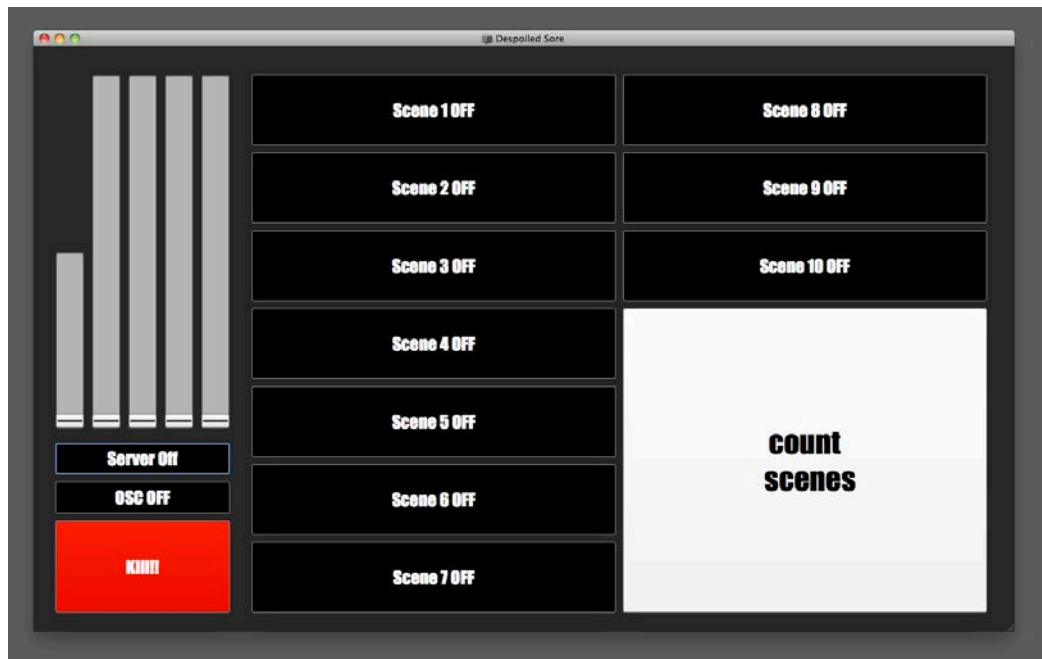
Compositionally the synth definitions in SuperCollider were based on different processes such as granular synthesis combined with pitch-shifting that segmented the singer's voice and reproduced it in different octaves both higher and lower than the original singer's pitch. Other synth-definitions were controlling parameters on instruments that did not use the voice as sound material but they were exclusively synthesised. The finger sensors were mapped to control both the volume and other parameters such as pitch and modulation frequencies of the synthesisers.

At the end of this stage and after numerous tests, beta-tests, fine-tunings and adjustments of the algorithm, the challenge was transferred again to the conceptual aspect of the technological interface and in particular to its role in a live-performance context. "What were the posthuman and cybernetic principles suggested by the use of the interface?" and "what would this

technology contribute to the performance?" were questions still to be answered through the practical experiment.

5.1.3 *DESPOILED SHORE:* THE THREE DAY EXPERIMENT

5.1.3.1 EXPERIMENT 1: DAY 1

Stephanie Pan, the singer, started by studying the music material for *Despoiled Shore*. She pointed out that certain passages would have benefitted from text instructions, rather than staff notation. We agreed that there were too many both live processing options and music sections considering the length of the sketch. We then selected a palette of the music fragments and electronic scenes that seemed to work better together, and carried on experimenting.

The voice quite often had the tendency to hide behind a "sea" of electronic sounds, which was not necessarily negative, as it created an interesting tension between the words' meaning and sound. Sound-wise the overall result was extremely powerful: the voice was transforming, gaining a supernatural quality, and the words were emerging from it. Visually, the glove combined with the subtle hand movements was equally strong, as though the performer's hands were plucking her own invisible vocal chords. It was agreed that the glove's expressive possibilities could potentially expand, as it could stream data about its three-dimensional position in space (XYZ axes). It was also suggested that in a performance, the glove could be replaced by a custom made one. The bareness of a custom-made glove (i.e. stripped wires and sensors) in comparison to the prefabricated *P5* might contribute visually to the performance. However, a custom made glove might be more fragile, and cause technical issues in the context of a performance.

The first day concluded with a number of considerations. If the intention of the music material was to make a song then we could definitely use some of

the score instructions combined with the electronic sounds. However, they should be organised differently. For example, the music material did not necessarily need to literally follow the structure of the original text. Some of the fifteen sections of the sketch could be repeated, creating a structural periodicity, and a recurring melodic material could contribute to define the song's unity. Long pauses and elements that suggest suspension could be introduced; some sections could be based on structured improvisation elements. In addition, fragments of *Despoiled Shore* could be sampled and appear in the song as a dialogue with the singer. Additionally, we contemplated ways of creating counterpoint between the voice and the electronic sounds.

5.1.3.2 EXPERIMENT 1: DAY 2

On the second day the singer engaged in series of free improvisations, experiencing the glove's musical possibilities (Figure 7, see also Digital appendix/ Documentation video files "exp1-d2_1.AVI" and "exp1-d2_2.AVI"). Through experimentation we realised that a text does not need to be linearly remediated into music to be dramaturgically evocative. An aural landscape, combined with a strong image could be equally dramaturgically evocative.

Figure 7

As George Aperghis stated,

> music theatre should be different than theatre; theatre can deliver text and character's relationships without the need of music; music on the other hand should not intend to be the slave of the text. Music theatre may transfer the meaning of a text through music without necessarily having to use the text itself, but just only by bringing out the text's aura.

(Aperghis, 2015)

From early modernism onward there is an increasing loss of plot linearity in music theatre in works like Stravinsky's *L'Histoire du Soldat* and Schoenberg's *Erwartung.* In other cases the story of the performance is abstracted to such extent that there is no singular story or narrative at all. The story of the performance becomes the performance itself, a self-referential subject, an invitation to a self-made world or an anti-world, a utopia or a dystopia, a vivarium. In these cases the Aristotelian sense of narrative, mimesis and catharsis become totally obsolete. The subject matter is not the representation of a certain mimetic-reality, but rather the presentation of a world of allegories and symbolisms. This is evident in Morton Feldman's *Neither* (1977) based on a libretto by Samuel Beckett. As Eric Salzman mentions,

> The tragedy of the individual hero (or anti-hero), beloved of romantic opera, gives way to the anonymous (and symbolic or representative) protagonist, and the now dysfunctional narrative tale is replaced by a theater of images, also strongly imbued with symbolic or representative values.

(Salzman & Desi, 2008, 90)

In these contexts the voice often is used as an instrument of not necessarily verbal expression. The voice is not there to deliver a linguistic message deduced from words. The meaning is generated based on the audience's interpretation of the work. In McLuhan's terms, the message in these works is not necessarily carried by the text, but through the medium, the voice, and the way that voice-medium is employed in each case.

During the second day we also observed the dramaturgical possibilities offered by extended vocal techniques and live sound processes. The singer's processed voice generated acoustic landscapes, and through them the possibility of meaning, as these became subjects for interpretation. Müller's landscape could be presented visually and aurally rather than literally. By operating between Müller's lines we could allude to the posthuman notions of the text rather than adapting it melodically. Also, this technologically-aided improvisation was a process of discovery and negotiation. She had to negotiate with herself —through the movements of her fingers, to attain the final aural result. It was a cybernetic feedback loop, a process of balance between her vocal sounds and the movement of her fingers. From a Simondonian perspective it was a process of transindividuation, as the performer was discovering her own musical capacities as a performing individual through the interaction with a technical one.

 Moreover, this sonic experience contributed in the emergence of the notions presented in Marranca's analysis (i.e. Medea as the female character with extraordinary (super)natural powers), as the singer's voice was gaining posthuman qualities. The live processed voice, in combination with the interface, was contributing towards a cybernetic *ex machina* aesthetic. The electronic sounds and the singing voice became one: voice and technology, the bodily and the artificial were inseparable, suggesting cyborg notions applied onto voice and sound. The combination of voice and live electronics

generated soundscapes of great complexity. The processes employed during this second day of the experiment successfully challenged notions of operatic voice.

When the voice gets amplified, the body emitting that voice becomes part of an extended hybrid system. When live electronic sounds get applied onto voice they emphasise the voice's *jouissance*, as though an aural loupe were placed over the voice, allowing the listener to explore aspects of the sound-making processes. The sounds of lips, teeth, glottis and other fragile sound-making body-parts enter the foreground of the soundscape. When a voice is processed live, the focus of the attention shifts from the words used to the fragile details of the sound and the aural signifiers emerging from that process.

Figure 8

5.1.3.3 EXPERIMENT 1: DAY 3

As *Despoiled Shore* happens during a peepshow, we worked towards a sort of one-to-one performance, during which members of the audience had an

agency similar to those of interactive peepshows. In this case, the "peeper" would control the electronic sound processes (Figure 8, see also Digital appendix/ Documentation video files "exp1_d3_feedback1.mov", exp1_d3_feedback2.mov", "exp1_d3_interaction.mov"). An audience member, without necessarily having previous experience or knowledge of how the glove works, had to put it on and stand in front of the singer. The singer then initiated the electronic processes and improvised on the material from the previous days. The audience member manipulated the electronic sounds of the singer's voice with the glove. This interaction lasted for 3-4 minutes.

The audience seemed to engage actively in the performance. For most of them it was a first-time experience but they felt they had a powerful agency in it. The whole experience raised questions regarding whether the members of the audience had become performers.[29] Dramaturgically, both from outside and from the point of view of the singer, the scene offered interpretations related to power and control, as the participant had complete control over the electronically amplified and processed voice of the singer. The relationship established between singer and audience unveiled inspiring perspectives in relation to *Despoiled Shore*. The fact that an audience member could literally "lay hands" and control directly the most intimate musical instrument, the voice, brought forward allegories of power deriving from Müller's text, into a new dynamic standpoint.

Furthermore, if the singer was seen as Medea personifying nature in the way Marranca suggested, then the control exercised on her voice by another person offered room for allegories of the mediated human power applied to nature. One of the participants declared that by controlling the singer's voice she "felt like the almighty goddess of voice!" Participants commented that they were invited to explore the dramaturgy from the inside. The borderline

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[29] An ongoing debate in interactive/immersive theatre, which suggests the notion of spectactor. Suggesting that the role of the audience is being remediated to something between spectator and actor.

separating performer and observer faded, suggesting Müller's collective "I" notion. Moreover, the second day's theoretical point, about the cybernetic relationship established between the performer's voice and the audience's fingers, had now expanded in space. Now the feedback loop incorporated two people, linked and engaged, in a homeostatic performance. In addition, the distinction between observer and observed blurred, and the performance became interchangeable in one system, a relationship echoing second order cybernetics. The glove, from Simondon's perspective, was a technical individual, an equal participant in the process of inter-human interaction. It was contributing in the individuation of the two, in a process of negotiation for the definition of their roles. Performer and participant were entangled in a *"transindividual* nervous system" (Birringer, 2004). From an ANT point of view the glove was a participant in the emergence of a new social system between audience and performer. The glove was a mediator, offering social unpredictability by destabilising and re-organising the relationship between two. The scene suggested the emergence of a new symbiotic performance ecosystem. The behavioural, data and signal flows of the performance system can be seen in figure 9.
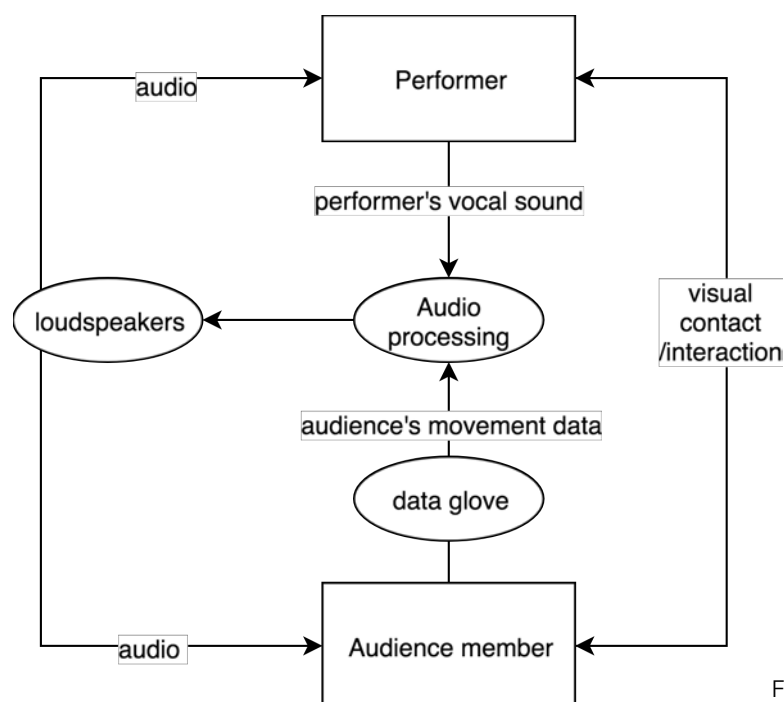
Figure 9

5.1.4 CONCLUSIONS

We worked on a type of performance that relies on the embodiment of the text and the music from the performer, rather than centralising the composer's authority. The entwined singing voice and technology offered new aural possibilities and dramaturgical affordances. This relationship expanded traditional voice notions: the voice was not only the result of a bodily process, but of a hybrid one. When technology is applied on the most intimate instrument, it becomes an aural extension of the human body, a process bearing posthuman qualities. The previously unheard microscopic sounds enter the foreground, becoming prominent, expanding the body aurally in space. The live reinforcement and processing of voice propose a posthuman sound *jouissance,* and the grain of the voice becomes part of machinery.

The very complex aural textures are often the result of manipulating processes of the voice with various instances of itself, challenging the very notion of the voice. These processes and their aural signifiers can become part of dramaturgy, as they are subjects for interpretation. The experiment demonstrated that the combination of voice and live electronics could aurally support the conveyance of imagery without the need for a literal music adaptation of the text. The use of a technological interface contributed greatly in this experiment, as it seemed to conceptually link the text, the dramaturgy and the sound. The interaction between performers and audience suggested the emergence of a hybrid/remediated (Bolter & Grusin, 2000) environment between music theatre and interactive art. The whole experience was an embodied, gestural sound exploration, in which the audience was assigned a different responsibility. It was a closed system between two humans and a computer, a prototypical Human-Computer Interaction network, suggesting feedback cybernetic processes in a music theatre context. Such a system offered an inside experience to the audience, and it contributed with new

dramaturgic affordances that demand further investigation. From a phenomenological perspective the interaction of these three entities suggest the notion of transindividuation, whilst from a social perspective their relationship suggests all three (audience, performers and technology) are actors negotiating their roles in a newly established social network.

5.2 EXPERIMENT 2 — THE IMPACT CALCULATOR

5.2.1 INTRODUCTION

The second experiment took place during the *Always Already: Impact and the Everyday* a symposium organised by the Creative Critical Practice Research Group. The aim of symposium was to explore

> the relationship between creative practice and research, inside and outside the academia. The event interrogated the manner in which experimental practice/critique/research partnerships address impact as an 'always already' present aspect of creative and social practice.

(CCPRG, 2017)

My contribution to the symposium was a music theatre performance called: *the Impact Calculator*. It was a one-to-one performance with a sarcastic attitude towards the key subject of the symposium: the measurement of Arts' social impact.

One-to-one performances are short in duration, often shorter than fifteen minutes, but they rely heavily on the audience's contribution. Each performance is unique, as each audience member is different and contributes differently to it. Rachel Zerihan claims that

> In One to One performances the spectator is often invited to collaborate (to greater or lesser degrees) with the performer so that the two people create a shared experience – responsive and dialectic as opposed to imposed and prescribed. Participation in the performance event often triggers spontaneity, improvisation and risk - in both parties - and requires trust, commitment and a willingness to partake in the

encounter.

(Zerihan, 2009, 3)

The aim of the experiment was to understand the potential of one-to-one experiences in music theatre. I also wanted to devise a strategy that would enthuse the audience to engage in technological interaction with the performer, aiming to observe relational and cybernetic aspects in it.

5.2.2 FROM THE AUDIENCE'S VIEWPOINT

Members of the audience had to queue outside a black box theatre space. Once the door opened the participant would come in, welcomed by the performer dressed in a lab coat. In the centre of the space was a table, with many different objects including a large screen with digital code, software, oscilloscopes, etc. Next to the screen there were a couple of computers, interfaces, cables, a data glove and a printer. At the other side of the table there was a constellation of everyday objects from cutlery and ladles to dildos. Finally next to the table there was a double bass. After the participants entered the space the performer would claim to be a scientist working on the subject of "personal and social impact of art". He also claimed to have devised a machine that calculates that impact on any person.

With the participants consent, the performer would equip them with the data glove. The participant was told that they would be "exposed to free improvised music" played by the scientist himself, who claimed to be a world class performer that had to leave music for science to pay his bills. The participant was told that during the improvisation they should react with hand gestures inspired by the music. The performer claimed that these gestures would provide information about the impact art had on the participants. During the interaction, the audience's hand gestures were actually controlling the

electronic sounds of the improvising instrument (Figures 10 & 11).
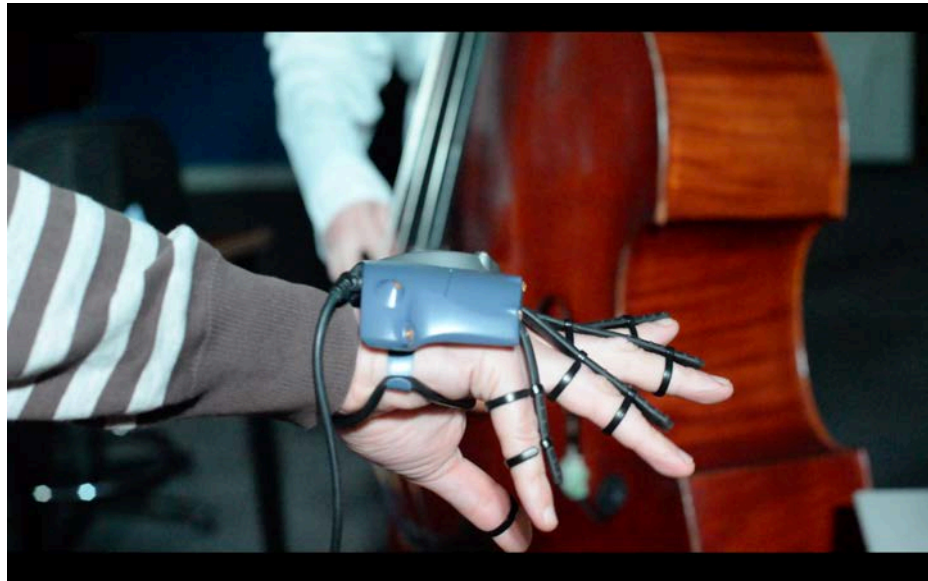
Figure 10
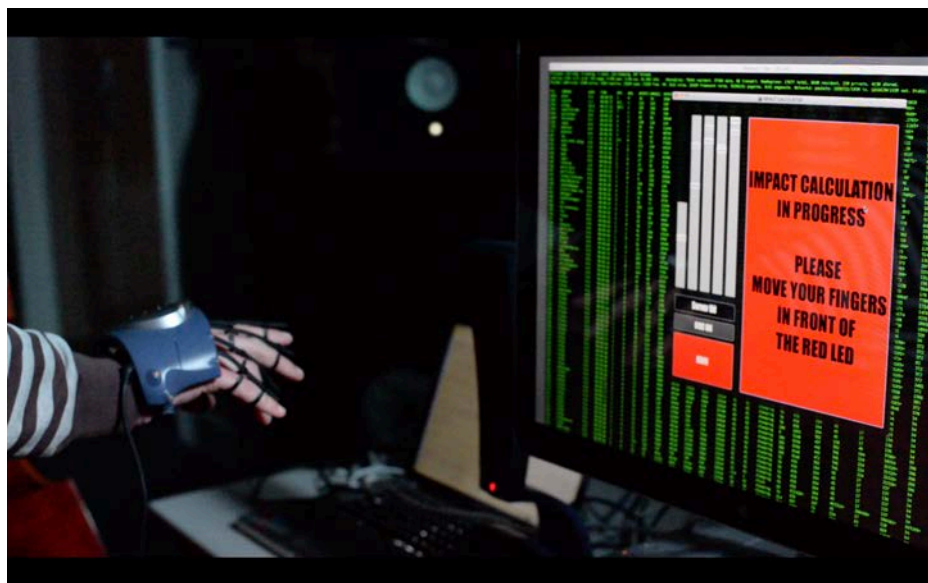
Figure 11

Performer and participant were contributing to the aural result, one by playing the double bass and the other by playing the electronic sounds. The music created was the result of a mutual observation, listening, negotiation and adaptation. After the end of the performance an automatic report was printed out: an A4 sheet containing data values from the glove sensors (Figure 12). Among these data scattered words such as: "cutting-edge", "romantic", "post-modern" could be found. At the end of the process, the performer with a

highlighter marked some of these words on the report, giving his interpretation about the impact the art experience had to the participant (Figure 13). For example, he would suggest what type of artwork the participant should avoid in the future, or what to look for. The report was the result of a computer generated process unique for each performance —and therefore for each participant, and the performer had to improvise when he interpreted the report. The behavioural, data and signal flow of the performance system can be seen in figure 14. It does not differ much from the data flow of the first experiment. The main difference here though was the opening and closing dialogue between performer and audience member.

Figure 12 – the report

Figure 13 – discussion of the report
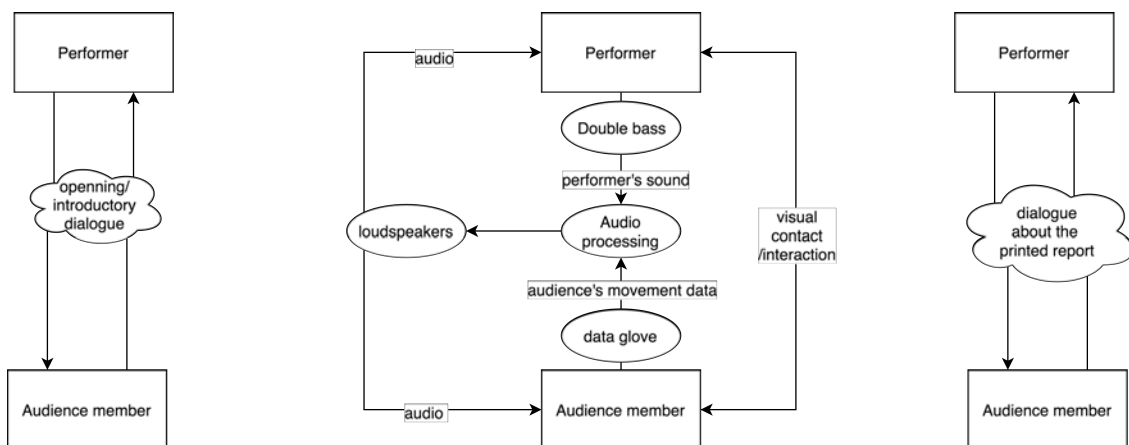
Figure 14 – the structure of the three stages of the performance (introduction, musical interaction, report)

5.2.3 CONCLUSIONS

In this experiment, I devised an interactive music theatre scene, based on the processes of the previous first experiment on voice. It was the first attempt of immersive/interactive music theatre. The participants accepted the invitation with openness and curiosity, whilst becoming part of the immersive experience's own world (Machon, 2013). They also used the glove musically without having previous experience with the data gloves. For the audience this experience was more an exploratory journey, which phenomenologically, could be described as a *present-at-hand* (Heidegger, 1962) situation. *Present-at-hand* situations are moments of observation, in which we try to decipher and understand our role and the role of the objects that participate in it without expectations or having knowledge through similar previous experiences. It is a moment of definition of relationships and roles. The re-establishment and redefinition of roles, of the other and one-self phenomenologically underlined the transindividual (Simondon, 1958) relation between audience and performers. The glove in this case was a *mediator* (Latour, 2005) assembling a sort of social performative relationship between audience and performer. Last but not least, the whole performance was the result of a cybernetic synergy, a mutual responsibility, a constant interchanging of roles between observer and observed during the establishment of a performance system or extended "performance ecosystem" (Waters, 2007). The term extended here is used here to reference the audience's inclusion in this ecosystem, expanding the Waters ecosystemic notion to include the audience in it.

Figure 15 – The three states of the GUI

6. CHAPTER 6 – EXPERIMENTS 3 & 4

6.1 EXPERIMENT 3 — IM•MEDEA (LANDSCAPE WITH ARGONAUTS & DESPOILED SHORE)

6.1.1 INTRODUCTION: TWO SCENES - TWO APPROACHES

This experiment took place during my residency at Blast Theory. In the performance called *Im•Medea*, the aim was to explore different processes of interaction. I followed two completely different approaches regarding technological interaction and use of space. I developed two scenes[30]: a one-to-one performance based on *Despoiled Shore* and another for two performers and a small audience based on *Landscape with Argonauts.*

6.1.2 SCENE I - LANDSCAPE WITH ARGONAUTS

Questions arose about the role of technology when trying to allude visually and aurally to the visceral landscape of the scene; the arrangement of the space and the audience experience in it; and how could I convey the spirit of the text without using it explicitly. However, the biggest challenge was to find a strategy to introduce the collective "I" aspect as described by the author, an "I" that would transcend performers and audience.

In this scene I worked with the musician Nikos Ioakeim and the dancer M. Eugenia Demeglio. Together we devised a four-hour durational experience. The work took place in a small fenced terrace at the back of Blast Theory studios, situated in an industrial area of Brighton. The actual location suggested the landscape of the text: the strong industrial smells and distant sounds of the port, the scarce evidence of life, all contributed to a naturalistic

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[30] The term "encounter" as it is used in the paragraph's title might be more adequate to differentiate this type of work from traditional performance scenes. This term roughly describes the encounter of audience with performers in a mise-en-scène.

post-industrial scenery. Upon arrival the audience walked down a metallic staircase, to arrive on a balcony. There, they were given white protective clothing to wear, and before they continued further downstairs they were instructed to stay as long as they wanted in the space. Downstairs, plastic sheets hung down from the ceiling, fragmenting the space. It resembled a small labyrinth composed by the sheets "dancing" slowly with the breeze. The fragmentation of the space meant to intrigue the audience's curiosity; it was an invitation to explore it. I did not want them to become directly familiar with it; I was interested in their disorientation. I wanted them to move around, exploring where they were rather than staying standing along the walls gazing toward the centre of the space. This was a strategy to make them part of the mise-en-scène.

The use of technology in this scene was inspired by the 1968 Duchamp and Cage chess game during the performance *Reunion*. The actual chess board that the two used to play the game was not an ordinary one. Underneath each chess-square a photo resistor was installed. When a pawn was moved on the board from square to square, it covered the resistor underneath. Each one of these resistors was controlling light and sound aspects of the performance. The multisensory performance was indeterminately controlled by the movements of the pieces on the chessboard. The emblematic and influential performance was neither the first nor the only one based on the indeterminacy of a chess game, one of the first works based on chessboards was Ghiselin Danckerts's chessboard cannon *Ave Maris Stella* (Figure 1) composed in 1535 (Krawetz, 2014). In this work, different parts of the cannon are played according to the movement of the pawn on the chessboard.
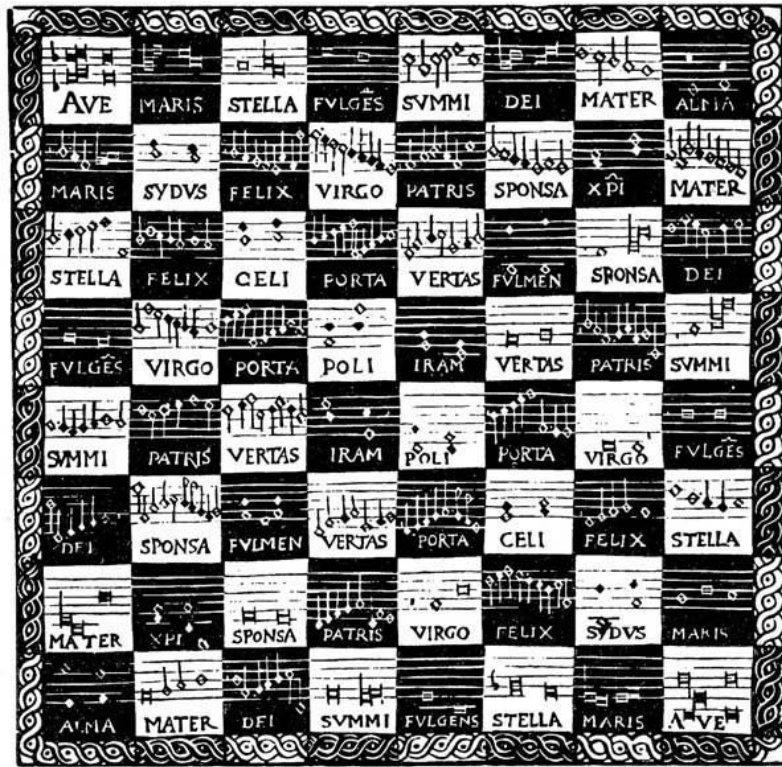
Figure 1

Expanding this idea of the chessboard as a musical interface or as a score into a three-dimensional space, I treated the spaces defined by the plastic sheets as three-dimensional chess squares. The audience's movement among the sheets would define the actions and sounds of the performance. This type of spatial sonification has been used by Max Mathews at Bell Labs to devise a system based on photocells that controlled different sound devices based on luminosity changes caused by body movements. Cage used the set-up for *Variations V* (1965) and *Variations VII* (1966) much as in audience interactive contexts during the *9 Evenings: Theatre and Engineering* (1967).

Similar yet updated versions were David Rokeby's *VNS - Very Nervous System* (1982 - 1991), a Computer Vision system that used the pixels' luminosity of the captured image as chess squares. VNS was used both in installation set-ups and as an instrument. Technological interaction based on movement includes Paine's previously mentioned installation *Map1* (Paine,

1997) and Zbigniew Karkowski who in the 1990s used infrared sensors (IRs[31]) mounted on scaffolding to control electronic sounds with his movement and gestures (Tanaka, 2011, 250). Godfried-Willem Raes' *Logos* robot orchestra is also controlled by the performers' body movements using sonars and radars (Raes, 2017). Stelios Manousakis' (2016) *Hertzian Field #2* sonifies the interferences created by the presence and movement of human bodies in the field of a local WIFI network. Furthermore, Jordan Edge's (2017) *Acclimate* is an interactive installation that is regulated by the bodily heat emitted from the amount of audience in space.
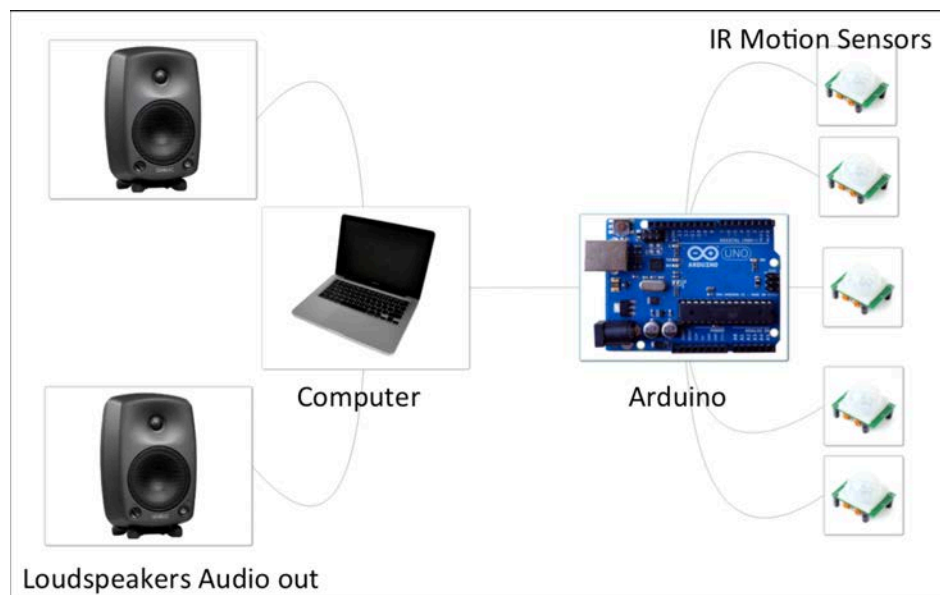
Figure 2

6.1.2.1 LANDSCAPE WITH ARGONAUTS – SET-UP

On the walls of the space I placed eleven IRs. They were connected to an Arduino micro-controller, which in turn was connected to a laptop (Figure 2). That computer tracked all body movement in the space. The information was processed by an algorithm that controlled the occurrence of sound events. Also, one of the performers had a wireless levalier microphone on him. The

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[31] IRs are used as surveillance methods in private and public spaces, they capture body heat and report it to a server computer.

microphone's on/off states and the audio processes applied on these sounds were also determined by the same computer processes. The music events were directly proportional to the human density and movement inside the space, as if in an immersive/interactive installation. The computer "observed" how much action/movement took place in the space and it reacted accordingly with sound. This human-computer interaction was not perceived as direct: there was not an obvious one-to-one action-reaction between someone passing in front of a sensor and a sound being generated or altered. The whole process was much more subtle: the computer gathered the information, assessed it and "decided" whether the musical density should or should not change and how.

These processes prevented the audience from realising the interactive aspect of the experience, as they did not see how they effected the musical environment: the ubiquity of the technology rendered it unperceivable to the eyes of the audience. This was intentional, as I wanted to observe the effect this type of interaction might have had on the audience. Furthermore, the changes in sound density (the occurrence of sounds or silences) were cues for improvisation tasks for the two performers. The performers were reacting to sound as if reading an aural score, a score that was produced by the presence of the audience in the space. The performers were becoming part of the extended computer algorithm that was controlling the sound. However, the movement and the position of the performers in the space could cause audience's movement, which in turn could generate sound changes. These changes would then be interpreted by the performers, generating a loop of actions and reactions. The entire performance was a feedback system, an extended performance ecosystem.

Both the audience and performers were part of and feeding into a reactive space, a space that was used as instrument, what I call an

instrumented space. Anyone moving in the space was affecting the sound and the state of this hyper-instrument. The music, also derived conceptually from the study of systems, was all based on algorithms done in SuperCollider, where sounds were feeding back to themselves and ending up modifying them, creating fractal-like sound events. The entire performance therefore was a large cybernetic feedback system. As Burnham has put it,

> [i]n systems perspective there are no contrived confines such as the theatre proscenium or picture frame. Conceptual focus rather than material limits define the system. Thus any situation, either in or outside the context of art, may be designed and judged as a system

(Burnham, 1968, 32).

In that respect the entire performance was a system operating from a macro to a micro scale. The behavioural, data and signal flows of this system are illustrated in figure 3.
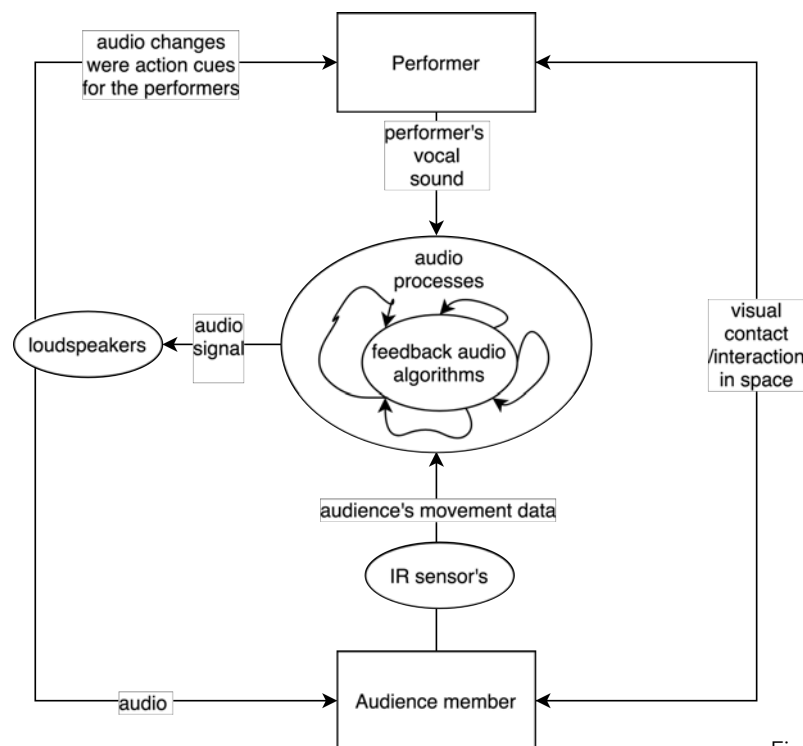
Figure 3
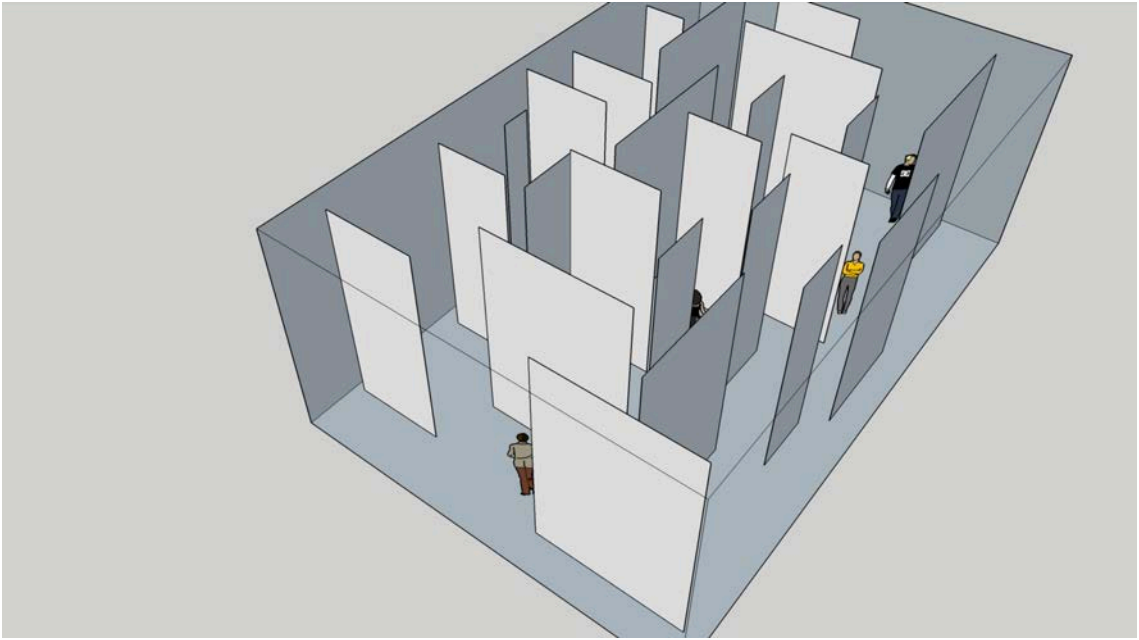
Figure 4 - A sketch of the space for Landscape with Argonauts

6.1.3 SCENE II - DESPOILED SHORE

The challenge in this performance scene was to introduce technology in a similar way as in the second experiment (the *Impact Calculator*), without following an explicit narrative but following a rather postdramatic approach. The processes used here derived from the first experiment. The voice, human's most intimate mean of expression, was mediated, alienated and technologically processed in order to depict the setting illustrated by Müller. I was convinced that a live processed/technologically-mediated voice could assist in revealing Medea as a powerful female figure, or as an impersonation of the female aspect of nature suggested by Marranca (1988). Hence departing from Müller's "theatre of images" I was approaching the territory of "theatre of sound" [32], by exploring concepts of theatricality of sound [33], through the dramaturgical affordances of sound.

The singer, Stephanie Pan, and I devised the music based on a set of

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[32] Here I am not referring to an already existing genre or concept, it is just a word pun deriving from the previous concept.

[33] Or better said the theatricality of interactive sound.

improvisation tasks that derived from the first experiment. The music here was influenced by the extended vocal technique works of Roy Hart, the classical agility of Diamanda Galás, the sound fragility of Meredith Monk, and the technological affinity of Pamela Z, to allude to subjects of violence, oppression and female abuse.

The performance was a one-to-one experience that was happening as an interactive peepshow. An arcade-like game with a coin-receptor and a joystick (Figures 4 & 5) was set in front of a window behind which the performer was sitting waiting. The audience member was given a coin to be inserted into the coin-receptor. The coin triggered the sound and the video projection; both processes were based on feedback algorithms. The use of the joystick (a phallic object) allowed the control of parameters in both the image and the sound. The singer, —who at that point was standing right in front of the audience member — staring at the audience through the window listened to the sound modifications —caused by the joystick, adapted her vocals accordingly.

Aside from the feedback processes within the audiovisual algorithms, there was also a feedback process taking place between performer and audience. The performer sang, her voice was processed, the audience member listened to it and controlled the sound processes and the singer adapted accordingly. The audiovisual feedback processes and the behavioural flows of this scene are represented in figures 6 and 7. Figure 6 illustrates the audio signal and the interaction between audience and performer, while figure 7 depicts the various feedback processes that took place in the visuals/video projection domain. The experience lasted a few minutes, and during that period, the computer would also trigger pre-recorded samples of the text, creating a dialogue between the singer and her pre-recorded self. Like *Landscape with Argonauts*, the whole performance was based on the concept of an extended nervous system between the performer and the audience. The

performance was symbiotic as it was co-created by both performer and audience, an extended instrument performed simultaneously by two people. Moreover it facilitated the emergence of notions of power and dependence between audience and performer, manifesting in a postdramatic manner.

Figures 4 & 5
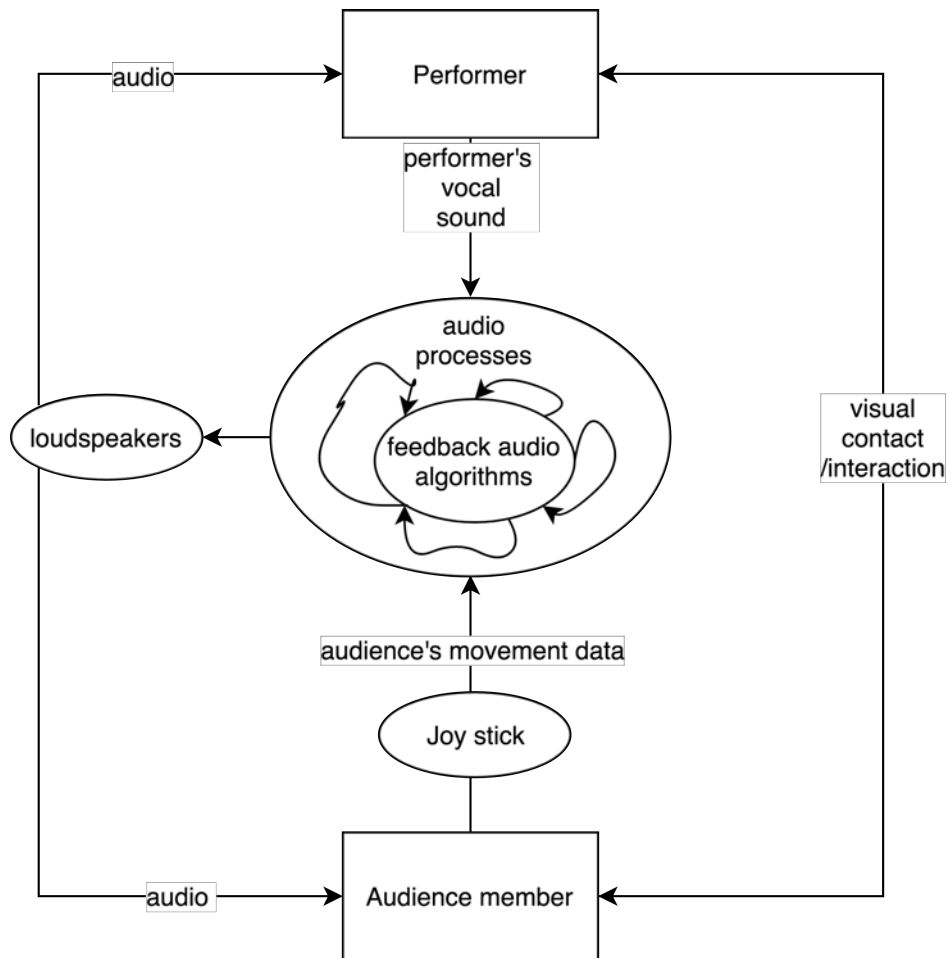
Figure 6 – Audio signal flow and audience – performer interaction and behavioural flow
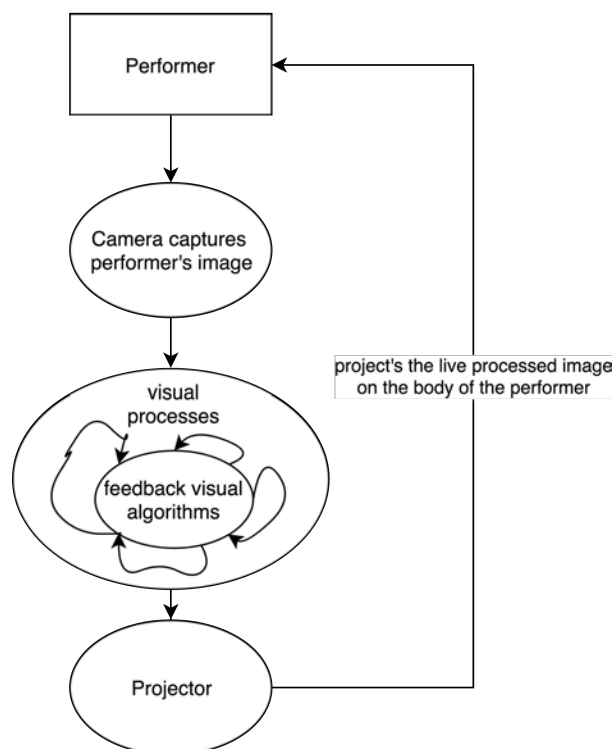
Figure 7 – video signal feedback flow
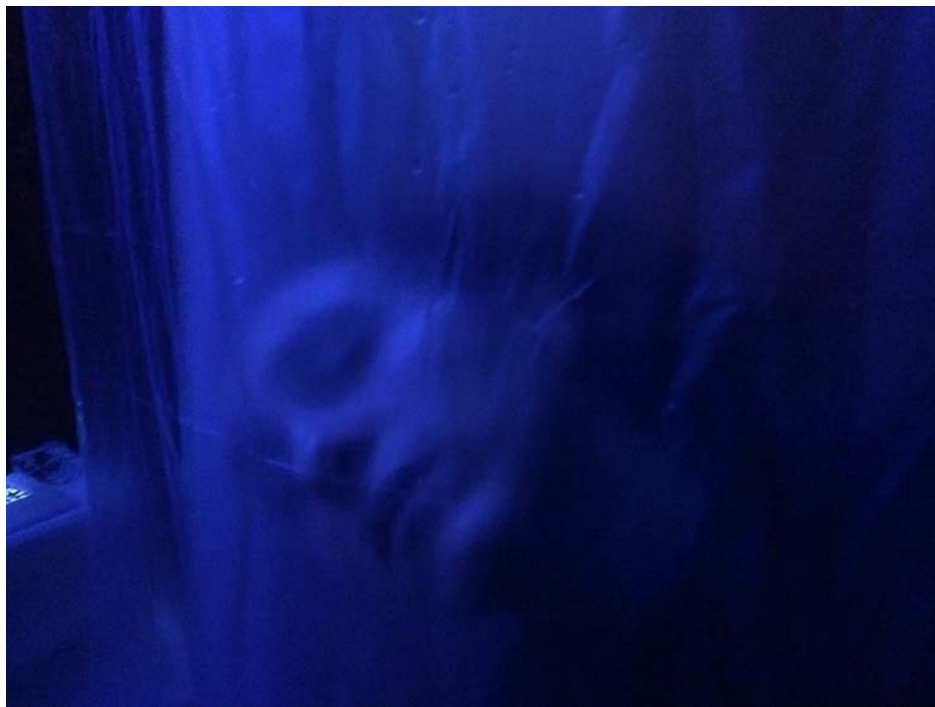
Figure 8 – M. Eugenia Demeglio performing in Landscape with Argonauts

Figure 9 – Nikos Ioakeim performing in Landscape with Argonauts

Figure 10 – Stephanie Pan performing in *Despoiled Shore*

Figure 11 – Audience listening to Nikos Ioakeim in Landscape with Argonauts

6.1.4 REMEDIATING MUSIC THEATRE?

These two Medea sequence scenes incorporated technologies, media and processes from other art forms: *Landscape with Argonauts* incorporated processes of immersive and interactive installations, live art and durational performances, whilst *Despoiled Shore* explored techniques from interactive art. The observation of music theatre as a medium, which can be remediated through digital practices, does resonate with posthuman notions.

6.1.4.1 HYPERMEDIACY VS TRANSPARENT IMMEDIACY

In *Landscape with Argonauts* the audience was completely unaware about how they interacted with the system and how they effected the sound and the structure of the performance extensively. Whilst in *Despoiled Shore*, the audience was presented with choices on whether and how to use the interface and interact with the performer. These two different choices reflect two different concepts that relate to remediation: *hypermediacy* and *transparent immediacy*. Transparent immediacy (Bolter & Grusin, 2000, 23) suggests the need for the "interfaceless" interface, as the presence of the interface is disregarded by the users. The users in this case are completely immersed in the processes the interface offers. Hypermediacy (Bolter & Grusin, 2000, 31) stands for exactly the opposite, it is the anxiety or fascination about the medium. The user of the interface becomes very aware of its existence but also of its cultural significances and connotations. In that respect the arcade joystick in *Despoiled Shore* was hypermediating between audience and performer, whilst the *Landscape with Argonauts* was a meditation on transparent immediacy processes. *Despoiled Shore* was inspired by computational processes in social media, such as data mining and analysis which silently target market their users. These processes, facilitated by browser cookies, online activity monitoring or data monitoring[34], suggest a constant surveillance of the online "movement" of users.

6.1.5 EXPECTATIONS AND MISCONCEPTIONS REGARDING INTERACTION

In the invitation for this performance I used the term "interactive" to describe it. The term was part of my research's working title at the time. I also used it to underline the potential participatory aspect of the performance. The interactive

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[34] When a user googles a product to then find commercials of similar products in their Facebook feed, it is an indirect process of interaction. This is a concept I used as inspiration to devise the structure of Landscape with Argonauts.

element of the joystick in *Despoiled Shore* was picked out by the audience, whilst the interactive processes in *Landscape with Argonauts* were not fully perceived. Moreover, as the audience was invited from the Blast Theory mailing-list, they were interactive theatre aficionados, expecting to participate in a sort of a theatre game rather than becoming part of a gradually-changing durational performance. As a result, the audience in *Landscape with Argonauts* treated their experience as an "escape room", looking for clues on how to escape the space although the exit was clearly open. Also they were told at the beginning they could enter, stay and leave as they pleased. Others realised the existence of the IRs in the space and they were waving their hands in front of them attempting to "trigger stuff".

According the audience survey and the Q&A after the performance the Landscape with Argonauts was not understood as interactive in the way the audience expected. The misconceptions and expectations from the audience made me think of different performance expectations, cultures and etiquette. For example, an audience is not supposed to clap between movements in classical concerts, but they can clap after an aria or a jazz solo. In other specific cases such as John Cage's *4'33"* (1952), or Robert Ashley's *Public Opinion Descends upon Demonstrators* (1962) where audience was the epicentre of the artwork, the audience left considering the performance a joke, as they could not decipher the composer's intentions. In a certain way knowing or thinking of knowing affects the audience's experience and potentially the experience of others. On the other hand I am more interested in *Present-at-Hand* experiences. In that respect, *Landscape with Argonauts* was interactive, but it did not meet the broad audience conception of what interaction is and how it is supposed to be experienced. They expected interaction to be the purpose of the experience, not a method.

A programme note can easily solve all these misconceptions, but in the

process of experimentation, it is often very hard even for the actual maker to know what the work is about, what the etiquette is and how it is supposed to be appreciated and experienced by the audience. In addition, I am personally of the view that the work of art is a mutual responsibility between audience and maker. Hence, I am not interested in imposing practices, etiquette and a priori ways based on which works should be appreciated. I like to share what I make with the audience to then observe the way audience and performers —or audience and object d'art— behave. Moreover —almost as an inside joke, I found very relevant the perspective that the *Landscape with Argonauts* was a scene where a "task force from another age or another space" (Müller, 1984, 126) enters the theatrical landscape. The audience as a task force imposed themselves with the psychological drama of trying desperately to find ways to escape the landscape or equally desperately trying to interact with non-responsive (i.e. "dead") technology. The audience did interact with the two performers, but in this case the only information the two performers shared with the audience were fragments from the original text. Many of the audience members convinced themselves that these were actually clues that would help them escape from the performance space. As Maturana (Maturana et al, 1968) suggested, the activity of a nervous system is determined by the nervous system itself not the external world. In other words, we are meant to see what we are "programmed" to, and the audience in this case were meant to see what they expected.

6.1.6 PERFORMANCE CYBERNETICS

The two works were basically studies on cybernetic systems applied on performance, or what one could define as *performance cybernetics*. The study endeavoured to observe how an audience member could affect the development of a performance and therefore their experience in it when

interacting —intentionally or unintentionally— with its elements. Basically, it was an investigation into how an audience member could potentially become part of a system of performance by having a technologically aided agency on the development of the performance as much as on their experience. That is what I call performance cybernetics. The proposal relates to Pask's *Proposal for a Cybernetic Theatre* (1964), although Pask only used an intentional type of interaction, operating through a hypermediated interface, and the audience was not immersed in the theatrical landscape. The macro structure of *Im•Medea* was based on feedback loops, as the audience's bodies generated the sound and the reaction of the performers. The sound was guiding the performers, whose musical or theatrical performance was then received back by the audience causing further reactions. Likewise in the microstructure of *Im•Medea*, the AV algorithms were based on feedback processes that contributed to the multilevel cybernetic nature of it.

6.1.7 SURVEYS AND INTERVIEWS

Through the surveys it became evident that the audience enjoyed *Despoiled Shore* much more, because they understood their contribution to the performance by manipulating the singer's voice. However, there were even a few that they did not understand at all "the influence of the audience" in either of the two performances, as they could not see "where the interactive element was". Nonetheless, most audience members did find the experience strong and particularly interactive due to "the piercing eyes of the performers", or because of "the relationship between audience and performers". Perhaps a direct interaction is more satisfying. But artistically I did not want to make two hypermediated performances where the audience would focus on the medium itself.

Aside from interaction, audience members mentioned that they liked

the experiential and multisensorial aspect of the performance and particularly "the atmosphere, [as] everyone watched, listened, experienced". In relation to this experiential aspect of the performance many mentioned the "in-its-own world" (Machon, 2013) aspect: "I felt like escaping the reality". The stronger aspects in this experience were: "the arrangement of the space", "the sound design/music". When asked to describe the feelings this experience generated in them, some of the most popular replies were: "surprise, mystery, excitement, need for more, additional environments", "excited, mystery, confusion (in a good way)", "odium, stress and very complex feelings" and "it made me think about the collapse of society". Particularly the last comment relates to the subject of Müller's original text, and it proves the creative possibilities offered when using the original text in a postdramatic manner rather than staging it literally.

6.1.8 CONCLUSIONS

The relationship established between audience and performers, through immersiveness and technological mediation suggested Müller's collective "I" notion. The cybernetic environment alluded to the posthuman notions suggested in Müller's text. The use of media and processes in this study implied the concept of *performance cybernetics*, the notion that all elements of a performance form together a larger cybernetic body that evolves through conditional algorithms. The structure of the music performances was never the same; they appeared very chaotic whilst being very systemic. The performers became part of an extended computer algorithm that was controlling/dictating their actions, they became extensions of a computer programme, the human interface of a computational process, making prominent the posthuman notions described by Katherine Hayles (Hayles, 1999). The technological mediation converted audience presence and behaviour to a form of interactive

score for the performers, whilst performers and audience became part of a computer network.

These performances were *cybernetic performances* or *extended performance ecosystems*. The term "extended" is used to introduce the importance of the audience's role in the previously coined term *performance ecosystem* (Waters, 2007). Despite the use of digital technology the performance was characterised by a postdigital aesthetic. The processes used suggested the art practice being a medium, which can be remediated by other media [35] of the current technosphere, to potentially gain new structural capacities and affordances. The processes used in these two scenes were conceptually linked to notions of *hypermediacy* and *transparent immediacy*. The performances employed tools from both interactive art (the joystick and IRs) and immersive theatre principles (one-to-one performance, otherworldliness and durational practice) as compositional tools for new music theatre. The computational technology mediating between human participants was essential for the experience, as it resided at the core of the performance system, yet it never became the actual subject of the performance. The relation established between the audience was always interhuman. Heiner Müller's Medea sequence was used as material for a postdramatic performance, as a means for remediation, a remediation from text to an audience-immersive postdramatic landscape.

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[35] Or practices.

6.2 EXPERIMENT 4 — STANDING SWIMMERS

6.2.1 INTRODUCTION

Standing Swimmers took place during a residency at Kalamata's Music and Dance Schools, in Greece. It was a double residency for both the choreographer M. Eugenia Demeglio and myself. The residency had a community aspect, as we had to work intensively with local dancers and musicians to devise a performance over ten days. However, due to an administrative problem we ended up without musicians. M. Eugenia Demeglio had previously taken part in my residency at Blast Theory and because of her experience and contribution we decided to develop the *Landscape with Argonauts* scene further. This time the experiment focused on making a larger immersive performance, using a bigger space. We decided to present it in the music school, a mid 19th century neoclassical building, with great historic significance locally[36]. The focus of the research was on expanding the performance, having different actions happening in different rooms[37], whilst working with more performers.

6.2.2 THE PROCESS

New music theatre has been influenced by conceptual and visual arts practices. From Joseph Beuys onwards, artwork refuses to be assigned to a narrative. In the 1950s the performance group The Living Theatre, La Mama Theatre and the Open Theatre in downtown Manhattan, produced works based on collective making processes, improvisation and indeterminacy, without necessarily basing their works on texts or assigning roles to performers. The events often had unclear and nonlinear narratives, whilst focusing on

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[36] In the past it was used both as prison and as the first male-only high school of the city.

[37] These were the music practice rooms. The barred windows evidence that they were previously used as prison cells.

movement[38], and sound including non-vocal sounds and singing. Luigi Nono's *A Floresta é Jovem e cheia de vida* (1965-1966) was a music theatre performance that was not based on score, but purely on processes of vocal improvisations by the performers of the *Living Theatre.*

The works mentioned above inspired me to observe creatively the challenge of the total lack of musicians. On the other hand, out of pure coincidence we had to work exclusively with women, most of them teenagers and a few young adults[39]. This offered an interesting perspective, as these women could be different interpreters of Medea simultaneously. Also, the lack of musicians offered the possibility to focus on the spatial aspect of the performance. The performance material was generated by the performers' engagement with Müller's text during the workshops. The making process was quite participatory and sympoietic, as the choreographer and I primarily focused on the 'where' and 'how' something happened, negotiating the 'what' with the performers. In addition, in two rooms visuals were triggered from audience and performers movement. The visuals were based on OpenGL, a camera picked up the audience and performers' images when they moved in space, and the OpenGL algorithm hosted in MaxMSP manipulated it live and projected it back in space. The visuals in this context were Simondonian "technical individuals" (Barthélémy, 2013, 213), performing together with the human individuals, sharing and shaping the performance space together. Apart from these two projections the performance was not based on technological processes, however it was very systemic as it was based on looped actions triggered by conditional processes from the audience. The electronic music material was an updated version of the SuperCollider algorithm previously used in the Blast Theory residency. The sound embraced and articulated the actions of the performers and the transition of the audience in the space,

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[38] Often moving between the audience.
[39] Ages 12 to 35.

contributing to the overall energy of the scenes between audience and performers.

The transformation of the space through sound, visuals and performers was at the core of the experiment. I was interested in experiencing how a dramaturgical appropriation of a normal space could contribute in meaning making. The space we performed in had a priori cultural, historical and functional significances for the local community. That intrigued the audience to look for interpretations of the actions happening in it contributing greatly in the immersive experience. However, the work was not site-specific or site-responsive, but a site-adaptation of the original concept. The performance did not have a fixed narrative; we again worked following a postdramatic approach. The two-hour performance happened twice in one evening, and the audience was free to roam the spaces freely. The performance started in the garden and it was distributed over two floors and thirteen rooms of different sizes.

6.2.3 THE SURVEY

After the end of the performances both performers and audiences filled in a questionnaire. These paper-based surveys aimed to draw out information about the experience from the different perspectives of all the participants. The performers mentioned the confrontational aspect of the immersive performance: "I learned how to reach my personal limits and how to surpass them." For them it was a process of self-discovery and individuation: "I have the feeling I discovered a new and extroverted aspect of myself that I really like". They claimed they were influenced by the "the power of the space [they] performed in" underlying the transformative capabilities of it.

Likewise, audience members mentioned that: "the space was reclaimed with movement, image and sound". Many observed the gesamtkunstwerk

aspect of the experience: "I cannot separate the experience in its parts, I cannot say what I liked the most, it was the overall aesthetic experience that was captivating". For many the experience "was magical and emotionally touching" also because of the "absence of dialogues". The audience enjoyed their agency: "the fact [they] were wandering in different rooms, and each room was different, the music was quite unique". The immersive aspect of the performance incorporated audience in the system yet they were having an observing agency as in second order cybernetics: "you just move, you observe among other [observers], you don't speak, you simply observe". The replies on what the audience disliked varied, many said that "it could be longer" and "I saw it just once", others said: "I felt a bit uncomfortable, a bit indiscreet, as if I was entering in the personal space of someone, as if I were listening to people's secrets". 99% of the audience never had a previous immersive experience; therefore many found it as "unique and innovative". The performance alluded to Machon's "in-its-own world" notion (Machon, 2013, 93), with the audience describing it as "magical, entering in a sort of Neverland" and themselves in it as "Alice in Wonderland". Another audience member wrote: "I walked in a strange place (inside me and all around me), I've heard sounds (inside me and all around me). I saw people that I knew but at the same time I didn't, in their own little worlds. It is strange to observe people that look right at you (but also not so), a snapshot of their life".

6.2.4 CONCLUSIONS

The performance was a study on expanding the theatrical landscape in a larger non-performance-specific space. Its structure was based on improvisation tasks and repetition of long phrases. The work was based on Müller's Medea sequence, which was used as material and as a means of inspiration for this performance. Cybernetic principles as much as notions of individuation

between audience and performers did manifest, although that was not the main focus of the experiment. Technology was used as stand-alone and was observed as a "technical individual" performing with human individuals, alluding to the posthuman qualities and the ubiquity of technology in Müller's Medea sequence. These considerations together with the audience feedback inspired and informed future projects.
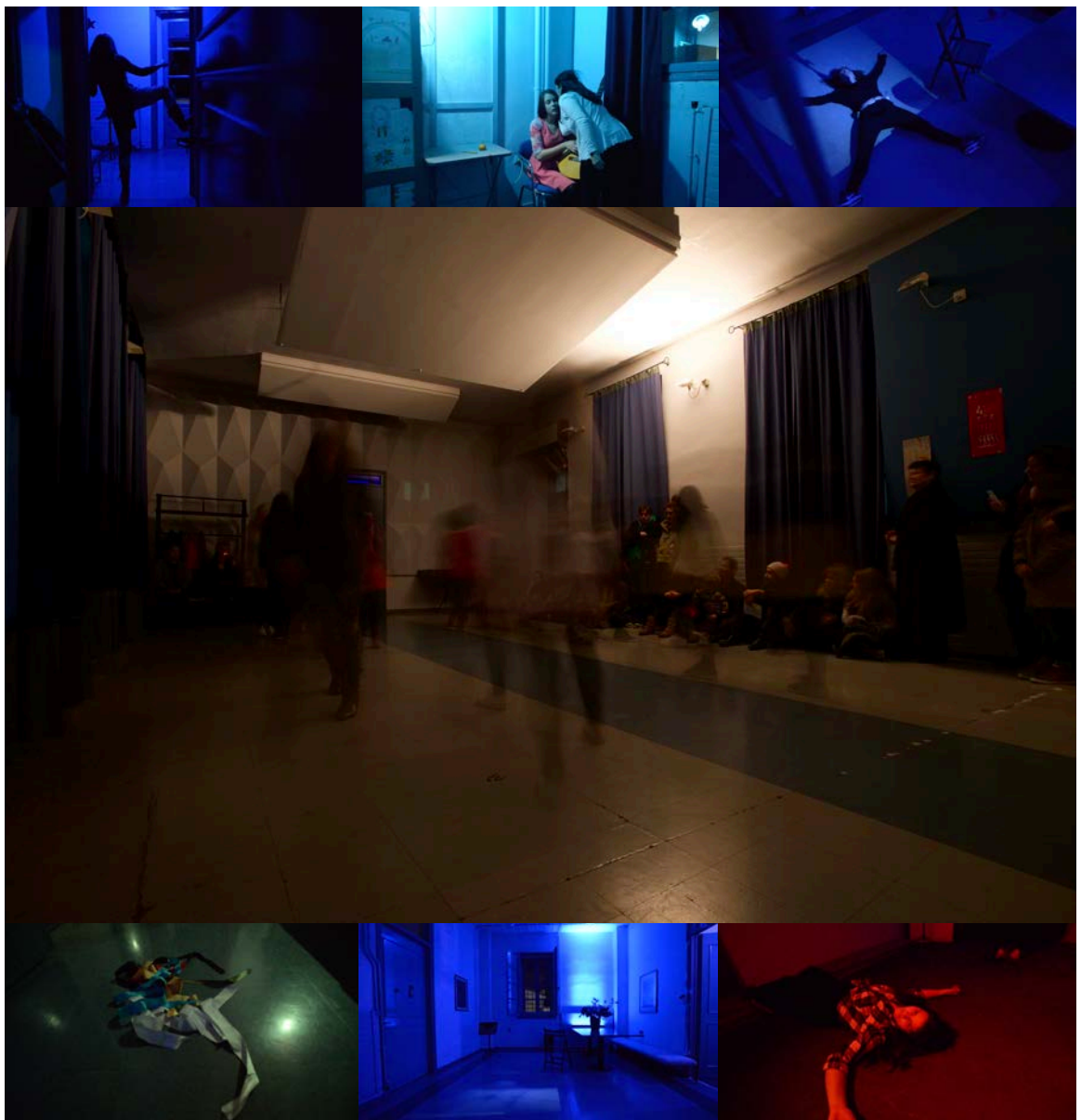
Figure 12 – Different scenes from *Standing Swimmers*. Stelios Spyropoulos Photography®

7. CHAPTER 7 – EXPERIMENTS 5 & 6

7.1 EXPERIMENT 5 — THE LANDSCAPE MAY BE A DEAD STAR

7.1.1 INTRODUCTION

In the fifth experiment I collaborated with Arthur Leadbetter (cello), Nikos Andonopoulos (guitar) and Theresa Elflein (guitar). Together we worked intensively for a week before we presented the four-hour durational work based on Müller's *Landscape with Argonauts*: *The landscape may be a dead star* in the Creativity Zone at Sussex University. This work was also based on a computer-aided cybernetic system that reacted to the presence and movement of audience in the space. Unlike the performance at Blast Theory, the material generated by the system was not electronic sounds, but music scores, exploring further the score idea of Ghiselin Danckerts's *Ave Maris Stella* (1535).

7.1.2 THE LANDSCAPE MAY BE A DEAD STAR - THE SCORE

In this work I designed conditions to harvest the performers' own creative ideas. I wanted to empower them to dwell in a very personal process of contemplation and reflection about text, music and actions. In this context I felt more like a facilitator or initial instigator rather than an author, as I was interested in the pluralism and the possibility of many perspectives about a subject.

During the preparation stage, I worked on interpreting the atmosphere of Müller's text finding ways to transcribe it into tasks. These tasks addressed actions, of both aural and kinetic natures. During the rehearsals we tried all these tasks, some of them were changed, whilst others were completely omitted. At the end we ended up with 127 tasks for solo performers and 19

tutti tasks. Many tasks were instructions: "A sound/melody/tone/movement you have never made before. Develop it. As soon as you find you have returned to old habits, stop. Take a moment and start again", or "The last song you heard on the radio" or "A nuclear explosion". Other tasks required the use of Müller's text: "Whisper [a fragment from] *Landscape With Argonauts* and imitate the sound of your voice with an instrument" (for the list of tasks see Digital appendix/ Documentation text files "Main-coll.txt" and "Q-coll.txt"). Other tasks involved the audience, with the performer requesting assistance to accomplish their task (see Digital appendix/ Documentation video file "LDS_Aud-1.MOV"[40]). Some tasks were graphic scores (Figure 1, for the screen placement see Digital appendix/ Documentation video file "LDS_screen.MOV").
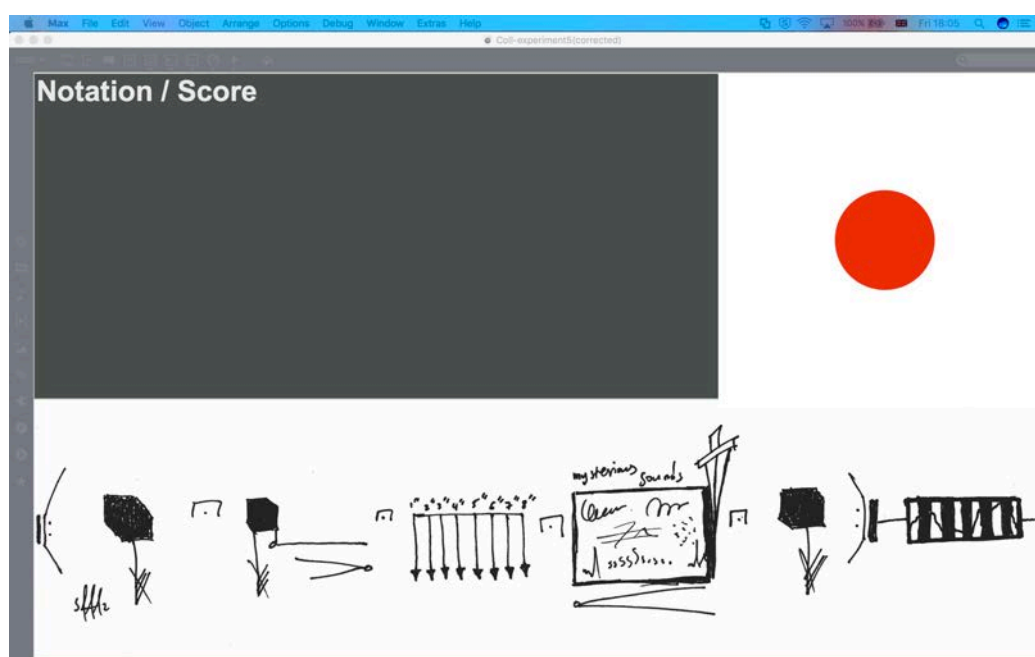
Figure 1

In the *tutti* moments all three performers had to engage in synergy in a single task: "Performer 3 wraps performer 1 with bandages, while performer 2 plays the International or a national anthem" or "The three performers read *Medea Material* (see Digital appendix/ Documentation video files "LDS_tutti-

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[40] Please note that due to technical reasons the sound in some of these videos has been lost.

1.MOV", "LDS_tutti-2.MOV", "LDS_tutti-3.MOV"). The text is to be read loud (screamed or howled) and plainly". Often *tutti* tasks had symbols at the beginning: IΩI cue, all performers should interpret the same task; IMI meta-praxis[41], an action in between being musical and theatrical; IΣI synchronous action, this symbol was always coming in combination with IΩI and meant: synchronise with the other performers; IXI asynchronous action, this symbol was also always coming with IΩI and meant the opposite than IΣI, do the task independently from the other performers. The performers could interpret the instructions with their voice, their musical instruments, or their body. The score or task as information was seminal here relating to cybernetic notions of "autonomy of information" and the subjective aspect of information rather than information as a means of objective communication. This approach echoes that of Luhmann, who declared that: "humans cannot communicate; not even their brains can communicate; not even their conscious minds can communicate. Only communication can communicate" (Luhmann & Rasch, 2002, 169). Furthermore, form an ANT point of view, these tasks were not directions from an author to the performers but rather social agents, mediators instigating relational situations and both the content and context for interpretation.

7.1.3 THE LANDSCAPE MAY BE A DEAD STAR - THE SPACE

Sussex's Creativity Zone is a large *white box* and was divided in the same fashion as the external space in *Blast Theory*. Long translucent plastic sheets were hung, breaking down the space into smaller rectangular spaces. In addition, text and objects-references from Medea's landscape hung from the ceiling. Visually the mise-en-scène suggested suspension, volatility and fragility, as if the time had stopped a few milliseconds after an explosion. The

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[41] Meta from the Greek μεταξύ, metaxy: in between.

audience had to wander through the space to discover the performance, following a personal parkour in the suspension of the unexpected, as though they were visiting a deserted shipwreck or a dead planet. The audience had to discover the performance events in a similar way to the one of the musicians discovering ways to interpret the performance tasks: they were both processes of solitude, wonder, exploration and contemplation. Both from the perspective of the audience as much as of the performers, the experience was *present-at-hand* (Heidegger, 1962). A moment of exploration: an exploration of the space, of the situation, of oneself, of the tasks requested, of the roles and relationship between performers and audience. As opposed to *ready-at-handness* nothing was certain, taken for granted and pre-decided. The whole performance was a magmatic moment of self-definition.
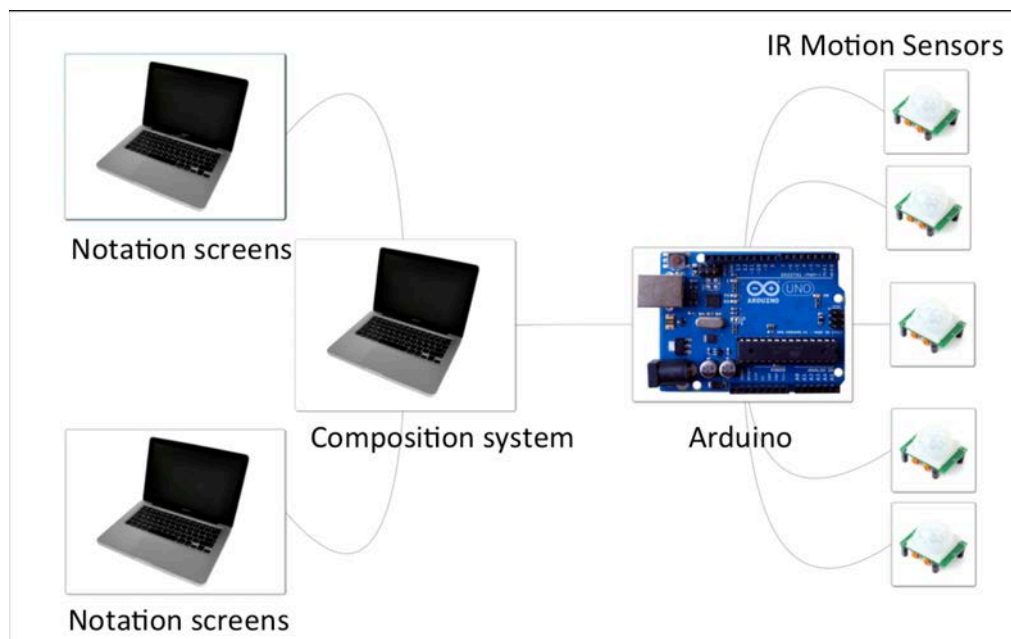
Figure 2

7.1.4 THE SYSTEM

Reflecting Dixon's cybernetic existential performances as "cybernetic and posthuman ontolog[ies] in the face of networked technologies" (Dixon, 2016, 24), the role of technology was crucial here. A network of three computers was set; each one stationed in a different corner of the performance space. The

computers were linked using a Wireless Local Area Network (WLAN) transmitting Open Sound Control (OSC) data to each other. The digital environment was based on Max/MSP. In addition, similar to *IM•Medea*, nine IRs were placed on different spots on top of the space. The IRs were connected to an Arduino micro-controller, which in turn was linked to one of the three computers acting as the server for the network (Figure 2). The screens of the computers were the digital scores operating on Max/MSP (Figure 1).

The sensors captured the audience's movement in space, i.e. the more the audience and movement was sensed by the IRs in the space, more often the IRs transmitted their binary states to the server. The algorithm had a set threshold that defined how many changes of IRs' states should happen before it triggered new instructions on the performers' screens. The tasks assigned to the performers were based on a chessboard scoring principle. When the threshold value was met, the algorithm grabbed a snapshot of the on/off states of seven (out of the total of nine) IRs. That resulted in a binary number of seven digits e.g. 1011011. This binary number was converted into a decimal number, e.g. 91. As a result, task number 91 appeared on the screen of one of the performers. The process for choosing the performer to execute the task (e.g. 91) or whether the task was going to be a tutti was similar, using the states of the other two IRs that were not used in the previous calculation. Essentially, when audience members hung around in certain spaces more than in others, it was much more probable that a certain task would be repeated again and again until a change in the system —i.e. a change in the audience position in space. Also, the dynamic of the performance was audience dependent, as the more audience members would transit the space, the more hectic the performance system would be, and when fewer audience members were in the space, the structure of the performance was having long sections of stability during which the performance tasks were taking an eternal type of aspect as

they were hardly changing.
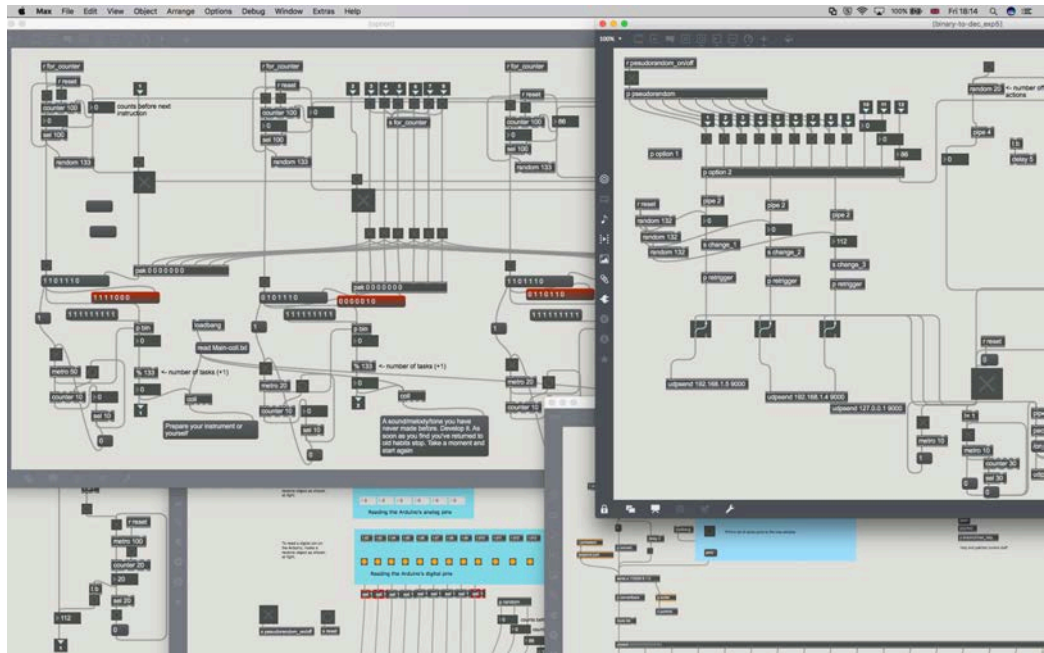
Figure 3 - Screenshot of the system in Max/MSP
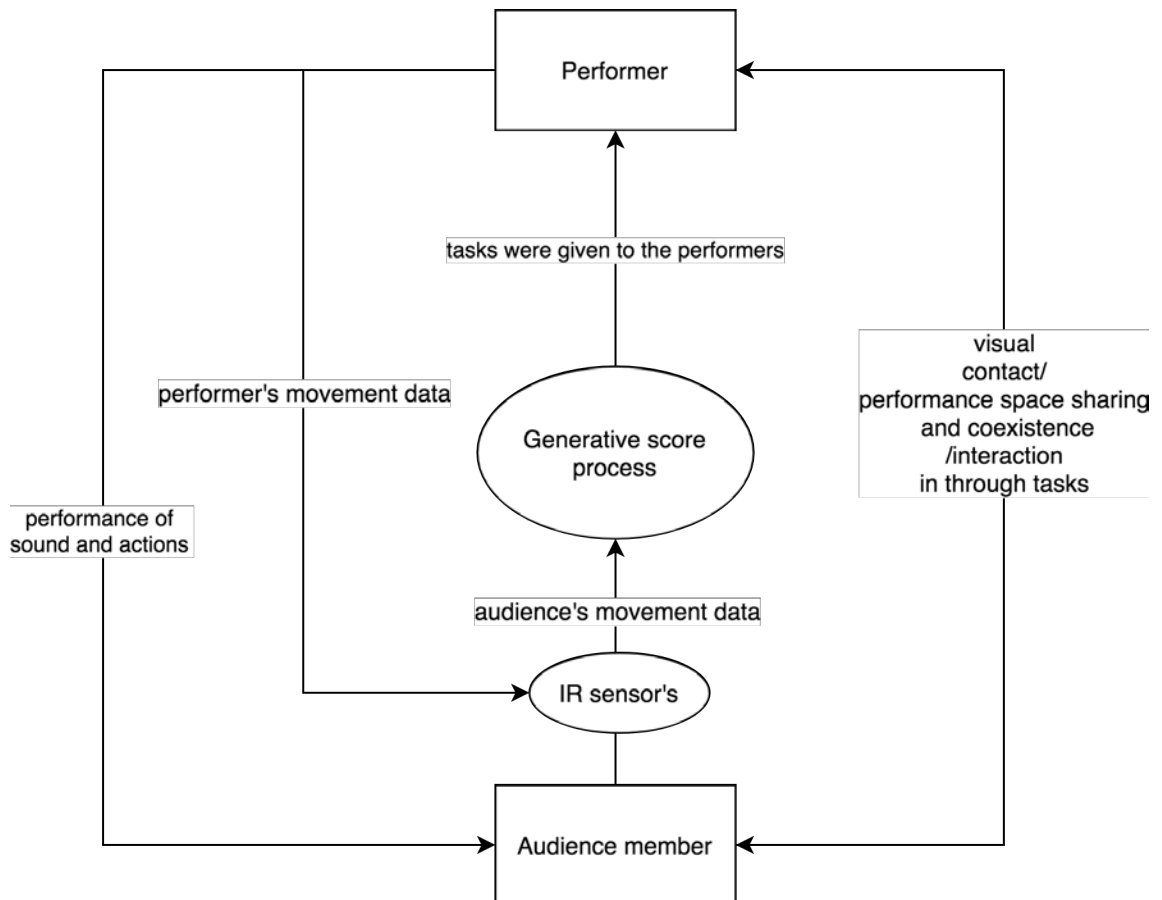
Figure 4

The performance was as a cybernetic system similar to *Im•Medea.* The difference here was that there was no generative sound, instead the technology controlled the score. The feedback relational and behavioural processes are illustrated on figure 4. The performance in these four hours varied and evolved as a natural organism following the rules of the system. According the performers, the system worked well, as when no audience was in the space the performance did not vary much, even their own energy was dropping in comparison to when an audience was present, then the system was much more reactive, and the performance was more dynamic.

7.1.5 THE SURVEY

After the performance the audience filled in a paper-based questionnaire about their experience. One audience member mentioned that the performance reminded them of Cage's *Theatre Piece*. Indeed, Cage's music theatre works were very influential on all my work. Most wrote that they found it unique either for its immersive or for its interactive aspects: "you are able to interact with the performer and be actively part of the whole installation". Others mentioned its duration and complexity: "There was a lot of layers to explore which made it interesting. There was also a great amount of time allowed". Others found it unique for the sense of freedom it fostered: "I felt sound was coming from me - as an audience member I was free" and "[I enjoyed the] freedom to experience this, I really liked the interaction". The audience also mentioned the "interesting use of the space [and the] moments where acting/sound seemed to mash". Other mentioned it alluded to a "sense of otherworldliness, as it fragments between alive and dead". Some others mentioned "the imagination and oddity surrounding it" and "the sense of the performance emerging almost chaotically and being trapped amongst them [performers]". These notions of the chaotic and oddity contribute to the post-

digital (Cramer, 2005) aspect of the performance as i) the digital was not the main aspect of the performance and ii) the digital did not attain a slick and polished character but it was part of a much wider complex process. The audience also appreciated the explorative aspect of the performance: "[I enjoyed] exploring. Exploratory trajectories intersect up with others (audience/performers)", "[I enjoyed] the disorienting experience of entering the room, not knowing where to go, not knowing who is/isn't a performer, not being able to see", "I liked being confused (in a good sense)". All these comments contribute to the Heideggerian present-at-hand notion that is very prominent in the work, as it does not advocate an established performance etiquette and everything is experienced from a very inquisitive perspective.

For other audience members that aspect was actually the least appreciated, as they mentioned: "[What made me feel uncomfortable was] establishing my role as an audience member" or "I felt uncertain of how interactive the piece was supposed to be so I wasn't sure of what to touch or contribute verbally". In a similar direction others said: "[what I liked the least was that] at moments perhaps [it was] too open for interpretation". However, for others that aspect was positively appreciated: "I enjoyed trying to make my own sense of the experience".

When I asked the audience to describe the experience some commented: "Postmodern decadence, trash, lost utopias" and "Thinking about interpretations of Greek Myths throughout time, telling the same story over and over but differently", both replies reflecting Müller's Medea. In the question about how they felt some replied: "[I felt] at first uncertain and confused, then awash with imagination and ideas", "[u]nusual; thought provoking", "[what I will remember the most is] the combination of sound bath and the visual sensation of hanging sheets".

When asked whether they would like to witness the performance

immersed or from a certain distance one replied: "Immersed every time, it is powerful to know my very movements influence the atmosphere, much like life", this comment basically echoed the posthuman and cybernetic notions that resided at the core of this performance and essentially the entire research project. Other members of the audience liked experiencing this work immersed because "it made it feel personal" or "more real". However, one audience member would have liked to "[w]itness [it from distance] as I would like to see the actions of the audience if they become part of the performance", an opinion resonating to second order cybernetics and the role of the observer of a system.

Asking the audience members if they felt they had an agency in the performance one replied "you had to move around to comprehend what was happening" therefore their agency was their movement in space, which indeed that was what generated the performance. Another replied: "yes, with each audience member it changed the environment", suggesting the collective "I" notion of the work. Asking the audience whether they considered the performance as interactive some said: "not really, I felt like actions were going on around me". However most replied positively: "yes because of the relationship between performers space and audience", "the room responded to me and rejected me at the same time. So yes interactive" or "yes, the performers interacted with the audience but the space asked the audience to interact with each other" and "yes, we got wrapped up and physically immersed into the setting of the performance" or "through my movement in the space" or even "yes, because I could change certain aspects of it". Last but not least, the most encouraging aspect in the survey was that all audience members claimed that they would attend this performance again, which means that they genuinely enjoyed their experience.

Figure 5 – Theresa Elflein in the performance

Figure 6 – Nikos Antonopoulos in the performance
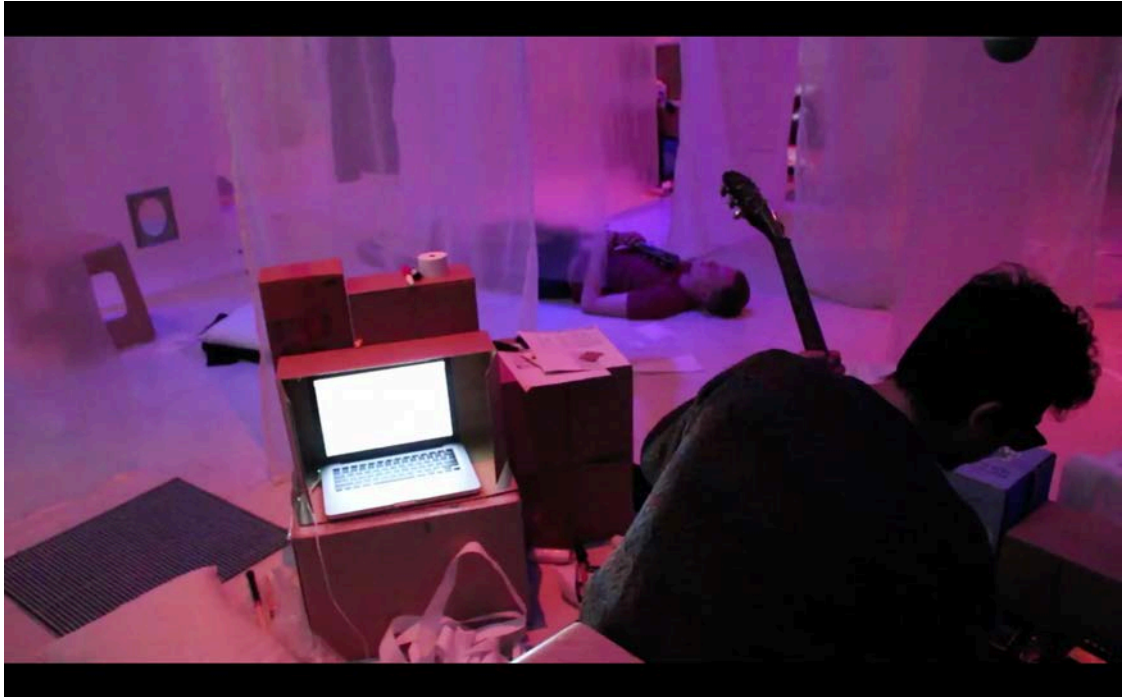
Figure 7 – Nikos Antonopoulos and Arthur Leadbetter

Figures 8 –Arthur Leadbetter and a member of the audience during the performance

<u>7.1.6 CONCLUSIONS</u>

Some of the audience feedback —as much as in experiment 3— concerned their genuine lack of understanding of the interactive aspect of the performance. In retrospect I would not have advertised it as interactive music theatre. However, at the time I was exploring processes, theories and terminology, and I used the term "interactive" because the structure of the performance was dependent on the audience. The development of the performance was rather based on ecosystemic cybernetic and posthuman notions.

It was inspired by the causality humans have in their environment — being aware or unaware, the notion that everything, we all; performers and audience, belong in the same fragile system of co-existence. It related to Lucier's non-linear causal approaches in art-making. He has stated that he is

> interested in cause and effect but only when something happens between the cause and effect, so that the effect is not really directly related to the cause. It's hard to do, but anyway that's what I try to do.

(Lucier, 2018)

In that respect this performance explored this notion of unpredictability through a system of causality. The entire structure and its events were unpredictable for both the performers and the audience, and its openness contributed to the creation of unique situations that gave a feeling of performative suspension, when neither the performers nor the audience knew what would happen next. I found this feeling of suspension, both conceptually and aesthetically, extremely beautiful and very intriguing. In addition, it was both open and systemic, unpredictable yet organic, as in a state of ecosystemic homeostasis, giving the feeling of a suspended continuum.

7.2 EXPERIMENT 6 — THE IMPOSTOR'S SYNDROME

7.2.1 INTRODUCTION

In July 2016 choreographer M. Eugenia Demeglio and I were invited to curate an event for the 22nd Kalamata International Dance Festival. It was a series of site-specific performances *Transitions[42]*, happening on the city's public buses. Our aim with this intervention was to "bring" the festival to the city, outside performance spaces and to raise awareness about the festival. The interventions happened during three consecutive afternoons. As we were interested in offering these performances to people that normally do not attend the festival, we did not announce the exact occurrence of the performances. Alongside curating the event, I contributed to it with an immersive music theatre performance, *the impostor's syndrome,* devised in collaboration with Nikos Ioakeim (harmonica, voice), Nikos Karydis (trumpet, voice) and Alexis Kotsopoulos (trombone, voice). This performance explored audience-performer interactive processes and cybernetic causality without employing technology. The need for exploring these notions derived from some of the feedback received in previous experiments, in which audience had expressed the request and need for more interaction with the performers. Therefore, in this work I decided to devise a system that does not rely on technology, yet it explores cybernetic notions of causality, interaction and conditional processes.

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[42] Transitions advertisement in the local media: Transitions is a series of performance interventions part of of Kalamata Dance Festival occurring on the local bus-line no. 1 (route: Kalamata-Paralia). Performers will mingle with passengers in a very specific part of the public space, the bus, transforming an everyday-life setting into pleasantly unfamiliar situations. Passengers are invited to experience these surprising shifts of reality, a kaleidoscope of oneiric breakouts from the daily routine. During transitions anything could happen, a "normal" bus ride —from or towards the beach— could become a jazz concert or a dance performance.

7.2.2 THE IMPOSTOR'S SYNDROME

For this work I used different Greek poems from the 20th and 21st century. They were surrealistic, expressionistic, hyperrealistic or paradox literature works by the poets Miltos Sachtouris (1919 - 2005), Epameinondas Gonatas (1924 - 2006), Takis Sinopoulos (1917 - 1981), Tassos Leivaditis (1922 - 1988) and Kostas Karyotakis (1896 - 1928). The works were either short stories or free verse poetry[43]. In their majority they were semi-absurd personal situations. For example, one of them was about a person wandering about the streets of a Mediterranean city during a hot and quiet mid-summer afternoon, until they came across a flying ray fish (Gonatas, 2006). The stories were converted to first person, in order for performers to narrate them as personal experiences.

The text was not put to music; instead the music accompanied each sketch underlying the narrative with intradiegetic and extradiegetic sounds and melodies. Narrative through speech in music theatre can be traced from melodramas like Jean-Jacques Rousseau's *Pygmalion* (1770) where the story is recited in a spoken manner over the music, to John Cage's (1958) *Indeterminacy: New Aspect Of Form In Instrumental And Electronic Music*, a set of 90 one-minute short stories being narrated whilst accompanied by David Tudor on the piano or electronic sounds[44], or the Black Mountain performance (1952) when John Cage gave a lecture on top of a ladder, whilst Robert Rauschenerg was reading poetry, David Tudor was playing the piano and Merce Cunningham was dancing.

All sketches of *the impostor's syndrome* were solos. All the sketches had approximately a similar duration (i.e. five to ten minutes). When the performers finished their sketches they were gathered in the middle of the bus for an intermezzo act, a task-based sound improvisation for trombone, trumpet and narration performed by all three. The improvised music was based on

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[43] A type of poetry that does not obey consistent meter patterns, rhyme or poetic musicality.

[44] Cage's work was published as a record box, it can be considered as a form of sound theatre.

previously rehearsed tasks such as: improvisation of a given tonal material starting from scattered short staccato notes that would gradually increase their duration reassembling counterpoint or choral like melodies, or the improvisation upon a given melodic material that had elements from Balkan and traditional Greek music. After the intermezzo, they sat in different places to perform a new story.

The performance was first and foremost relational, a cybernetic experience between performer and audience, which as Dixon puts it explored "the key Existentialist notion that our Being is first and foremost a relational property" (Dixon, 2016, 25). The interactive processes in interactive theatre[45] were based on the causality of closed and open questions[46]. The performance started with the performer asking a closed question towards the nearest passenger to initiate a discussion; a question about the weather, predicting the passenger's positive reply. Meanwhile, the performer started doing some slightly unusual actions, such as polishing their trumpet with their tie. Then they continued with an open question trying to establish a broader conversation: "excuse me, are you from around here?" and then continued, "I'm asking because I need to go to X place and I do not know the stop". The place in question was not in the bus route, so the passenger started explaining to the performer that they should get off, take a different bus et cetera. When a conversation was established the performer started making squeaky sounds with the trumpet or played a melody articulating the reply of the passenger. If the passenger seemed alienated because of the music, the performer entertained and comforted the passenger's impression by saying: "I love traveling and playing music, do you mind? Would you like me to stop?"

Generally, the passengers did not have problem with the music. This

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[45] This information derives from the Greenhouse workshops: The Lab Collective.
[46] Closed questions are those that replied with "yes" or "no", whilst open questions require a more elaborate answer.

eased the situation and prompted short conversations about music preferences. Then the performer would return to the conversation about the place X: "As I told you I like travelling or even walking and playing my music. Once something amazing happened to me whilst walking and playing my trumpet." And then he threw a closed question: "Would you like to hear what happened?" In which case the performance arrives in a conditional "crossroads", if the passenger said "yes", then the performer continued telling the story about a giant ray fish flying over the roofs of the buildings, articulating their narration with music. If the passenger said "no", then the performer would reply: "Oh I'm sorry, I won't bother you then, I'll carry on playing my trumpet then if you don't mind". A few seconds later after a bit of music the performer would say again: "Well last time I was in place X and I saw something really strange …" continuing with the story about the ray fish. In other cases, the performers would go back in the process, starting again with open questions that lead to different close questions, ending up telling a different story. Hence, these interactive performances were based on improvisation and conditional processes that were giving a feeling of agency to the interlocutor. A generic scheme of the relational and behavioural interactions that determined the development of the performance is illustrated in figure 9.

7.2.3 PROCESSES, DECISIONS AND ACTIONS

This was a simple example of what happened in these performances. However, all performances were based on three main elements: the *Process*, the *Decision*, and the *Action*. The *Process* is always set and predefined. In the previous example it is the story of the flying ray. *Decision* is a simple one level conditional stage, basically a closed question to which the answer should be a clear "yes" or a "no" and should lead the whole performance to the next

stage. *Actions* are open, they are based on the improvising abilities of the performer to detract the attention of the audience from subject to subject until they arrive back to either a Decision or a Process. Actions were co-created by both audience and performer, they are physical actions or conversations. The structure of an interactive performance is essentially a series of Processes, Decisions and Actions put in different orders based on the complexity of the work. The experience may vary among audiences, as each audience member may follow a unique path to arrive to different conclusions or performance stages.
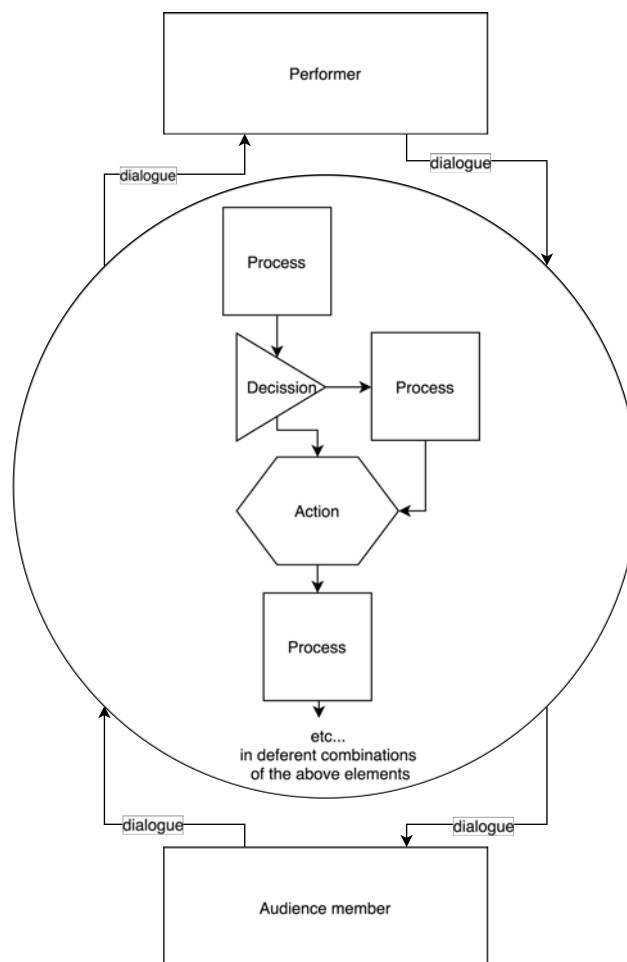
Figure 9

7.2.4 THE AUDIENCE EXPERIENCE

The role of the music in this process lies on the plausibility of its occurrence: How plausible is that someone in real life will perform everyday actions whilst

singing or being accompanied by music? Indeed, it does not happen very often. However music surrounds us constantly with buskers, people listening to music on their mobile phones or on boom boxes. All these cultural stereotypes could be used in favour of narrative-based interactive music theatre: the wanderer on the bus that articulates his words with a trumpet is not an extraordinary phenomenon. Also, the performers were talking about flying ray fish, making the trumpet playing less peculiar.

The peculiarity here was that the audience did not know —until a moment of realisation— that they were attending a performance, let alone that they were part of it. They were simple commuters on a bus during a hot mid-summer afternoon, dozing off a bit from the heat and the fatigue of the day - for them this trip was supposed to be "dead time", a transition. The last thing they expected was an unannounced performance. In that respect for some of the audience the experience was as though life brought them next to a "village fool", a person that presented their life as "a story told by an idiot, full of sound and fury, signifying nothing" (Braunmuller, 1997, 229).

7.2.5 CONCLUSIONS

This was a short work. However, the outcome from this experience was the understanding of non-computer-based relational processes of causality applied in performance. More specifically how the notions of Process, Decision and Action may contribute to the development of an interactive/conditional performance, and how these suggest systemic processes and relational cybernetics. It explored the use of immersive theatre processes in new music theatre. The path the experience followed (i.e. What would happen and what would be said) was part of a mutual responsibility and a process of interaction between performers and audience. These non-computational interaction processes informed and were incorporated in the experiments that followed.

Figure 10 – Different scenes from the performance. Stelios Spyropoulos Photography®

8. CHAPTER 8 – EXPERIMENTS 7 & 8

8.1 EXPERIMENTS 7 & 8 — ASBESTOS & QUICKLIME

8.1.1 INTRODUCTION

Asbestos and *Quicklime* are two different performances with different names and durations, but they were structurally the same[47], and they were both based on Müller's *Landscape with Argonauts*. *Asbestos*[48] happened in Benaki Museum of contemporary art, as part of *Out-opias: performance and public/open space*. It was an eight-hour durational performance for six performers[49]. *Quicklime* instead took place in the De Nieuwe Regentes theatre in The Hague (NL) during *Modern Body Festival. Quicklime* happened twice and each performance lasted for four hours involving seven performers[50]. The generative music algorithms were an updated version of the experiments 3 and 4; the space design derived from experiments 3, 4 and 5; the performances were based on an updated version of the performance tasks from experiment 5; and the audience immersion was again prominent as in all previous experiments. Most generative processes derived from an algorithm made in SuperCollider. In addition, the conditional processes of Action-Decision-Process, explored in experiment 6, were used here for audience - performer interaction.

8.2 COMPUTER BASED GENERATIVE PROCESSES

The SuperCollider algorithm had three parts: i) generative music; ii)

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[47] There was only an insignificant difference between the tasks of the two performances.

[48] Quicklime in Greek.

[49] M.Eugenia Demeglio (movement, voice), Nikos Ioakeim, (harmonica, percussion, voice), Nikos Antonopoulos (guitars, voice), Alexis Kotsopoulos (trombone, musical saw, voice), Iakovos Pavlopoulos (percussion, voice), Rezarta Krugia (violin, voice).

[50] Nikos Ioakeim (harmonica, precision, voice), Katerina Konstantourou (piano, key harmonica, voice), Nikos Antonopoulos (guitars, voice), Goncalo Almeida (bass, voice), Friso Van Wijck (percussions, voice), Arthur Leadbetter (cello, voice), Theresa Elflein (guitars, voice).

performance tasks announcements; iii) computer narration. The generative music was an updated version of the DSP feedback algorithms used for *Im•Medea (Landscape with Argonauts)* and from *Standing Swimmers*. It was a generative composition based on fourteen instruments (Figure 1). The algorithm followed rules and chance operations to select which instrument to be played when, how and for how long. The DSP processes were based on feedback, which conceptually referenced second order cybernetics and the notions of reflexivity and self-organisation.

<div align="right">Figure 1</div>

8.3 THE TASKS

The task announcement was an updated version of the series of tasks used in *the landscape may be a dead star*. This time however, the tasks did not appear on screens, but they were announced codified from the loudspeakers. My inspiration for this derived from Joshua Fried's (circa 1995) *Headphone Follies*, a series of headphone driven compositions. In *Quicklime* and *Asbestos*, each performer was assigned two names; one was from the International Radiotelephony Spelling Alphabet (i.e. Alpha, Bravo, Charlie, Delta etcetera),

and the second from the German Phonetic Spelling Code (i.e. Anton, Berta, Cesar, Dora etcetera). Whenever a name was announced from the loudspeakers it was followed by a number between 1 and 150. First the sentence sounded in German and then in English (e.g. "Cesar… siebenundsiebzig… [very short pause], Charlie… seventy-seven"). When a performer heard their name and the number they knew that they had to execute the task with that number (e.g. Cesar/Charlie had to execute task seventy-seven).

The process was based on a SuperCollider algorithm that controlled the text-to-speech OSX application through Unix. The performers did not know when their name would be announced, which task they should do, or its duration. The process of choosing a name was based on a serialist process of permuted lists. Having seven names in the system, the waiting time between announcements could span between 60 and 150 seconds. A single performer might have to wait between one and almost eighteen minutes before they heard their name again. The performers were totally submitted to the machinery, as they could not predict the duration of their actions. Katherine Hayles, describing the different possible features of posthumanism, mentions that one of them is when humans surrender to machines by becoming part of an extensive machinery. (Hayles, 1999).

8.4 THE COMPUTER NARRATOR

The computer narration was new in this experiment. Using a similar speech-to-text process, the computer narrated parts out of the original Medea sequence text in both German and English. This process was based on a database with phrases from the original texts, to which I embedded articulation, speed and volume variations. When the algorithm selected a phrase to convert into speech, both the generative music and the task announcement stopped. In

addition, the performers had to stop their actions whenever they listened to the voice. After the end of the narration, the task announcements and the generative music started again, likewise the performers continued with their previous tasks. Dramaturgically, it was as if the machine was calling its subjects. Also, because of the narration, the machine acquired a poetic quality, unlike the performers who proceeded to their tasks mechanically, as automata. These sections created an overall antithesis, suggesting human qualities in the machine and machine qualities in the performers. This antithesis underlined the posthuman character of the performance.

8.5 CONDITIONAL INTERACTIONS

In addition there was audience-performer interaction based on conditional processes. Each performer would execute one-to-one interactive tasks with an audience member "if" that audience member met a certain predefined requirement. For example, if an audience member looked inquisitive or held a mobile phone, then a performer would become a sort of tour guide for them, taking them around describing the surrounding actions as a museum or zoo guide. Based on similar conditional processes some other tasks were musical, for example a performer might ask the audience to keep a rhythm on an instrument whilst they did push-ups. Another audience-performer interactive process was "the envelopes". Each performer had a number of envelopes, each containing a task for the audience. If an audience member spent more than 45 minutes in the space one performer had to approach them with the envelope, and ask them to open it and read it out loud[51]. Then the performer chaperoned the audience member for the completion of the task. These envelopes were an indirect invitation to the audience members to trespass the audience-performer borderline and to inhabit the theatrical landscape as

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[51] The performer did not know which exact task was written in the envelope.

though it was their own habitat. These envelopes were also Latourian social mediators that induced new relationships between audience and performers. For interaction between audience and performers see Digital appendix/ Documentation video files "Asb-1.MP4" until "Asb-16.MP4".
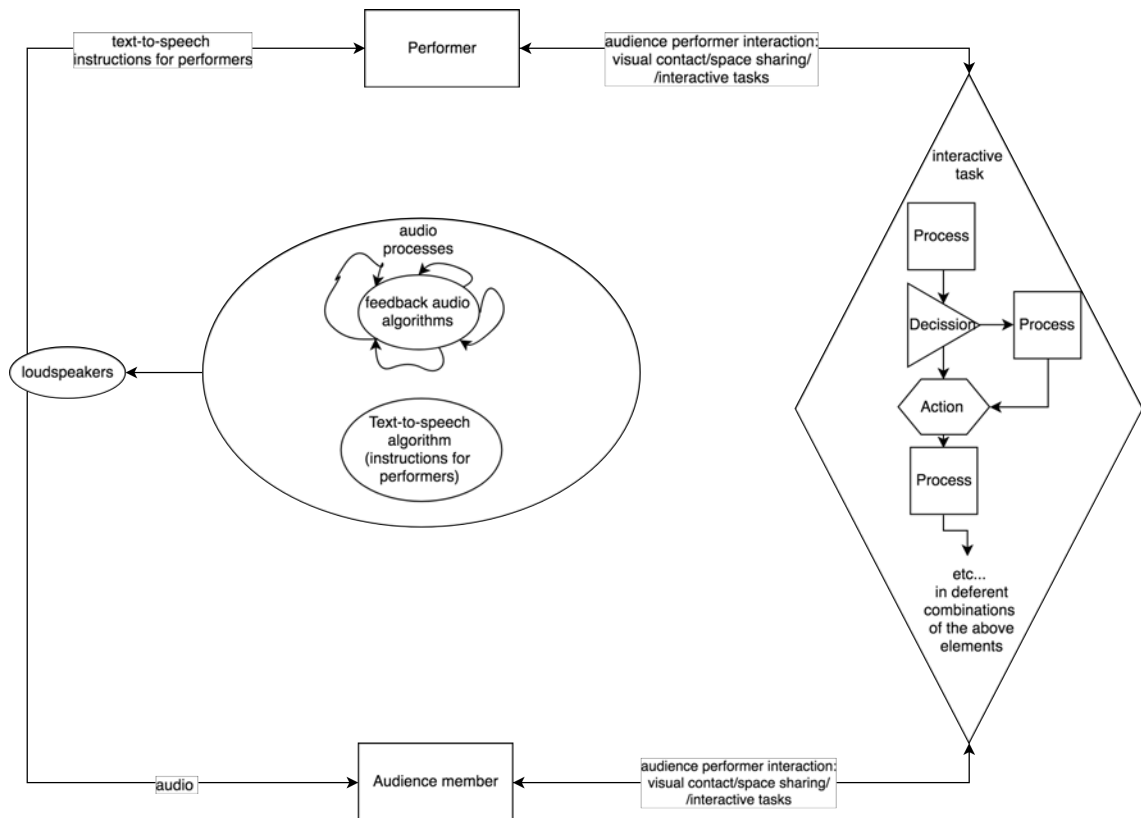
Figure 2 – Illustration of the performance processes

8.6 DENATURATION AND BECOMING IN ASBESTOS

After the envelope experience, many of the audience members carried on playing with instruments, interacting with other audience members and performers. This process of denaturation and becoming from audience to performer worked differently in each performance. In Greece for example the performance lasted for eight hours, it started in the afternoon and ended at eight o' clock in the evening, and the long duration of the performance in combination with the lack of theatrical light contributed greatly in giving the impression to the audience that what happened in the space was not necessarily something distant, unapproachable and theatrical but rather

something close, daily and up to a certain extent common. During the last hours of the performance there was a great amount of people that acted fully as if they were performers. They grabbed instruments and improvised with the performers; they narrated parts of the hanging texts using microphones or megaphones; they used props and plastic sheets to dress themselves, audience members and performers; they wrote parts of Müller's text as slogans on the hanging sheets; or they used microphones, trying to give tasks to the performers in the fashion of the text-to-speech algorithm (e.g. Charlie… hundred and forty…). With many people describing the experience as "my chaotic life" or "our city", I believe that the Greek audience easily became one with the performance landscape, as for some reason they felt familiar to it. The chaotic political situation in Greece, its jungle-like urban planning, and a feeling of intangible madness that is imposed by the intangible rule-based system that administrates the country, unintentionally did somehow reflect aspects of both the method and the aesthetic of the performance. Unavoidably this reflects both Attali's notion of the relation between music and political economy (Attali, 1985), as much as Dolar's claims that music theatre underpins and reflects the social changes of the societies that produced it (Žižek & Dolar, 2002).

The landscape appeared quite anarchic, however it was quite symbiotic as well —as much as Greece is. These audience members[52] found what was happening in the space inexplicably sincere and moving, and became one with it. This echoes Kaprow who claimed that audience members lose their identity as such by getting absorbed by the space, time and events of the performance (Bishop, 2006, 102). The performance system suggested a life of its own that evolved towards a direction that I had not previously imagined or designed. It became a performance vivarium, underlying the cybernetic and ecosystemic

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[52] Here I need to clarify they were not just a few.

character of the performance. Through its unpredictable and chaotic nature it got transformed into a performance system that suggested reflexivity and emergence, as Apter suggests "the ability or intelligence of a programme is not limited by the intelligence of the designer of that programmer. The old idea that 'you only get out of a computer what you put into it' is therefore, in an important sense, incorrect" (Apter, 1969, 262).

Figure 3 – Images from *Asbestos*, Seventh Swan Photography ®

Figure 4 – Detail from *Asbestos*, Seventh Swan Photography ®

Figure 5 – Detail from *Asbestos*, Seventh Swan Photography ®

8.7 QUICKLIME

The performance in Holland was appreciated differently, and although much of the audience did indeed let go and became part of it, it did not reach the totality of *Asbestos*. It was perceived as an inviting environment for escapism, a feeling of an immersive other-world. The experience in Holland was not lesser to Greece but just different. In Holland the audience also played instruments, dressed up with props, and stayed in the space for hours. However, they took initiatives less often, and it did not acquire the sort of political aspect of *Asbestos*. For the Dutch audience the experience was like a magic trip, a room that lead into Alice's Wonderland.

Therefore, because of the two performances' contexts (different countries, different spaces, part of different events), and because of their different durations, different performers, different lightings, and most importantly because of the different audience, these two performances felt completely different from one another. These two versions of the same experiment evidenced that the contribution of the audience in such a type of performance is extremely crucial for the direction that the performance might take. The audience is part of the same dynamic system as the performer: they have the power to transform the performance and hence the overall experience. It is evident that these performances are cybernetic systems, they are performance ecosystems and each node in the network performer-audience-technology-space can contribute greatly to the final result. Also, they are homeostatic equilibria, if one variable or external parameter changes the entire performance equilibrium changes as well towards a new state of stability, a process of self-definition. Overall, both experiments were well received by the participants, regardless of their differences. For interaction between audience and performers see Digital appendix/ Documentation video files "Quick-1.mov" until "Quick-23.mov".

Figure 6 – Scenes from *Quicklime*, Erin McKinney Photography ®

8.8 THE AUDIENCE SURVEY

A few days after the end of the performances both the audience and performers were asked to fill in two online surveys. The first question on the audience survey asked "what they considered as the most important element in this experience". Most replied that sound was the most important element, second came the role of interaction between audience and performers and third was the aspect of the space and its design. In addition, the merging of audience and performers into a performance ecosystem was alluded to by the replies: "I found interesting the audience participation when you could not differentiate audience from performers". Others were drawn to the unpredictability of the landscape: "[I was] immersed in the sound and in the scenography while enveloped in uncertainty". Others mentioned that: "I think an interesting contrast in the work was the heavy madhouse/dystopian environment against very banal actions of the performers and their presence." This derives from the performers' style, being themselves doing what the tasks asks them to do rather than acting it.

For some audience members the weakest aspects of the performance were the lack of narrative: "[i]t was extremely postmodern, which made it so unique, but I would have imagined it very nice with some more structured touches". This comment brings forward my research question, whether a concrete narrative in music theatre contributes to a holistic experience. I understand that historically in music theatre narrative has played a seminal role. However, my interest was a postdramatic approach to music theatre making, in which the narrative would be the process and result of a co-production of all the elements of the performance; the narrative of which would emerge through the experiential processes of immersion and interaction.

Regarding the interactive aspect of the performance, audience members mentioned: "I felt one is invited to participate, not only to repeat stuff but to

be inventive as well. [I remember] The immersiveness, the way all the elements add up into a gesamtkunstwerk", "more one did [interact], more fulfilled would leave the experience", "It was very positive, almost odd and otherworldly. […] It was diametrically opposed to the classic museum [experience], although it was taking place in a museum", "[interaction] contributed a great deal to the experience. Being invited to join the realm of oddities made me feel included and enabled me to participate". Others made reference to second order cybernetics by saying: "I liked that it got me out of being just an observer". In certain cases interaction took a deeply personal almost a confessional direction: "One girl asked me to brush her hair while telling her a story of love and death. I talked about my mother, who recently died. I felt very open and secure talking to the girl. It was very touching to share an intimate story with a complete stranger while caressing her hair". Others mentioned: "The performers were sensitive to the double role (agent - spectator) of the audience. When the audience wanted to stop playing they would just become invisible; when they felt like playing again, they just had to get close to someone or play with the objects. One could stay there forever". For others the audience integration was unique because of a "sense of denaturation from audience to something else".

Machon's "in-its-own world" notion and Müller's idea of a third party exploring the landscape of a dead star was evident in the comments: "It looks like I was traveling to another world", "I felt like I was in a parallel universe where my shape is intact but no unit is measured (time, volume, etc.) as I have been taught. Lost in time-space", "I felt a bit like I was floating in the room. Almost like being underwater at times. I also felt like I would do things that I might not normally [do], just because of the strange surroundings", "I think it is valuable to put people into a different world. Where different rules apply, and logic is hard to grasp. It puts things in perspective, makes one look differently

at other ideas, opinions etc.". Müller's landscape was also evident in the comments: "I felt alone in a sort of after-atomic-war forest, meeting other survivors now and then".

An audience member said that they found unique: the "rhizomatic aspect" of the performance, which is something I have not previously thought about. Indeed, this type of performance is inherently rhizomatic, as it does not have a central trunk of plot or narrative, things evolve simultaneously. Also, these kinds of performances are in a constant state of becoming, of evolving through self-exploration. Finally, this type of work is essentially a cybernetic ecosystem, as another audience member claimed: "There was a strong sense of a system in the space - that the behaviour of the performers was governed by external and internal algorithms". Likewise, most audience members mentioned they felt their presence had some sort of agency in performance and they were free to exercise it: "the option is there, I take what I want, I just have to go for it".

8.9 THE PERFORMERS' SURVEY

The results of performers' survey were very useful for both the development of the final performance and primarily for the phenomenological understanding of this experience from their perspective. One of the most valuable phenomenological notions about this experience came from the very first question, "how would you describe this experience" to which all performers agreed that the term "human installation" described it best. This term is interesting because it suggests a kind of objectification of the human performer. The humans become part of a wider installation system (interactive, generative or other). A performer described it as "a living audiovisual installation-performance. A living organism with its own heart-pulse, and multiple functions". Another performer focused on the hybrid aspect of the

work "[this experience] differs from more 'traditional' forms exactly because of its hybridity". The hybridity here can be understood as the conceptual space between performance and installation, or between human and non-human agencies that together create a transindividual network system. Also the hybridity applies to the roles of performer and audience, the exchange of roles between observer and observed. In the context of hybridity, a performer mentioned: "as for my role, I'd call myself a performer/object", suggesting themselves as social agents-mediators, or as agents for individuation for both themselves and the audience.

For another this experience "took both the audience and performers out of their comfort zone (in a good way!). It blurred the boundaries between the two, and created a (temporal) parallel reality". For some the strongest aspects of the performance were "the ability to create a finite world guided by its own rules", "the lack of linearity, the unconscious flow of roles between observed and observer" and "the spontaneous and earnest moments that occur between performers and individuals form the audience". Its weakest points were "the occasional lack of audience" which happened due to the long performance durations, also "the fact that it relies too much on the responsibility and commitment of each performer". A performer that had previously worked in *the landscape may be a dead star* mentioned as a negative that "the computer did not measure the audience flow and the tasks were indifferent to audience presence in space".

The performers did not deem discomfort as something negative; one mentioned "Yes [I found it uncomfortable]. Again, in a good way; I had to come up with different approaches to my instrument, body, and above all (creative) mind-set to pull off some of the tasks. Sometimes my first reaction would be; 'how the hell do I do this?' and you need to push yourself through and beyond that. GREAT!"

About the relevance of the interactive tasks, a performer said: "[y]es [they were relevant]. What would you do after a destruction if not trying to discover yourself and what life means from now on through exploring things with whoever stands next to you", another stretched the social aspects of these tasks: "we're talking about a post-human landscape inhabited by derelict souls, the people [audience] that discover them will naturally engage with them". About the announcements a performer wrote: "[t]he tasks conduct the form [of the piece], they dictate the pace of the performance. The way they were delivered had primarily an aesthetic (and semiotic) role for the audience. Hearing this voice constantly dictating what one should do affected the performers' emotions as well". Another mentioned: "[the announcements were] the backbone of the performance, so that through its random and mechanised aspect it could convey a specific mood", and a third one said: "they took me to a different space in my head. The delivery of the tasks was strangely anonymous, which made me think about the willingness in real life of people just doing, for example, what authority or religion demands, without being clear about intentions or even having a real face/existence".

The performers mentioned that the generative sound "became the state of things, a continuum, the drone of existence"; "it worked as a link between the different acts, which were happening simultaneously"; "[It had the] same [function] as the set design. It immersed people (performers and audience) in a world". Most mentioned that the role of the space was "crucial. It created the necessary atmosphere and context, it made the performance eloquent"; "[it made] the space look much larger than what it was, and it did mess with your perception of space, and therefore time"; "it inspired me very much and it helped me to get in the zone as a performer"; "[it conveyed] the mood of post-apocalypse, suggesting them [audience] to explore, plunging them in an environment that was spatially destabilising".

Regarding the uniqueness of the performance the performers replied: "It is per definition unique since no performance can be the same"; "the parts of the performance were all known, but in the end they composed an unforeseen whole"; "I could describe it as a multidimensional approach on a specific text".

8.10 CONCLUSIONS

Summing up the outcomes of these two experiments I would start by mentioning that the music aspect was deemed as most important for the audience, suggesting the music theatrical nature of the works. However, the most valuable outcome from these two experiments was the realisation of the uniqueness of each performance, as the result of all its elements, including the audience. This type of performance might be completely different each time due to many unpredictable reasons, which contribute toward the homeostasis and evolvement of each performance. The performance will find ways to function —as an organism does, but each time it might allude to different meanings. It is therefore a sympoietic process, based on the elements that comprised it. The place and duration of the performance may contribute differently in its meaning-making, because of the different audience demographics, and the different durations.

The performance was a posthuman machinery in which the performers became its human cogwheels. The objects, tasks and the instructions in the envelopes were non-human agents in the process of relation-formations between audience and performers. The performance, which could be better described as a *human installation* or *generative music theatre* was a hybrid landscape for inter-human interaction. It was yet again a transindividual network between actor-nodes that were acting simultaneously generating the magmatic and dispersed human landscape. The posthuman theatrical

landscape was a world in its own right, in which the omnipresence of the technological voice alluded to human qualities, whilst the performers were behaving as parts of a machine. Technology bore a post-digital aesthetic as it was not presented as the main subject of the performance, but it had an almost metaphysical quality through the sounding voice. The audience immersed in the space suggested Müller's collective "I" notion, they were Müller's explorers of the derelict landscape, becoming part of it at the end. Hence the audience became part of the narrative, the performance invited them to connect the moments of their custom-made path in space and the interactions they had with human and non-human agents in order to devise their own unique narrative through their experience. The integrated and interactive role of the —traditionally called— audience in these performance landscapes suggests —or even demands— the use of an appropriate term that would define the properties and affordances of the two counterparts in these performance encounters. I am inclined to think that the term *actant* from ANT could be an adequate option to define the role of both performers and audience, to underline the interacting and interchanging aspect of their role as much as the active role they have in the development of a social performance encounter.

9. CHAPTER 9 – EXPERIMENT 9

9.1 FINAL EXPERIMENT - A MAGNIFICENT CROSSBREEDING OF PROTEIN AND TINPLATE

9.1.1 INTRODUCTION

The final experiment took place in the Attenborough Centre for Creative Arts (ACCA), at the University of Sussex. I worked with eight performers (Stephanie Pan, M. Eugenia Demeglio, Nikos Ioakeim, Friso van Wijck, Gonçalo Almeida, Arthur Leadbetter, Theresa Elflein, Katerina Kostantourou) for a four-hour durational performance that combined elements from all previous experiments. It also featured a computer generative audience-activated operatic scene using vocaloids and instrument banks. Moreover, the entire performance structure was organised by an algorithm operating through a WLAN network of four computers that were interacting through the Open Sound Control protocol. This performance explored posthuman notions of computer agency, the cybernetic principles of "structural coupling" (Maturana, 2002) and emergence. In its essence it was a cybernetic performance ecosystem; the performance was controlled by a computer network, which changed its states by observing the human participants.

9.2 THE THREE ROOMS

In this experiment, I had access to the whole ground floor of the ACCA building (Figure 1) and decided to create different music theatre landscapes by using the different rooms and pathways of the space where the audience, human and non-human performers would interact. Essentially, the performance *a magnificent crossbreeding of protein and tinplate*, relied on a "transindividual network system" (Birringer, 2004) between the audience,

performers and technology, in which the technology was the orchestrator of the experience, as it was managing the events of three different rooms. The changes of these events were caused by the audience's presence and flow in space. Working on Müller's Medea sequence and because it is suggested that the three scenes could happen simultaneously, I assigned different rooms to different scenes of *Medea sequence*, essentially I created the framework for three different scenes. *Medea Material* was assigned to the Gardner Tower; *Despoiled Shore* took place in the Jane Attenborough studio; and *Landscape with Argonauts* occupied the workshop studio and the surrounding corridors.
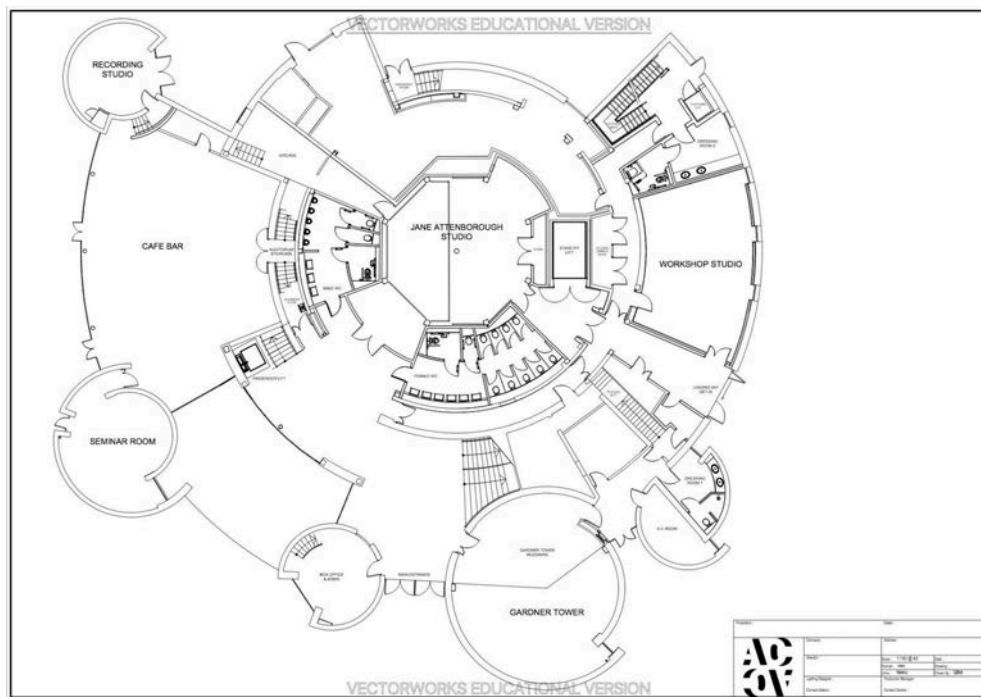
Figure 1: ACCA's Ground floor plan

9.2.1 LANDSCAPE WITH ARGONAUTS

The single entrance/exit of the performance lead to the corridor of the workshop studio. Conceptually and structurally that space was linked to *Landscape with Argonauts*. Despite some spatial adaptations, this scene was basically the same as *Asbestos* and *Quicklime* (experiments 7 and 8), in which

the performers followed the instructions of a speech-to-text application.[53]

Figure 2: Detail from *Landscape with Argonauts*

9.2.2 MEDEA MATERIAL

Walking through the maze-like corridors, the audience could arrive to a room with no human performers in it. The first impression it gave was that of a room without sound. Despite a wedding dress hanging from the ceiling and two screens placed at each side of the dress, the room was otherwise empty. This was the Gardner Tower, the *Medea Material* scene. When an audience member entered the room a motion-capture camera picked up their movement that triggered a computer-generated song, sung by a vocaloid. The

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[53] For audience performer interaction in Landscape with Argonauts see Digital appendix/ Documentation. More specifically for audience-performer storytelling see "landscape-1.mov", for performer guiding audience through task see "landscape-2.mov", for general interaction see "landscape-3.mov", the dressing-up task can be seen in "landscape-4.mov", and the envelope task in "landscape-5.mov".

Vocaloid was accompanied by symphonic library instruments and the overall performance had a strong operatic character suggesting late romantic/early expressionism aesthetics. The music material was generative, based on probabilities and following tendency-masked shapes. Meanwhile, the two screens —as if in dialogue with each other— would alternate the text that was sung by the vocaloid. The text sung and projected was Medea's monologue from *Medea Material.*

I wanted the only singer that sang text melodically from Müller's Medea sequence to be a virtual one, not a human. This non-human singer strived to express herself employing the aesthetics of romantic operatic expressivity. This aesthetic choice does not differ much from the use of a female text-to-speech algorithm narrating in *Landscape with Argonauts*, the difference is that the vocaloid also expressed musically. Medea in *Medea Material* is a cyborg, "a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (Haraway, 2000, 291). The entire *Landscape with Argonauts* is controlled by the announcements of a female voice implying a technological yet feminine omnipresence suggesting "the ubiquity and invisibility of cyborgs" (ibid, 294). Such a pervasive presence also relates to Marranca's notion of the ubiquity of Müller's Medea as a landscape (Marranca, 1988).

As much as Marranca couples the abused female figure with the landscape, Haraway merges her with technology; she becomes "the spectre of the ghost in the machine" (Haraway, 2000, 293). Both approaches have a profound emancipatory purpose; cyborg "is the final appropriation of women's body in a masculinist orgy of war" (ibid, 295). Müller's Medea in *Medea Material* "want[s] to break mankind apart And live into empty middle [her] No woman and no man" (Müller, 1984, 132) a post-gender binary notion that is also supported by Haraway, as "the cyborg is a creature in a post-gender

world" (Haraway, 2000, 292). To reference this post-gender nature of Medea Cyborg, the vocaloid's voice was tuned right in the middle between male and female voices. This scene as much as the way the performance was controlled and managed was about the cybernetic notion of emergence through a cyborg that embraces, as a network, the entire performance landscape. The audience - computer interaction (MoCap) can be seen in Digital appendix/ Documentation video file "MM-MoCap-interaction.mov".

Figure 3: Detail from *Medea Material*

9.2.3 DESPOILED SHORE

The Jane Attenborough studio was assigned to *Despoiled Shore*. Müller places the scene in a peepshow, and that was my approach as well. The room was not accessible to the audience. In order for one to experience the performance they had to be selected from "Medea machinery", the theatrical landscape herself. The motion capture system in Gardner Tower (*Medea Material*) had a counting system, after the nth time a person passed in front of the camera, the vocaloid stopped singing, and a text-to-speech voice congratulated the person

in the room, asking them to stay there. At the same time a message was sent both to *Landscape with Argonauts* and *Despoiled Shore* rooms. The message told the performers to prepare for the solo scene in *Despoiled Shore*. The machinery would also choose and announce to the performers which solo action would that be, as there were five different possible actions. None of the performers knew when the *Despoiled Shore* scene would take place and which action would that be. Once the Medea algorithm called the action, the performer in *Despoiled Shore* (Stephanie Pan) had a limited amount of time to prepare the room accordingly, whilst the *Landscape with Argonauts* performers had to go to Gardner Tower to pick up the machine's "chosen" to bring them to *Despoiled Shore*. The *Despoiled Shore* scene was supposed to be experienced as a one-to-one by the "chosen", whilst the rest of the audience had to observe the observer and the subject together, as though they were watching somebody attending a peepshow.

Figure 4: Different scenes from *Despoiled Shore*

No other actions were taking place during *Despoiled Shore* and all the music and sounds in the other rooms were silenced. An OSC message from the Gardner Tower (*Medea Material* scene) had stopped all processes. As soon as *Despoiled Shore* finished a similar OSC message from that computer was sent to all other machines. The message restarted the whole machinery. The threshold that triggered the entire process was reset, allowing no space for expectations from either audience or performers about when *Despoiled Shore* would re-occur[54].
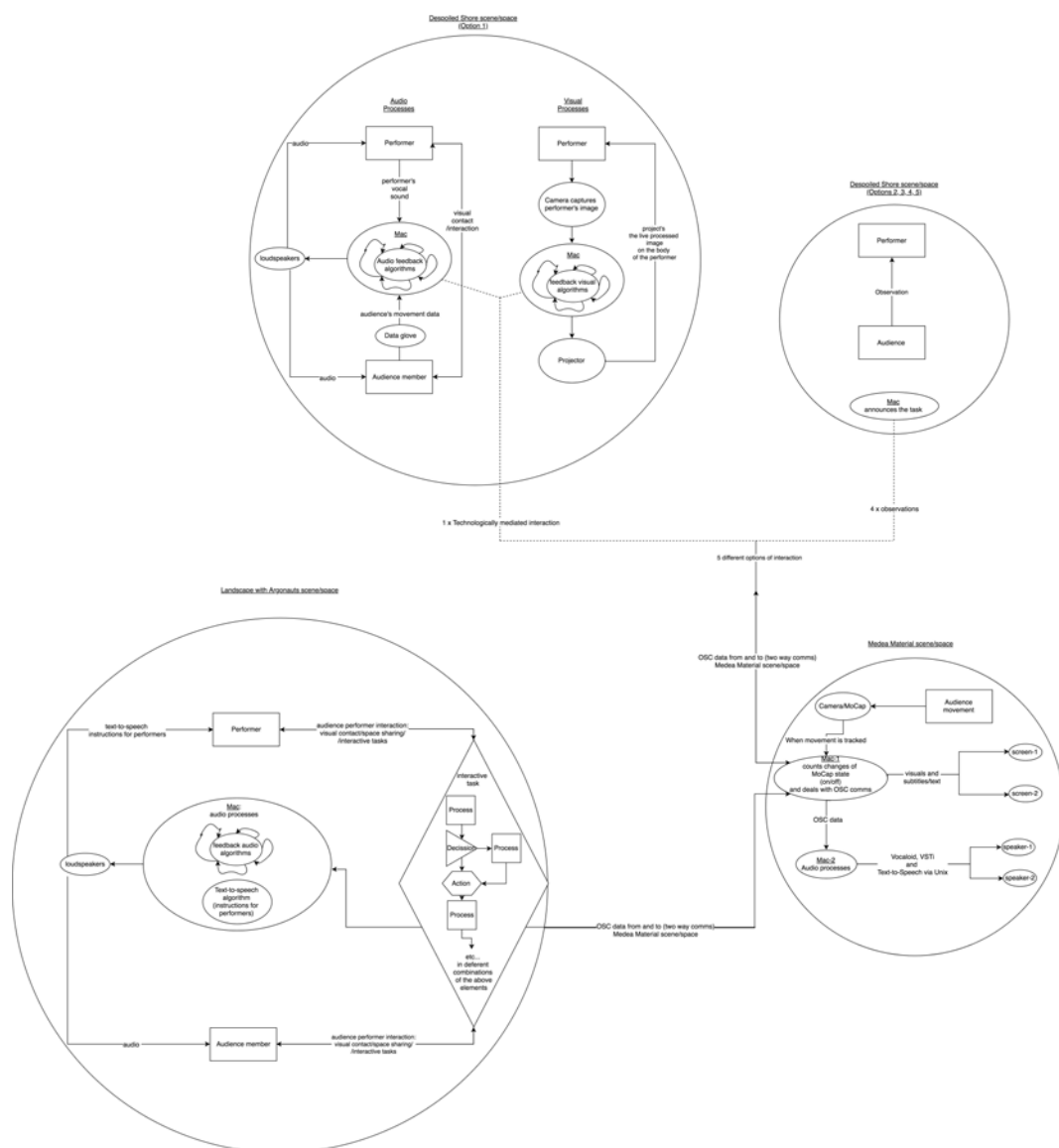

Figure 5 Signal flow and behavioural structure of the performance

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[54] For the selection process and the Despoiled Shore scene see Digital appendix/ Documentation video files "Selection+DS.mov" and "DS-scene.mov"

9.2.4 SIGNAL FLOW AND BEHAVIOURAL STRUCTURE

The performance was based on a computer network (LAN) spread within three different spaces (the three scenes of the play), all computers were communicating with each other through OSC (Figure 5). One of the two computers in *Medea Material* acted as the general server of the performance. This computer detected any human presence in the space using a MoCap system, and according to it the algorithm determined whether a change in the structure of the performance should occur and what should that change be. It then communicated that information to both computers and performers in the other two spaces. These changes in the structure manifested as a series of solo acts in the *Despoiled Shore* space. Once the solo act in *Despoiled Shore* was finished another OSC message was sent from that space back to *Medea Material* space to re-initiate the MoCap observation process. All other behavioural/interactive processes taking place (e.g. the events in *Landscape with Argonauts* space) derived from previous experiments.

9.3 STRUCTURAL COUPLING IN PERFORMANCE

Essentially the entire performance was a computer network, as the ubiquitous cyborg - Medea-machinery, controlled its structure and event occurrence, based on the audience flow in the space. Cybernetic-wise aside from the notions of cyborg and emergence the performance encompassed principles of sympoiesis (Dempster, 2000; Haraway, 2016) between machines, audience and performers. Sympoiesis derives from the biology-based cybernetic principles of autopoesis and structural coupling (Maturana, 2000). Structural coupling is the "structural dynamics" (Maturana, 2000, 14) between two systems (both human and non-human). In their dynamic relations both systems are open for changes, either as "state changes" or as "disintegrative changes" (ibid, 16). In other words, structural coupling are the changes of states between two systems

when they interact. For Maturana "living systems and their non-living medium change together congruently, forming a biosphere as a multidimensional network of reciprocal structural coupling" (Maturana, 2000, 17). From a phenomenological perspective, Maturana's structural coupling does not differ much to Simondon's individuation and transindividuation, the process of the shaping of the individual through the interaction with the other and the surrounding world.

In the context of this performance the structural coupling was established between humans and machines, suggesting an extended performance ecosystem in which the dynamic relations between the two changed each other's states either emotionally or experientially (in the case of audience and performers) or structurally in the case of the machinery. The durational and ever-changing state of the performance resonates Husserl's becoming notion, who stated that "[t]his life, as personal life, is constant becoming through a constant intentionality of development. What becomes, in this life, is the person himself. His being is forever becoming" (Husserl, 1970, 338). In a similar way this performance is a constant process of forever becoming, as it was ever altered through the changes of its states. As Haacke wrote,

> A "sculpture" that physically reacts to its environment is no longer to be regarded as an object. The range of outside factors affecting it, as well as its own radius of action, reach beyond the space it materially occupies. It thus merges with the environment in a relationship that is better understood as a "system" of interdependent processes.

(Haacke, 1968)

Similarly a performance that is organised according the audience's movements

and actions is no longer a performance, but an extended performance ecosystem or a cybernetic performance.

This work conceptually refers to "the growing symbiosis of machine relationships" (Burnham, 1968, 31), such symbiosis here was ubiquitous, following a "transparent immediacy" approach (Bolter & Gursin, 2000) and a postdigital aesthetic (Berry & Dieter, 2015), as it did not focus on the medium itself, but it alluded to it pervasively in the performance landscape.

9.4 THE SURVEY

In the online survey most of the audience described their experience as live art, the second popular description was interactive performance and the third were equally distributed between durational performance and installation. The audience deemed its immersive aspect as the most important, then the use of space and the third was the sound. All these replies underline the hybrid and multidisciplinary nature of the work. The multisensorial aspect of the work contributed to a holistic experience, as some audience members wrote: "it appealed to all my senses"; "I felt like there was a lot to explore, the experience kept revealing more about itself the longer I stayed"; "I really enjoyed how the different rooms were positioned, it gave this feeling that you could hear what was coming but could not see it. It made the performance interact with multiple senses"; "Just everything from the lighting to the haziness to the sounds and interactiveness was incredibly thought out and provided a great experience"; "[I enjoyed] the generative sounds, the level of dedication of the performers. The combination of poetry (the words on the sheets) and the robotic voice". Others appreciated the generative and evolving aspect of the work: "[I found unique] the generative aspect, things evolved and changed over time. I came back and went for an hour, so it was interesting to see how it changed".

Sound, immersion, interactivity, and the systemic nature of the performance as much as Machon's "in-its-own world" notion (Machon, 2013) were what most audience found effective in this experience: "the intensity of the atmosphere, created by the sounds, the set, and the performers. The 'other worldliness' of it"; "the possibility of interaction and sound-making as a peripheral participant, combining with the uncertainty of being able to enact these desires"; "the evolving link between all elements of the piece"; "I enjoyed the way the soundscape changed the shape of every room you entered".

The audience mostly disliked the hanging papers either because there were "too many in the way" or because "[they] felt a bit didactic". Other audience members disliked the form of the piece: "could have done with a little more structure, although I don't think it really suffered from a lack of it, this is purely a personal preference"; and "maybe could have had a stronger shape? I was a little frustrated at how difficult it was to get to see Stephanie, since she was your strongest performer by far", however the structure of the piece was not determined by me, it was determined by Medea landscape/cyborg. Others mentioned they would have liked to explore more scenes "[I] [w]anted the space as a whole to have more places/things to explore and interact with". However, they generally enjoyed the interactive aspect of the work: "it made me transgress to 'other', from a simple spectator to a participant. I felt more involved and invested on a personal level in the performance"; "Every footstep I took seemed to echo against the materials which were placed to skew my perception". Some of the most prominent descriptions of the experience were: "Chaotic; eerie; immersive; mysterious; posthuman; sonic art spa; survivalist; apocalyptic; fragmented; intimate; life in another world; sensory overload".

The audience's interpretation of the experience underlined notions from

the Müller text when they wrote that the piece was about: "Performers isolated, each with their own stories of the past, blown apart"; "desperation"; "I kept being drawn towards the idea of war/conflict"; "Sadness and Guilt. I felt there was something/someone in urgent danger of themselves or something else and I did not have any control. I could meanly become part of this danger"; particularly this last comment underlines Müller's suggestion that *Landscape with Argonauts* is a "dead star where a task force from another age or another space hears a voice and discovers a corpse" (Müller, 1984, 126).

9.5 CONCLUSIONS

I will not reiterate the outcomes already mentioned in the conclusions of the other works. The new contributions of this performance were the cybernetic notion of structural coupling. This notion resided in the core of the performance, as the performance was essentially about the interactions between human and non-human agents, organisms and environment. This performance was an ever-changing process, a process of becoming and transindividuation. The computer network that was observing the human participants changed the states of the performance converting it to what I call a *cybernetic performance ecosystem*. It was a postdramatic and posthuman theatrical landscape that through postdigital aesthetics and transparent immediacy alluded to a cyborg emergence. The role of the cyborg here equally reflected Haraway's cyborg manifesto's emancipatory notions, as much as similar notions suggested by Marranca about Medea being the —theatrical or natural— landscape. The vocaloid in this context resonates also with Simondon's notion of the "technical individual" (Barthélémy, 2013, 213). Here, the networked Medea-cyborg-landscape-Gaia with its invisible ubiquity controlled the evolution of the entire experience. However, due to the symbiotic and sympoietic nature of the piece, the environment would not

change without the presence of the audience.

Figure 6: Different scenes from *Landscape with Argonauts*

10. CHAPTER 10 – FINAL CONCLUSIONS AND REFLECTIONS

10.1 CONCLUSIONS

This practice-based research is focused on creating new immersive music theatre experiences, involving novel interactive and cybernetic methods between music, technical system, performers and audiences. Its substantial original contribution to knowledge is in the development of a series of methods for devising cybernetic and ecosystemic music theatre performances based on behavioural interactions between performers, audience and technology. Through the new aesthetic and dramaturgical possibilities that emerge from these works, the research contributes a theoretical understanding of the phenomenological and experiential aspects of these interactions. This type of performance relies on the establishment of a transindividual network between actors[55] (audience and performers), whilst being mediated by non-human agents. It is a generative performance orchestrated by computational processes, in which the author ceases to be exclusively the composer. The author is decentralised, it is a process of shared responsibility between technology, participants and an initial instigator. This performance is a version of what Adolphe Appia envisioned as the Cathedral of the future, what he described as a "free, vast, transformable space, [that] will host the most diverse events of our social and artistic life and be the place par excellence where dramatic art will flourish, with or without spectators'' (Norman, 2012, 121). Appia's Cathedral of the future suggests a posthuman as much as a non-anthropocentric conceptual and physical performance space that fosters social interaction among its participants. The performances presented here underlined a computationally mediated social interaction. This acknowledgement of non-human mediators in the assembling process of the

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[55] The term actors here refers to Actor-Network Theory.

social, situate the posthuman perspectives of Latour's Actor-Network Theory at the core of the performance.

This context of social re-assembly between the audience and performers fosters the re-conceptualisation of these roles, as many participants in these experiences were often unable to distinguish who performed and who attended as audience members. Both the audience and performers were essentially agents, actants or participants in a process socio-performative interaction. To differentiate the two I am inclined to rename performers as "resident-agents" and audience as "visiting-agents", suggesting that the visiting-agents may become residents of the performance landscape. These re-conceptualisations suggest processes of individuation, the notion upon which one establishes their identity through their interaction with their surroundings. More specifically, the non-human mediators in this context had a transindividuating agency for the human participants. Thus, these performances were essentially what Simondon calls as "theatres of individuation" (Barthélémy, 2013, 213), the context in which individuation takes place.

Another phenomenological notion very prominent in this work was *present-at-hand* (Heidegger, 1962), as the audience and performers were confronted with a first-hand situation not previously experienced. The audience often did not know what their role was in these spaces, as they did not have a pre-assigned role, they somehow had to design it themselves. The first encounter with this experiment was always underlined by a *present-at-hand* feeling, as essentially they asked themselves "What's going on here?" and "what am I supposed to do?"

There were a number of cybernetic principles that accompanied these performances. The feedback loop is the most prominent one, as feedback loops were happening at all levels of the performance: from the processes

hardcoded in the AV algorithms, to different types of technologically mediated feedback between audience and performers. Essentially these performances were structured upon fractal-like layers of feedback, contributing to the experience's self-organisation. These feedback loops contributed towards the homeostatic nature of the performance. The performances essentially were self-organised, they were sympoietic ecosystems that run according to certain pre-defined rules, but they evolved autonomously through the interactions of their parts. In that respect the performance "environment is not a given but rather is produced and defined by the system" (Rampley, 2009, 114) and it was the result of the "continual movement between self-reference and hetero-reference" (ibid) of its participants.

What was also prominent in the process was the second wave cybernetic notion of the observer of a system becoming part of the system observed. The audience that is traditionally acknowledged as the observer of theatre or music theatre[56], became the subject of observation, as either the technology (IRs, MoCap) or the performers reacted to them by observing their actions. This feedback loop of observations underlines the codependency of all elements (audience, performers and technology) and the responsibility they all bear for the development of the performance. The interaction of the audience with this environment suggested ecosystemic and biology-derived cybernetic notions. The change of states of either humans (audience - performers) or machines as a result of the dynamic cyclical process of interaction, suggested the notion of structural coupling. Finally, the notion of emergence either through the conception of the performance as a stand-alone organism, or through musical and dramaturgical affordances that made references to Cyborgs was strongly present in this work.

As compositional tools for these performances I borrowed processes

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[56] The word theatre derives from the Greek *θεάομαι* (theáomai = "to observe").

and concepts from both interactive art and immersive practices. The use of data gloves has appeared extensively in both theatre and music theatre. However, based on my background research, my performances seem to be the first to use a data glove as an interface between audience and performers. Although I also used a joystick in one of the experiments, I decided that the glove was much more versatile and effective, as it allowed a smoother manipulation of many parameters simultaneously, and many more expressive possibilities. I also borrowed tools used in interactive installation practices, such as infrared sensors (previously used in Pain's *Map1*) or motion-capture cameras (previously used in Rokeby's *VNS*). These devices distributed scores, controlled parameters of the generative music, or even managed the entire performance structure.

From the field of immersive theatre I was inspired by non-computer based conditional processes such as the principles of Process, Decision and Action. These processes, together with the audience's freedom to move in space, allowed the audience to co-devise their experience in a sympoietic manner. Other principles borrowed from immersive theatre were: the notion of "in-its-own world"; the fragmentation of the space that contributed to single one-to-one personalised experiences; and the dense multisensory qualities that are also prominent in immersive practice. Although the stimulation of all senses may not contribute musically, it contributes to the totality of the experience.

The multisensoriality and multidisciplinarity of the work (space design, visual projections, electronic sounds, acoustic sounds, text, interactivity, movement, etcetera) underline the profound gesamtkunstwerk character of the work, as Wagner claimed "not one rich faculty of the separate arts will remain unused in the artwork of the future" (Wagner, 2008, 106). For Jean-Michel Ribes music theatre has always been about the "the fusion of the arts rather their juxtaposition" (Salszman & Desi, 2008, 266) and that is what I strove to

achieve with my work, to create a unique artistic experience comprised out of many different disciplines in which every element contributed to one overwhelming end. Even if I did not want to impose a single narrative and interpretation, as traditional opera does, the work was deemed as dramaturgically compelling.

It is debatable what classifies as "artwork of the future", however I am convinced that cybernetic performances or extended performance ecosystems are artworks of their time. As Ascott has claimed:

> the once highly differentiated arts of music, poetry, painting architecture, sculpting and acting are becoming less distinct. The media merge, and at the same time the distinction between the roles of artist and audience becomes blurred. The artwork or event is a matrix between two sets of behaviour, which through it becomes one, continuous and inter-related. Inevitably a state of perfect feedback will emerge, where we all both initiate and involve ourselves in total creative situations.

(Ascott, 2007, 191)

This description of Ascott's *behavioural synthesis,* does not only relate to the multidisciplinary aspect of my work but also to its behaviour-dependent aspect. The works required a deep and sincere endoscopic gaze from the performers in order to truly realise their tasks. Also they were profoundly dependent on the audience's behaviour.

The merging of different disciplines provides the space for observation of processes that normally take place in media. By applying the notion of *remediation* (Bolter and Gursin, 2000) on cybernetic performances, we essentially observe how music theatre has been remediated through immersive

practices as much as generative and interactive processes. In addition, the interfaces used in the performance may further suggest the remediation notions of hypermediacy —in the cases of the joystick and the glove— or transparent immediacy —in the cases of the IRs and MoCap. I was attracted by transparent immediacy, as it prevented technology from being the central focus of the experience, something that actually did happen whenever the glove was used.

Generally, I did not want to create a hypermediated mise-en-scène, I wanted technology to be suggested almost metaphysically. I envisioned the mise-en-scène as an invisible and ubiquitous interfaceless-interface rather than a space full of interactive devices for the audience to "play" with. I believe that the hypermediation of the mis-en-scéne would have diverged me from the landscape suggested in Müller's text. The invisibility of technology afforded a post-digital aesthetic, as technology was omnipresent without being the performance focus. The *digital* made its presence perceivable through the voices in the landscape, either by amplifying and manipulating the voice of the singer bringing to the foreground the sort of posthuman and cyborg *jouissance* of her voice, i.e. the mechanically enhanced grains of her tongue, glottis and larynx; or through the use of speech-to-text algorithms and vocaloids.

The use of artificial voices and the way they were distributed in the mise-en-scène alluded, in a postdramatic manner, to the proto-posthuman notions present in Müller's text. Through my interpretation of Medea as a Cyborg that was expanding invisibly in the entire theatrical landscape, I was attempting to reinstate the emancipatory notions of Hararway's cyborg manifesto, as much as Marranca's analysis of Müller's Medea. Medea-Cyborg was the machinery-host upon which the entire performance was balanced. All others, performers and the audience, were guests on her performance-body-landscape. She controlled everything, and if she collapsed the entire performance would collapse as well.

Performers and audience were Medea-Cyborg's cogwheels/children that she could swallow in a reverse anatomy process if she imploded. All the interactions in her landscape were controlled, as much as observed by her vigilant eye.

The work was an open postdramatic interpretation of Medea sequence, I did not want to put music over the text or to present it linearly or even to assign characters to performers. The performers, as much as the audience were themselves, not actors representing others. They were following a deep introspective process to execute the tasks that the Medea-machinery had assigned to them. Hence Müller's Medea sequence was presented here as material, as much material was Euripides' Medea for Müller. In addition, due to the postdramatic interpretation of the work, the performance was not about communication or transmission of information, as cybernetics claim that "only communication can communicate" (Luhmann, 2002, 169). These works were about behavioural interpretations, or interpretations of behaviours that were generated through interactive processes.

The possibility of a simultaneous presentation of the three scenes intrigued me to disperse the performance in space and to create, through network technologies, a *Rhizomatic* performance, in which different events happened in different places simultaneously yet everything was linked by a network. Essentially these performances were processes of *becoming* as they were evolving constantly through the change of the chaotic and non-linear state-changes of their particulars. They were magmatic, never-static despite being homeostatic. They were profoundly behavioural as they were affected by the different behaviours of different audiences in different venues and occasions. They were also never the same, as each time the space, the light, and the audience's culture contributed with different affordances. They were a type of homeostatic organism affected by its internal DNA and its interactions

with the external stimuli, as essentially both the audience as much as the performers were external variables to the performance's DNA, the system, Medea-landscape.

This pervasive notion of landscape, a notion that has its roots in both Müller's and Stein's works, extensively influenced the development of my work. Through it the experiences devised challenge the traditional understanding of the term performance and its applicability in this context. As mentioned before both "performers" and "audience" had a performative role in the context of the experience, they were both observers and observed. The ANT's notion of *actant* describes best the interchangeable role of both performers and audience through their interactions in the socio-performative context of these works. These actants are interacting nodes within the performance landscape, the performance ecosystem based on the mutual responsibility between "resident-actants" (i.e. performers), "visiting-actants" (i.e. audience) and technology. This inclusive and inter-dependent aspect of the landscape called for a term that would define these works best. Audience and performers suggested the term "human-installation" to underline the durational and generative aspects of these works. The terms that I used extensively throughout my research study were "extended performance ecosystems", and "cybernetic performances". Other terms that may apply could be "immersive/generative music theatre performances", "immersive/generative performance landscapes", "events", "frameworks for interaction" or "performance encounters", as different definitions resonate better with different aspects of these works.

10.2 REFLECTIONS

Closing this text and essentially the entire PhD process to which I dedicated at least four years of my life, I should mention as a sort of reflection the *rhizomatic*

character of the process that was operating and developing simultaneously inside me and outside me on many different levels. This research process was expanding simultaneously in different and often-uncharted territories for me; it operated in aesthetic, personal and scientific levels. The relation established between the work and myself was profoundly cybernetic and transindividual, as through its development I developed as well and we informed each other as two communicating vessels. I was the observer that affected the observing subject whilst being affected by it. What I also found fascinating yet challenging was my dual role in this project both as a maker and researcher, as I had to critically scrutinise and analyse my own work by questioning my decisions and their effects, as though someone else had produced it. This PhD was a unique opportunity to strengthen my compositional skills by exploring uncharted territories of music theatre making. I learned how to be critical both about my own work, and a type of process that has never been previously employed. If I had not followed a research approach surveying the experiences of the audience and performers, I would not have come across the findings that contributed to and shaped this experience and this is something I solely owe to the research methodology. This work, both written and performative is a snapshot of myself both as researcher and maker in this moment in time and I enjoyed every moment of it, *a posteriori* even the most frustrating ones.

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12. DIGITAL APPENDIX / DOCUMENTATION

Experiment 1 DOI (Digital Object Identifier):

https://doi.org/10.25377/sussex.c.4372976

Experiment 2 DOI:

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Experiment 3 DOI:

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Experiment 6 DOI:

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Experiments 7 & 8 DOI:

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Experiment 9 DOI:

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